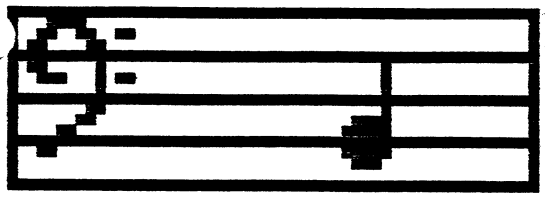
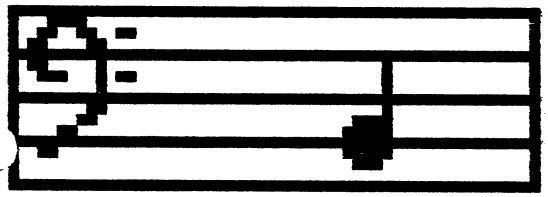


MUSIC TUTOR

By Charlie Parker

JANUARY, 1982



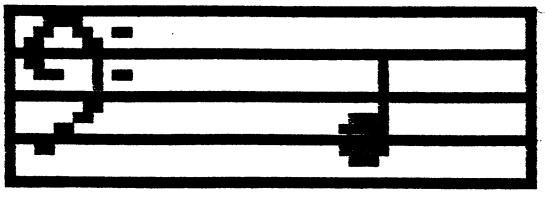
MUSIC TUTOR

By Charlie Parker

JANUARY, 1982

To Ed.

Charlie Parker



MUSIC TUTOR

By Charlie Parker

JANUARY, 1982

MUSIC TUTOR

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SECTION I

GENERAL INFORMATION

INTRODUCTION

Welcome to MUSIC TUTOR! MUSIC TUTOR is a series of computer quizzes and exercises to help the music student learn more about music. Each quiz or exercise is written in BASIC and is driven by DATA STATEMENTS. Using data statements to drive a quiz or exercise provides for unlimited variations. This allows the student to perform a quiz or exercise repeatedly at varying levels of difficulty until the topic is mastered. This also allows a quiz or exercise to be adapted to the particular needs of a student.

Data statements required to drive an exercise or quiz have been kept as simple as possible to assure ease of use. MUSIC TUTOR performs extensive validation of all data statements at the beginning of each exercise to insure that the student can perform the exercise without interruption caused by an invalid data statement.

Where appropriate, a TEACHING MODE is provided in the exercises which allows you to use an exercise as a teaching tool. Teaching mode may also be used during an exercise to provide assistance to a student having difficulty.

An INTRODUCTION TO MUSIC TUTOR program is provided which introduces the new student to MUSIC TUTOR and to the computer. Through interactive design, the program introduces the student to the keys on the computer keyboard and to the sounds that are commonly used throughout the MUSIC TUTOR quizzes and exercises.

The QUIZ MASTER UTILITY program provides the option of performing the quiz on the screen in an interactive mode or printing the quiz on a printer.

Other programs included in MUSIC TUTOR are:

PIANO KEYBOARD RECOGNITION PRACTICE
NOTE RECOGNITION PRACTICE
NOTE COUNTING PRACTICE
MEASURE COUNTING PRACTICE
KEY SIGNATURE PRACTICE.

MUSIC TUTOR comes ready to run with data statements for multiple levels of difficulty for each exercise, and data statements for a quiz on LUDWIG VAN BEETHOVEN.

MUSIC TUTOR makes extensive use of the graphics, color and sound capibility of the computer, and makes learning fun for the student.

HOW TO USE MUSIC TUTOR

DISK VERSION:

Two types of files are on disk. The first type of file is the actual MUSIC TUTOR programs. The programs were saved to disk in the tokenized form (the SAVE command was used to save the programs).

To load a program, enter LOAD "D:<filename>" and hit the RETURN key. The filenames of the programs on disk are:

INTRODUCTION TO MUSIC TUTOR	-	D:INTRO
QUIZ MASTER UTILITY	-	D:QUIZMAST
KEYBOARD RECOGNITION PRACTICE	-	D:KEY
NOTE RECOGNITION PRACTICE	-	D:NOTE
NOTE COUNTING PRACTICE	-	D:COUNT
MEASURE COUNTING PRACTICE	-	D:MEASURE
KEY SIGNATURE PRACTICE	-	D:KEYSIG

Only the INTRODUCTION TO MUSIC TUTOR program contains data statements when loaded and can be RUN immediately after loading.

The data statements required to drive the other programs make up the second type of file on disk. These files (which contain data statements) were saved to disk in the untokenized form (the LIST command was used to list them to disk).

To enter the data statements first LOAD the desired program then type in ENTER "D:<filename>.Lx" and hit the RETURN key. Where x is the level number. For example, to run level 1 of NOTE COUNTING PRACTICE first load the program by typing in LOAD "D:COUNT" then enter level 1 by typing in ENTER "D:COUNT.L1". The exercise will then be ready to run.

The data statements required to run the QUIZ MASTER UTILITY program do not follow the same naming conventions as the exercises. Since quizzes can be on virtually any topic, it is desirable to have a more descriptive name. MUSIC TUTOR comes with data statements for one quiz. It is a quiz on LUDWIG VAN BEETHOVEN and is named "D:BEETHOV.Q". Note the extender name of '.Q' to identify the file as containing data statements for the QUIZ MASTER UTILITY program.

HOW TO USE MUSIC TUTOR (Cont.)

TAPE VERSION:

The tape version of MUSIC TUTOR consists of four tapes. They contain the following:

INTRODUCTION TO MUSIC TUTOR
QUIZ MASTER UTILITY PROGRAM
LUDWIG VAN BEETHOVEN QUIZ
KEYBOARD RECOGNITION PRACTICE
NOTE RECOGNITION PRACTICE
NOTE COUNTING PRACTICE
MEASURE COUNTING PRACTICE
KEY SIGNATURE PRACTICE

Each of the exercises (those ending in the word 'practice') has data statements for multiple levels of difficulty. Each data statement has the word REM after the line number and before the actual data statement. This causes the lines to be REMARK lines. To run an exercise first load the program. To load a MUSIC TUTOR program from tape, place the tape in the tape player, press the PLAY key, type in CLOAD then hit the RETURN key TWICE. After the exercise is loaded, select the desired level by deleting the word REM from the data statements for the desired level. Remarks have been used in the data statements to aid you in identifying the various levels. The INTRODUCTION TO MUSIC TUTOR program and the LUDWIG VAN BEETHOVEN QUIZ program may be loaded and run without modification to the data statements.

The LUDWIG VAN BEETHOVEN QUIZ IS described in detail under the documentation for the QUIZ MASTER UTILITY program.

CREATING DATA STATEMENTS

Since all of the programs in MUSIC TUTOR are driven by data statements, you can create your own quizzes and exercise variations with virtually no prior experience in computer programming. The data statements required to drive an exercise or quiz have been kept as simple as possible to make it easy for you to create your own data statements.

To create data statements, enter only the data statements, then LIST them to disk. Note that the first data statement must begin on line 1000 and must contain the title of the quiz or exercise. See the TITLE ALIGNMENT ROUTINE in the next section for details of the data statement restrictions for the title. For details of the format of the remainder of the data statements, see the individual program descriptions.

To list the data statements to disk enter LIST "D:<filename>" and hit the RETURN key.

It is suggested that when using the tape version of MUSIC TUTOR that the entire program be saved to tape with the desired data statements since loading a program from tape and then entering the data statements from tape would be a time consuming process.

To save a program to tape, place the tape in the tape player, press the PLAY and RECORD keys at the same time, type in CSAVE, then hit the RETURN key TWICE.

COMMONLY USED ROUTINES

Certain routines are commonly used throughout the MUSIC TUTOR quizzes and exercises. For ease of reference, they are documented here.

TITLE ALIGNMENT ROUTINE

The title alignment routine reads the quiz or exercise title from the data statement on or after line 1000, and displays the title on the screen in graphics mode 2 (large letters). Each 'word' in the title is displayed on a separate line on the screen. Words in the title separated by a reverse video blank are considered to be a single word. To enter a reverse video blank first hit the ATARI key then the space bar. For example, "THEORYbQUIZ" where the 'b' is a reverse video blank would print on the screen as

THEORY QUIZ

However, "THEORYbQUIZ" where the 'b' is a regular space would print on the screen as

THEORY
QUIZ

The title may be displayed in up to four different colors on a black background by combining lower case letters, upper case letters and reverse video. Colors used are as follows:

Regular video upper case	-	gold
Regular video lower case	-	light green
Reverse video upper case	-	blue
Reverse video lower case	-	red

Note that colors may vary depending on the television or monitor being used.

The title must meet the following constraints:

- It cannot be more than 12 words long.
- Total length of the title including blanks between words cannot exceed 38 characters.
- Any one word in the title cannot exceed 20 characters.
- The data statement containing the title must be on or after line 1000.

ROUTINES (Cont.)

ERROR MESSAGE ROUTINE

At the beginning of each exercise, all of the data statements are checked for validity. Thus, should an invalid data statement be encountered, an error message will be displayed before the first item on the exercise is displayed. The error message will be in the following format:

INVALID DATA STATEMENT AT LINE NUMBER <line number>

<description of error>

LAST DATA STATEMENT READ -

<last data statement read>

CORRECT THE DATA STATEMENT AND RERUN

<listing of line containg error>

When the error occurs because a required data statement is missing then the line number listed will be 32767.

Since the data statements are checked at the beginning of each exercise, it is recommended that you RUN the exercise whenever you change any data statements. If the first item on the exercise is displayed, then no invalid data statements will have been found. You can then cancel the exercise by hitting the SYSTEM RESET key and RUN the exercise again when the student is ready. This will avoid possible delays when the student is present.

See the individual program descriptions for details of the error messages and their meaning.

Beacuse of the possible volume of data statements in a quiz, they are not checked for validity at the beginning of the quiz.

ROUTINES (Cont.)

KEYBOARD INPUT CONTROLLER

This routine is performed when the student is required to enter a response to an item in a quiz or exercise. As the name of the routine implies, it's purpose is to control or limit the keys that can be used by the student to make an entry. Should the student hit a key that is not valid for the particular quiz or exercise, then the entry will be ignored and the 'invalid key' sound will be made by the computer.

Since younger students may have a tendency to hold down the keys on the computer keyboard, the keyboard input controller routine will not repeat a key that is held down.

The routine also checks to see if the ATARI (reverse video) key or lower case key have been hit and will adjust the entry made by the student accordingly. Thus for example, should the student enter a rererse video lower case 'a', the entry will be changed into a regular video upper case 'A'. This is to avoid confusion on the part of the student should the student accidentally hit the reverse video key or the lower case key.

Note that any entries made when using TEACHING MODE do not go through the keyboard input controller routine.

ROUTINES (Cont.)

TEACHING MODE

Where appropriate, the exercises contain a teaching mode. The purpose of teaching mode is to allow you to use the exercise as a teaching tool. For example, in NOTE RECOGNITION PRACTICE, you can enter teaching mode, key in the name of a note, and the note will be displayed on the screen.

You can use teaching mode at any time during an exercise since the current problem is 'saved' when you enter teaching mode and 'restored' when you exit teaching mode.

Teaching mode can be of great assistance to a student having difficulty with a particular exercise.

To enter teaching mode hold down the OPTION key and hit the RETURN key. The words 'TEACHING MODE' will be displayed and you will be asked to enter the name of the item to be displayed. After making the appropriate entry, hit the RETURN key. The desired display will be made and another entry will be requested. To exit teaching mode simply hit the RETURN key without making an entry.

Should you make an invalid entry then the words 'INVALID ENTRY' will be displayed and after a short pause another entry will be requested.

See the individual program descriptions for details of the valid entries that may be made in teaching mode.

ROUTINES (Cont.)

STUDENT SCORE ROUTINE

At the end of each quiz or exercise, the student's score is displayed. Large text (graphics mode 2) is used for the display. The display is in the following format:

YOU GOT x OUT OF y
RIGHT ON THE FIRST TRY
CONGRATULATIONS !

Where 'x' is the number of items that the student answered correctly on the first try, and 'y' is the number of items on the the quiz or exercise.

Only if the student got all of the answers correct on the FIRST try will the word "CONGRATULATIONS !" be displayed and the 'all right answers' sound be made by the computer.

In the text window at the bottom of the screen, the following lines will be displayed:

WOULD YOU LIKE TO REPEAT THE EXERCISE?
(ENTER Y OR N)

The student can repeat the quiz or exercise by hitting the letter 'Y'. Hitting the letter 'N' will end the program and return control to the BASIC editor.

FORMAT OF PROGRAM DOCUMENTATION

The following pages contain the documentation for each of the MUSIC TUTOR programs. The documentation for each program is divided into seven sections. They are:

1. CONCEPTS PRESENTED.

   This section describes what level student would benefit from the exercise. The concepts presented in each level of difficulty are listed.

2. PROCESS.

   This section describes how to load the program, how to enter the desired level, and the events that take place during the running of the exercise.

3. VALID ENTRIES.

   Described here is the format of the valid entries that can be made by the student and by the instructor.

4. TEACHING MODE.

   If the exercise contains a teaching mode, then instructions for using teaching mode are listed. Instructions include when to use teaching mode, how to enter teaching mode, and how to exit teaching mode.

5. FORMAT OF THE DATA STATEMENTS.

   Details of the format of the data statements required to drive the quiz or exercise are given here.

6. ERROR MESSAGES.

   This section describes each possible error message that can be produced by the exercise. Information is given on the cause of each error message and how to correct the data statement that caused the error.

7. EXAMPLES.

   Examples of data statements are included in this section along with a complete explaination of each example.

SECTION II

INTRODUCTION TO MUSIC TUTOR

INTRODUCTION TO MUSIC TUTOR

CONCEPTS PRESENTED

INTRODUCTION TO MUSIC TUTOR is for the new music student who is unfamilar with the computer. It introduces the student to the computer keyboard and the sounds that are commonly used throughout the MUSIC TUTOR quizzes and exercises. By interacting with the computer, the student learns to control the functions performed by the computer. For example, the student tells the computer when to continue, repeat a section, or make a specific sound.

By having the student enter his or her name, then using the students name in the text, the program becomes personalized to the student.

One section of INTRODUCTION TO MUSIC TUTOR discusses the following keys on the computer keyboard:

The SPACE BAR
The NUMBER KEYS
The BACKSPACE KEY
The RETURN KEY

The student is given the name of each key and the function that the key performs. As each key is discussed, the student is required to hit the key to continue. This insures the student is able to find the key on the computer keyboard.

Another section of INTRODUCTION TO MUSIC TUTOR covers the sounds that are commonly used throughout the MUSIC TUTOR quizzes and exercises. Specific sounds discussed are:

The INVALID KEY SOUND
The RIGHT ANSWER SOUND
The WRONG ANSWER SOUND
The ALL RIGHT ANSWERS SOUND

The INVALID KEY SOUND is produced when the student hits a key on the computer keyboard that not valid for a particular exercise or quiz. For example, in NOTE RECOGNITION PRACTICE the student must identify the name of a note. The only valid entries are the letters 'A' through 'G'. If the student makes an entry other than the letters 'A' through 'G' then the INVALID KEY SOUND will be made by the computer and the entry will be ignored.

INTRODUCTION TO MUSIC TUTOR

CONCEPTS PRESENTED (Cont.)

The RIGHT ANSWER SOUND is produced when the student correctly answers an item in a quiz or exercise.

The WRONG ANSWER SOUND is produced when the student does not correctly answer an item in a quiz or exercise.

The ALL RIGHT ANSWERS SOUND is produced when the students score is displayed and the student has gotten all of the items on the quiz or exercise correct on the FIRST try.

A short quiz is given at the end of INTRODUCTION TO MUSIC TUTOR to allow the student to use the concepts presented and as reinforcement for the material presented.

At the completion of INTRODUCTION TO MUSIC TUTOR the student will be able to:

Effectively use the keys on the computer keyboard to enter responses to an item on a quiz or exercise.

Use the BACK SPACE key to correct an item that was entered incorrectly.

Determine from the sound made by the computer whether an item on a quiz or exercise was answered correctly or incorectly.

Determine from the sound made by the computer that a key on the computer keyboard was hit that is not a valid key.

Have an understanding of the types of exercises contained in MUSIC TUTOR, and how the MUSIC TUTOR quizzes function.

INTRODUCTION TO MUSIC TUTOR

PROCESS

1. Load the program.

   For the disk version, place the MUSIC TUTOR disk in the disk drive, type in the following then hit the RETURN key:

   ```
   LOAD "D:INTRO"
   ```

   For the tape version, place the INTRODUCTION TO MUSIC TUTOR tape in the tape player, press the PLAY key, type in CLOAD, then hit the RETURN key TWICE.

2. When the student is prepared, then RUN the program by typing in RUN then hitting the RETURN key.

3. The first display will be the title. While the title is being displayed, the computer will play the notes from a short finger exercise. This will allow you the adjust the volume accordingly.

4. The next display will be an introduction to MUSIC TUTOR. At the bottom of the screen the message "HIT THE LETTER 'C' TO CONTINUE" will be displayed.

5. When the student hits the letter 'C' on the computer keyboard, the program will guide the student through the various keys on the keyboard. As a part of the introduction to the keyboard, the student is asked to enter his or her name. At the end of this section the student is given the option of repeating the section.

6. The next section introduces the student to the sounds that are commonly used throughout the MUSIC TUTOR quizzes and exercises. The student instructs the computer to produce a sound by hitting a specific key for each sound.

7. After the section on sounds, the student is given a three question quiz to reinforce the concepts presented. At the end of the quiz the students' score is displayed.

8. After a few brief closing statements the student is given the option of repeating the entire INTRODUCTION TO MUSIC TUTOR.

INTRODUCTION TO MUSIC TUTOR

VALID ENTRIES

In general, the student is restricted to hitting only the keys specified by the program. This varies from section to section depending on the topic discussed in the section.

TEACHING MODE

INTRODUCTION TO MUSIC TUTOR does not contain a teaching mode.

FORMAT OF THE DATA STATEMENTS

As with the other MUSIC TUTOR programs, INTRODUCTION TO MUSIC TUTOR is driven by data statements. The format of the data statements is the same as the QUIZ MASTER UTILITY program. See that program for details.

ERROR MESSAGES

The error messages that may be produced are the same the error messages that may be produced by the QUIZ MASTER UTILITY program. See the description for that program for details.

EXAMPLES

See the QUIZ MASTER UTILITY program for examples.

SECTION III

QUIZ MASTER UTILITY

QUIZ MASTER UTILITY

CONCEPTS PRESENTED

The QUIZ MASTER UTILITY program allows you to develop a quiz or instructional program on any topic desired. As with the other MUSIC TUTOR programs, it is driven by data statements. The data statements can be grouped into two types. They are CONTROL COMMANDS and TEXT. The CONTROL COMMANDS tell the program to perform a specific function such as clear the screen, allow response to a question, indent the text, and so forth. See FORMAT OF DATA STATEMENTS below for a complete description of each control command.

The other type of data statement is TEXT. The text is what is displayed on the screen or printed on the printer (if the PRINT option has been selected).

MUSIC TUTOR comes with data statements for a quiz on LUDWIG VAN BEETHOVEN. The quiz is only a sample of what can be done with the QUIZ MASTER UTILITY. The INTRODUCTION TO MUSIC TUTOR program was developed using the QUIZ MASTER UTILITY program as a base.

The LUDWIG VAN BEETHOVEN QUIZ presents information on the composers life and music. A short sample of the composers work is played by the computer.

After completing the quiz the student will:

Know the period of time in which the composer lived.

Know the location of the countries in which the composer was born, lived, and completed his greatest works.

Have an understanding of the influences that played a major part in the composer's life.

Know the names of the compositions for which the composer is most well known.

Know the highlights of the composers life.

QUIZ MASTER UTILITY

PROCESS

1. Load the program.

   For the disk version, place the MUSIC TUTOR disk in the disk drive, type in the following, then hit the RETURN key:

   ```
   LOAD "D:QUIZMAST"
   ```

   After the program is loaded, then use the ENTER command to enter the data statements for the desired quiz or instructional program. To enter the data statements for the quiz on LUDWIG VAN BEETHOVEN, type in the following and hit the RETURN key:

   ```
   ENTER "D:BEETHOV.Q"
   ```

   For the tape version there are two files. One file contains only the QUIZ MASTER UTILITY program without any data statements. Use this file to develop your own quizzes and instructional programs. The other file contains the QUIZ MASTER UTILITY program complete with data statements for the quiz on LUDWIG VAN BEETHOVEN. To load either file, place the tape in the tape player, press the PLAY key, type in CLOAD and hit the RETURN key TWICE.

2. When the student is prepared, RUN the program by typing in RUN and hitting the RETURN key.

3. What happens next depends on what option was selected. If the PRINT option was selected then the quiz will print on the printer and the program will end. The student can then take the quiz on paper without using the computer. The answers to the quiz questions can be marked on the paper.

If the screen option was selected, then the quiz can be performed on the computer in an interactive mode.

4. The first display will be the title of the quiz.

5. The next display will be a brief introduction and a request for the student to enter his or her name. The program will then display the student's name and ask if it is correct. If the student enters 'NO' then the program will allow the name to be reentered.

QUIZ MASTER UTILITY

PROCESS (Cont.)

6. Instruction on answering the questions is given next. It is explained to the student that the answer to a question will be displayed if the question has not been answered correctly by the third try or if the student types in a question mark (?) in response to a question.

7. What happens next depends on the data statements entered. This is the actual beginning of the quiz. Text from the data statements will be displayed on the screen.

8. At the end of the quiz the student's score is displayed and the student is given the option of repeating the quiz.

VALID ENTRIES

The student may use any of the numeric keys, alphabetic keys, or spacial character keys (question mark, period, quote, ect.). The BACKSPACE key may also be used for correction. Pressing any of the control keys such as CLEAR, INSERT, ESC, ect.) will result in the 'invalid key sound' and the entry will be ignored.

TEACHING MODE

The QUIZ MASTER UTILITY program does not provide for a teaching mode.

QUIZ MASTER UTILITY

FORMAT OF THE DATA STATEMENTS

The first data statement must begin on or after line number 1000 and must contain the title of the quiz. See SECTION I - GENERAL INFORMATION for more information regarding the title.

The next data statement is the one that determines whether the quiz will be printed on the printer or displayed on the screen. To send the quiz to the printer, the data statement must contain only the word 'PRINT' and must be in upper case letters. To send the quiz to the screen, the data statement must contain only the word 'SCREEN' and must be in upper case letters. Any value other than 'PRINT' or 'SCREEN' will result in an error.

Following the option data statement is the actual quiz. The data statements for the quiz are made up of two types - CONTROL COMMANDS and TEXT. TEXT is the information that is to be displayed on the screen and must always have a length greater than one since text with a length of one will always be interpreted as a control command. Text may contain upper case and lower case letters as well as numbers and special characters.

Since the comma (,) is used in data statements to separate data elements, then text containing a comma (where the comma is to be printed or displayed) must be entered in a special way. To use a comma as text, enter two consecutive commas (,,) in the data statement. This will cause an 'empty' data statement to be created. The QUIZ MASTER UTILITY program will interpret the empty data statement as a request to insert a comma into the text.

Any data statement with a length of one will be interpreted as a control command. Valid control commands are :

INDENT TEXT....[I]

The indent command will perform the following:
- Begin a new line of text.
- Read the next data statement to get the the number of spaces to indent.
- Insert the requested number of spaces into the beginning of the text line.

The data statement containing the number of spaces to indent must contain a numeric value or an error will occur.

QUIZ MASTER UTILITY

FORMAT OF THE DATA STATEMENTS (Cont.)

JUSTIFY TEXT....[J]

The justify command will perform the following:

- Turn on right justify.

The justify option can be turned on or off at any time. When on, extra spaces are added to the text as needed to cause the last word in the text line to line up evenly. This avoids a 'ragged' right margin appearance. Even when the justify option is on, there are certain conditions under which the text will not be right justified. They are:

- When the text ends in a period (.), an exclaimation mark (!), a question mark (?), or a colon (:).
- When more than seven spaces would have to be added to the text.
- When the text line contains only one 'word' (such as a long line of astericks).

Note that the justify command does NOT begin a new line of text.

START A NEW LINE....[L]

The new line command will perform the following:

- Begin the text following the command on a new line on the printer or the screen.

This command is normally used when beginning a new paragraph of text. Note that several of the commands automaticly begin a new line of text. When one of these commands is used, it is NOT necessary to use the new line command. The new line command is ignored if a new line of text has already been established. Thus, it cannot be used to skip multiple lines. Use the SKIP control command to put blank lines between text.

INSERT NAME....[N]

The insert name command will perform the following:

- Replace the control command in the text with the name entered by the student at the beginning of the quiz.

This allows the text displayed on the screen to be customized to the student. Note that when using the PRINT option, the text printed on the printer will NOT contain the name of the student. This is because the name entry routine is bypassed when using the PRINT option.

QUIZ MASTER UTILITY

FORMAT OF THE DATA STATEMENTS (Cont.)

ALLOW RESPONSE TO QUESTION....[Q]

The question command will perform the following:

- Display "ANSWER..." at the bottom of the screen.
- Read the next data statement and save it as being the answer desired.
- Allow the student to enter a response to a question.
- Compare the response to the desired answer.
- If the response entered by the student matches the desired answer, then the word 'RIGHT !' is displayed and the 'right answer sound' is produced.
- If the response entered by the student does not match the desired answer then the 'wrong answer sound' is produced and the student is again allowed to enter a response.
- If the question is not answered correctly by the third try, or if the student enters a question mark (?) in response to the question, then the desired answer is displayed and the student is asked to enter it.
- Clear the screen, display the title of the quiz on the top line of the screen, and position the cursor at the beginning of the third line on the screen.

The question command should be used immediately after asking the student a question. Note that the question command implies that the text following it will begin on a new screen. Therefore it is NOT necessary to use a top of screen control command after asking a question. If the PRINT option has been selected then the word 'ANSWER...' will be printed on the printer. This allows space for the student to write in the answer to a question. The answer field has a maximum length of fifteen characters.

RESET RIGHT JUSTIFY....[R]

The reset command will perform the following:

- Turn off the right justify option.

The right justify option may be turned off or on at any time. When off, no extra spaces are inserted into the text. Thus, the right margin will have a 'ragged' appearance. Note that the reset command does not begin a new line of text.

QUIZ MASTER UTILITY

FORMAT OF THE DATA STATEMENTS (Cont.)

SKIP LINES....[S]

The skip command will perform the following:

- Begin a new line of text.
- Read the next data statement to get the number if lines to be skipped.
- Print or display the requested number of blank lines.

The data statement containing the number of lines to skip must be a numeric value or an error will occur. The skip command should be used for spacing of text on the screen. Readability of the text is improved if the text is spaced throughout the screen instead of being bunched all at the top of the screen.

TOP OF SCREEN....[T]

The top of screen command will perform the following:

- Print the message "HIT THE LETTER 'C' TO CONTINUE" on the bottom line of the screen.
- Wait for the letter 'C' on the computer keyboard to be pressed.
- Clear the screen, display the title of the quiz on the top line of the screen, and position the cursor on the beginning of the third line of the screen.

If the PRINT option has been selected then the QUIZ MASTER UTILITY program will print several blank lines on the printer, but will NOT wait for a response from the computer keyboard. Actually, the top of screen function is performed when ANY one position data statement is read and the command is NOT one of the control commands listed here. Thus, for example, a control command of 'B' or 'Z' will cause the top of screen function to be performed since 'B' and 'Z' are not valid control commands.

QUIZ MASTER UTILITY

FORMAT OF THE DATA STATEMENTS (Cont.)

USER EXIT....[X]

The exit function will perform the following:

- Print the message "HIT THE LETTER 'C' TO CONTINUE" on the bottom line of the screen.
- Wait for the letter 'C' on the computer keyboard to be pressed.
- Read the data statement following the command to get the line number of the user exit routine.
- Issue a GOSUB to the indicated line number.

The data statement containing the line number of the user exit routine must be numeric or an error will occur. The exit function allows you to transfer program control to a special function routine. The special function routine may, for example, produce a special graphics display, make special sounds, or any other function that can be performed in BASIC. The last data statement executed by the special function routine should be RETURN. This will return program control to the QUIZ MASTER UTILITY program. The INTRODUCTION TO MUSIC TUTOR program contains two user exits - the keyboard introductory section and the sounds introductory section. The LUDWIG VAN BEETHOVEN QUIZ also makes use of the user exit function. Here it is used to play a portion of the composer's music.

The final data statement must contain the word 'END'. This tells the QUIZ MASTER UTILITY program that no more data statements are to be read, and that the student's score is to be displayed.

QUIZ MASTER UTILITY

ERROR MESSAGES

Because of the potential volume of data statements associated with a quiz, the data statements are not pre-edited as they are in the MUSIC TUTOR exercises. Therefore it is possible that an error may occur during the running of a quiz.

All of the error messages (with one exception noted below) follow the standard MUSIC TUTOR error message format. See SECTION I - GENERAL INFORMATION for details of the standard error message format. Possible error messages are:

NO TITLE FOUND

> This error will occur when there are no data statements beginning on or after line number 1000. Use the ENTER command to enter the data statements required to drive the quiz, then rerun it.

TITLE TOO LONG (38 MAX)

> The length of the data statement containing the title is longer than 38 characters. Shorten the title and rerun the program.

WORD IN TITLE TOO LONG (20 MAX)

> One word in the data statement containing the title is longer than 20 characters. Pick a shorter word, rekey the title, and rerun the program.

MORE THAN 12 WORDS IN TITLE

> The data statement containing the title has more than 12 words in it. This can be resolved in one of two ways. First, select a shorter title (less than 12 words), rekey the line containg the title, and rerun. Another alternative is to tie two or more words together by typing a reverse video blank between them. See SECTION I - GENERAL INFORMATION for details on creating MUSIC TUTOR quiz and exercise titles.

QUIZ MASTER UTILITY

ERROR MESSAGES (Cont.)

OUTPUT DEVICE NOT 'PRINT' OR 'SCREEN'

The data statement immediately following the title must contain the word 'PRINT' or 'SCREEN'. This tells the QUIZ MASTER UTILITY program whether to print the quiz on the printer or to perform the quiz on the screen in an interactive mode. Place the word 'PRINT' or 'SCREEN' in the data statement immediately following the title and rerun the program.

TURN PRINTER ON. THEN RERUN.

This error does not follow the standard MUSIC TUTOR error message format since it is not the result of an invalid data statement. When this error message is displayed, then no other information (such as line number or last data statement read, ect.) is displayed. This error occurs when the PRINT option as been selected and either the printer or the interface is not powered on. Power on both the printer and the interface and rerun the program.

INVALID INDENT VALUE

The indent control command was used in a data statement, and the data statement immediately following the control command does not contain a numeric value greater than zero. When using the indent command in a data statement, make certain that the number of spaces to indent is in a data statement immediately following the control command. Correct the data statement and rerun the program.

INVALID SKIP VALUE

The skip control command was used in a data statement, and the data statement immediately following the control command does not contain a numeric value greater than zero. When using the skip command in a data statement, make certain that the number of lines to skip is in a data statement immediately following the control command. Correct the data statement and rerun the program.

QUIZ MASTER UTILITY

ERROR MESSAGES (Cont.)

INVALID USER EXIT VALUE

This can be caused by one of several things. First, the exit control command was used in a data statement, and the data statement immediately following the control command does not contain a numeric value. If the data statement does contain a numeric value, but the value does not point to a line number within the program, then this error will occur. It is also possible for this error to occur if the routine given control contains an error. Correct the cause of the error and rerun the program.

NO 'END' STATEMENT

An 'out of data' condition has occured and the last data statement does not contain the word 'END'. Add a data statement to the end of the quiz that contains only the word 'END', then rerun the program.

QUIZ MASTER UTILITY

EXAMPLES

```
1000 DATA CLASSICAL COMPOSERS,SCREEN
```

The title of the quiz will be displayed as:

CLASSICAL
COMPOSERS

and the quiz will be performed on the screen instead of being printed on the printer.

```
1010 DATA WE WILL DISCUSS THE FOLLOWING COMPOSERS:
1020 DATA S,2,I,5,BEETHOVEN,I,5,MOZART,I,5,AND BACH.
1030 DATA L,WE WILL COVER THEIR LIVES AND THIER MUSIC,T
```

The text 'WE WILL DISCUSS THE FOLLOWING COMPOSERS:' will be displayed on the screen.
The skip control command [S] followed by the 2 will cause two blank lines to be displayed. This causes the cursor to skip down two lines.
The indent control command [I] followed by the '5' will cause the text following it (the word BEETHOVEN) to begin on a new line and to be indented 5 spaces from the left margin.
The second indent control command followed by the '5' will cause the word 'MOZART' to begin on a new line and to be indented 5 spaces. The same is true of the words 'AND BACH.'.
The new line control command [L] will cause the text following it to begin on a new line.
The top of screen control command [T] will cause the program to display "HIT THE LETTER 'C' TO CONTINUE", wait for the letter 'C' on the computer keyboard to be pressed, then clear the screen and print the title of the quiz on the top line of the screen. The cursor will be positioned on the third line of the screen.

```
1120 DATA X,5000
```

This will cause a GOSUB 5000 to be issued by the QUIZ MASTER UTILITY program after displaying "HIT THE LETTER 'C' TO CONTINUE", and waiting for the letter 'C' to be pressed.

QUIZ MASTER UTILITY

EXAMPLES (Cont.)

```
1230 DATA HOW MUCH IS 2 + 2?,Q,4
```

The text 'HOW MUCH IS 2 + 2?' will be displayed. The QUIZ MASTER UTILITY program will read the '4' following the question control command [Q] and save it as the desired answer. Then the program will display 'ANSWER...' and wait for a response from the student. If the response is '4' then the 'right answer' sound will be produced, the screen cleared, and the title of the quiz displayed on the top line of the screen.
If the response is not '4' then the 'wrong answer' sound will be produced and the program will wait for another response from the student.

```
1480 DATA WELL,N,,THAT'S IT FOR NOW.,END
```

The text 'WELL <student's name>, THAT'S IT FOR NOW.' will be displayed. Note the two commas in the data statement to indicate to the program that a comma is to be inserted into the text.
The word 'END' in a data statement by itself indicates to the program that this is the end of the quiz. The program will display "HIT THE LETTER 'C' TO CONTINUE", wait for the letter 'C' to pressed, then display the student's score and give the student the option of repeating the quiz.

QUIZ MASTER UTILITY

EXAMPLES (Cont.)

The following is an example of how the user exit control command [X] can be used to allow a student to repeat a section of the quiz or skip a section of the quiz.

```
      .
      .
      .
1180 DATA This section will cover Beethoven's life.
      .
      .
      .
1510 DATA X,5000
1520 DATA This section will cover Beethoven's music.
      .
      .
      .
```

Line 1180 contains the text for the section on Beethoven's childhood. The data statements that follow line 1180 contain the text for the section.

Line 1510 is the last data statement for the section on Beethoven's childhood. It will cause the QUIZ MASTER UTILITY program to perform a GOSUB 5000.

Line 1520 contains the text for the next section of the quiz.

```
5000 PRINT "WOULD YOU LIKE TO REPEAT THE"
5010 PRINT "SECTION ON BEETHOVEN'S CHILDHOOD?"
5020 PRINT "PLEASE ENTER 'YES' OR 'NO'."
5030 INPUT G$
5040 IF G$="YES" THEN RESTORE 1180:RETURN
5050 IF G$="NO" THEN RETURN
5060 GO TO 5020
```

This is the user exit routine. The key to the routine is the RESTORE on line 5040. The RETURN after the RESTORE gives control back to the QUIZ MASTER UTILITY program. If the student replied 'yes' (on line 5030) then the restore will be done and the NEXT data statement read will be the text on line 1180, which is the beginning of the section.

QUIZ MASTER UTILITY

EXAMPLES (Cont.)

As you can see the restore command can be used to point the program to any section of text. Thus, a user exit routine could be written to give a student a choice of which section to cover. For example:

```
6000 PRINT "ENTER '1' TO COVER SECTION 1."
6010 PRINT "ENTER '2' TO COVER SECTION 2."
     .
     .
     .
6060 INPUT S
6070 IF S=1 THEN RESTORE 1080:RETURN
6080 IF S=2 THEN RESTORE 2050:RETURN
     .
     .
     .
```

Where line 1080 would contain the first data statements for section 1 of the quiz and line 2050 would contain the first data statements for section 2 of the quiz.

SECTION IV

KEYBOARD RECOGNITION PRACTICE

KEYBOARD RECOGNITION PRACTICE

CONCEPTS PRESENTED

KEYBOARD RECOGNITION PRACTICE is for the beginning piano student. The purpose of the exercise is to teach the student the names of the keys on the piano. This is done by displaying a portion of the piano keyboard on the screen, then having a 'happy face' land on a key. Which key the happy face lands on is determined by the contents of the data statement read. The student must then identify the name of the piano key by pressing the correct letter on the computer keyboard.

MUSIC TUTOR comes with data statements for six levels of difficulty. Levels one through three focus only on the white keys on the piano. Levels four and five focus on both the white piano keys and the black piano keys. Level six contains data statements only for the black piano keys.

Detail descriptions of each level are as follows:

LEVEL 1.
Level one contains data statements for the keys B,C and D.

LEVEL 2.
Level two contains data statements for the keys A,B,C,D and E.

LEVEL 3.
Level three contains data statements for a full octave of white keys. They are A,B,C,D,E,F and G.

LEVEL 4.
Level four is the first level to contain data statements for the black piano keys. The piano keys contained in this level are A,B,C,E,G and the sharps for A,C,D,F and G.

LEVEL 5.
Level five contains data statements for the piano keys A,C,F,G and the flats for A,B,D,E and G.

LEVEL 6.
Level six contains data statements for only the black piano keys.

KEYBOARD RECOGNITION PRACTICE

PROCESS

1. Load the program.

   For the disk version, place the MUSIC TUTOR disk in the disk drive, type in the following, then hit the RETURN key:

   ```
   LOAD "D:KEY"
   ```

   For the tape version, place the KEYBOARD RECOGNITION PRACTICE tape in the tape player, press the PLAY key, type in CLOAD, then hit the RETURN key TWICE.

2. Select the desired level.

   The disk version does not contain any data statements when loaded. Therefore, the data statements must be entered for the desired level before the practice can be run. To enter the desired level type in the following, then hit the RETURN key:

   ```
   ENTER "D:KEY.Lx"
   ```

   Where the 'x' is the number coresponding to the level desired. For example, to enter level one, type in ENTER "D:KEY.L1" and hit the RETURN key.

   The tape version contains data statements for ALL levels when loaded. However, all of the data statements have the word 'REM' after the line number and before the actual data statement. This causes the line to be a REMARK line. To select the desired level delete the word 'REM' from the lines containing the data statements for the desired level. For example, change

   ```
   1020 REM DATA C,B,E,D,A,E,A,C,D,B,END
        to
   1020 DATA C,B,E,D,A,E,A,C,D,B,END
   ```

   Don't forget to remove the 'REM' from the line containing the title for the desired level.

3. When the student is prepared, then run the exercise by typing in 'RUN' then hitting the RETURN key.

4. The first display will be the title of the exercise. While the title is being displayed, the program will read the remaining data statements and verify their contents. Should an invalid data statement be found, then an error message will be displayed. See the ERROR MESSAGES section below for a detail description of each possible error message.

KEYBOARD RECOGNITION PRACTICE

PROCESS (Cont.)

5. The display after the title will be a portion of the piano keyboard. A 'happy face' will land on the piano key contained in the data statement, and the sound of the key will be played by the computer.

6. The words 'ENTER NAME OF KEY...' will then be displayed and the exercise will wait for a response from the student.

7. If the student correctly identifies the name of the piano key then the 'right answer sound' will produced and the word 'RIGHT !' will be displayed.

8. If the student does not correctly identify the name of the piano key then the 'wrong answer sound' will be produced and the happy face will become a 'sad face'. The student will then be allowed to make another response. The sad face remains a sad face until the correct answer is entered.

9. If the name of the key is not correctly identified by the third try, then the correct answer will be displayed and the student will be asked to enter it.

10. The process of the happy face landing on a key and the student naming the key continues until all of the keys contained in the data statements have been named by the student.

11. The student's score is then displayed and the student is given the option of repeating the exercise.

KEYBOARD RECOGNITION PRACTICE

VALID ENTRIES

Valid entries consist of a one or two character response. The first character of the response must one of the following letters: A,B,C,D,E,F or G. The second character must be either the letter 'S' (for sharp) or the letter 'F' (for flat). The BACKSPACE key may be used at any time to make corrections. After an entry has been made then the RETURN key may be pressed.

Hitting any other key on the computer keyboard will produce the 'invalid key sound' and will result in the entry being ignored.

The following is a list of all possible entries:

F,FS,GF,G,GS,AF,A,AS,BF,B,C,CS,DF,D,DS,EF,E

TEACHING MODE

This exercise contains a teaching mode. Teaching mode can be used to introduce the names of the piano keys to the student or to assist a student having difficulty with a particular level of the exercise.

Teaching mode may be used at any time during the exercise except when the student's score is being displayed.

To enter teaching mode, hold down the OPTION key and press the RETURN key. The words 'TEACHING MODE' will be displayed and you will be asked to enter the name of a key. Type in the name of the piano key on which the happy face is to land, then hit the RETURN key. See VALID ENTRIES above for a complete list of all valid entries. After hitting the RETURN key the happy face will land on the piano key chosen, and the sound of the key will be produced. The exercise will then ask for the name of another key. This process continues until you exit teaching mode.

To exit teaching mode, hit only the RETURN key without entering the name of a piano key. The exercise will then return to the same piano key that was being displayed before you entered teaching mode. Teaching mode may be entered as many times as desired during an exercise.

KEYBOARD RECOGNITION PRACTICE

FORMAT OF THE DATA STATEMENTS

The first data statement must begin on line number 1000 and must contain the title of the exercise. See SECTION I - GENERAL INFORMATION for more information regarding the title.

The data statements following the data statement containing the title define the piano keys to be used in the exercise. See VALID ENTRIES above for a complete list of all valid keys.

The last data statement must be the word 'END'.

ERROR MESSAGES

As with the other MUSIC TUTOR exercises, the data statements associated with the exercise are pre-edited for validity. Thus, should the exercise contain an invalid data statement, an error message will be displayed before the first item on the exercise is displayed. This assures that the student can perform the exercise without interruption caused by an invalid data statement.

All of the error messages follow the standard MUSIC TUTOR error message format. See SECTION I - GENERAL INFORMATION for details of the standard error message format. Possible error messages are:

NO TITLE FOUND

> This error will occur when there are no data statements beginning on or after line number 1000. Use the ENTER command to enter the data statements required to drive the exercise, then rerun it.

TITLE TOO LONG (38 MAX)

> The length of the data statement containing the title is longer than 38 characters. Shorten the title and rerun the program.

KEYBOARD RECOGNITION PRACTICE

ERROR MESSAGES (Cont.)

WORD IN TITLE TOO LONG (20 MAX)

One word in the data statement containing the title is longer than 20 characters. Pick a shorter word, rekey the title, and rerun the program.

MORE THAN 12 WORDS IN TITLE

The data statement containing the title has more than 12 words in it. This can be resolved in one of two ways. First, select a shorter title (less than 12 words), rekey the data statement, and rerun. Another alternative is to tie two or more words together by typing a reverse video blank between them. See SECTION I - GENERAL INFORMATION for details on creating MUSIC TUTOR quiz and exercise titles.

INVALID KEY NAME

A data statement was found that did not contain the name of a valid piano key. See the VALID ENTRIES section for a complete list of all valid piano key names. Correct the data statement and rerun the exercise.

NO END STATEMENT

An 'out of data' condition has occured and the last data statement does not contain the word 'END'. Add a data statement to the end of the exercise that contains only the word 'END', then rerun the exercise.

KEYBOARD RECOGNITION PRACTICE

EXAMPLES

1000 DATA KEYBOARD RECOGNITION PRACTICE LEVEL#1

The title of the exercise will be displayed as:

KEYBOARD
RECOGNITION
PRACTICE
LEVEL#1

1010 DATA A,C,D,B,F,END

After the title is displayed, the 'happy face' will land on the 'A' piano key. After the student correctly ideftifies the piano key, the happy face will land on the 'C' piano key. After the student identifies that key, the happy face will land on the 'D' key. This process continues until the student correctly identifies the last piano key - 'F'. The student's score will then be displayed and the student will be given the option of repeating the exercise.

1010 DATA FS,GS,GF,END

The process is the same as above except the happy face will land on the piano keys F sharp, G sharp and G flat respectively.

SECTION V

NOTE
RECOGNITION
PRACTICE

NOTE RECOGNITION PRACTICE

CONCEPTS PRESENTED

NOTE RECOGNITION PRACTICE is for the beginning to intermediate level music student. The purpose of the exercise is to teach the student the names of the notes from low low C (two octaves below middle C) to high high C (two octaves above middle C). This is done by displaying a musical staff for either the treble clef or the base clef and having a whole note that gets displayed as defined by the data statements. The student must then identify the name of the note by pressing the key on the computer keyboard that corresponds to the name of the note.

Since NOTE RECOGNITION PRACTICE can span a total of four octaves, it is convenient to define a note in terms of its octave number as well as its name. For example, low low C is defined as C1 (C in the first octave). Using this scheme, middle C is defined as C3, C above middle C is C4, and so forth. Thus, the full range of notes that can be displayed in this exercise is C1 through C5.

MUSIC TUTOR comes with data statements for eight levels of difficulty. Each level is described below. See Figure V.1 at the end of this section for a complete listing of the notes used in each level.

LEVEL 1.

This level is for the beginning music student. Only three different notes are displayed. They are B2, C3 (middle C) and D3. Middle C is shown in the base clef as well as the treble clef.

LEVEL 2.

This level is the same as level 1 except that two new notes are introduced. They are E3 and A2.

LEVEL 3.

This level is the same as level 2 except that four new notes are introduced. They are F2, G2, F3 and G3.

LEVEL 4.

Again several new notes are introduced. They are C2, D2, E2, A3, B3 and C4.

NOTE RECOGNITION PRACTICE

CONCEPTS PRESENTED (Cont.)

LEVEL 5.

Up to this point all notes below C3 (middle C) have always been displayed in the base clef, and all notes above C3 have always been displayed in the treble clef. Although no new notes are introduced in this level, this is the first level in which the notes A2, B2, D3 and E3 are displayed in both the base clef and the treble clef.

LEVEL 6.

Four new notes are introduced in this level. They are A1, B1, F4 and G4.

LEVEL 7.

The new notes introduced in this level are G1, F4 and G4.

LEVEL 8.

In this level all possible notes are displayed. As in level 5 the notes A2, B2, D3 and E3 are displayed in both the base clef and the treble clef. This gives a total of thirty-four notes displayed in this level.

NOTE RECOGNITION PRACTICE

NOTE	LEVEL NUMBER 1	2	3	4	5	6	7	8
C5	--	--	--	--	--	--	--	T
B4	--	--	--	--	--	--	--	T
A4	--	--	--	--	--	--	--	T
G4	--	--	--	--	--	--	T	T
F4	--	--	--	--	--	--	T	T
E4	--	--	--	--	--	T	T	T
D4	--	--	--	--	--	T	T	T
C4	--	--	--	T	T	T	T	T
B3	--	--	--	T	T	T	T	T
A3	--	--	--	T	T	T	T	T
G3	--	--	T	T	T	T	T	T
F3	--	--	T	T	T	T	T	T
E3 *	--	T	T	T	TB	T	--	TB
D3 *	T	T	T	T	TB	T	B	TB
C3 *	TB	TB	TB	TB	TB	B	T	TB
B2 *	B	B	B	B	TB	T	T	TB
A2 *	--	B	B	B	TB	T	B	TB
G2	--	--	B	B	B	B	--	B
F2	--	--	B	B	B	B	B	B
E2	--	--	--	B	B	B	B	B
D2	--	--	--	B	B	B	B	B
C2	--	--	--	B	B	B	B	B
B1	--	--	--	--	--	B	B	B
A1	--	--	--	--	--	B	B	B
G1	--	--	--	--	--	--	B	B
F1	--	--	--	--	--	--	--	B
E1	--	--	--	--	--	--	--	B
D1	--	--	--	--	--	--	--	B
C1	--	--	--	--	--	--	--	B

Figure V.1 - Notes Used In Each Level

* indicates the note can be displayed in the base clef or the treble clef.

-- indicates the note is not contained in the indicated level.

T indicates the note is contained in the indicated level and will be displayed in the treble clef.

B indicates the note is contained in the indicated level and will be displayed in the base clef.

TB indicates the note is contained in the indicated level and will be displayed in both the treble clef and the base clef.

NOTE RECOGNITION PRACTICE

PROCESS

1. Load the program.

   For the disk version, place the MUSIC TUTOR disk in the disk drive, type in the following, then hit the RETURN key:

   ```
   LOAD "D:NOTE"
   ```

   For the tape version, place the NOTE RECOGNITION PRACTICE tape in the tape player, press the PLAY key, type in CLOAD, then hit the RETURN key TWICE.

2. Select the desired level.

   The disk version does not contain any data statements when loaded. Therefore, the data statements must be entered for the desired level before the practice can be run. To enter the desired level type in the following, then hit the RETURN key:

   ```
   ENTER "D:NOTE.Lx"
   ```

   Where the 'x' is the number coresponding to the level desired. For example, to enter level one, type in ENTER "D:NOTE.L1" and hit the RETURN key.

   The tape version contains data statements for ALL levels when loaded. However, all of the data statements have the word 'REM' after the line number and before the actual data statement. This causes the line to be a REMARK line. To select the desired level delete the word 'REM' from the lines containing the data statements for the desired level. For example, change

   ```
   1020 REM DATA C3T,D3T,C3B,B2B,END
        to
   1020 DATA C3T,D3T,C3B,B2B,END
   ```

   Don't forget to remove the 'REM' from the line containing the title for the desired level.

3. When the student is prepared, then run the exercise by typing in 'RUN' then hitting the RETURN key.

4. The first display will be the title of the exercise. While the title is being displayed, the program will read the remaining data statements and verify their contents. Should an invalid data statement be found, then an error message will be displayed. See the ERROR MESSAGES section below for a detail description of each possible error message.

NOTE RECOGNITION PRACTICE

PROCESS (Cont.)

5. The display after the title will be a musical staff. The base clef or the treble clef symbol will also be displayed depending on which note is to be displayed. A whole note will be displayed at the appropriate position on the staff lines. The note to be displayed is determined by the contents of the data statements. As the note is displayed, the sound of the note will be played by the computer.

6. The words 'ENTER NAME OF NOTE...' will then be displayed and the exercise will wait for a response from the student.

7. If the student correctly identifies the name of the note then the 'right answer sound' will , produced and the word 'RIGHT !' will be displayed.

8. If the student does not correctly identify the name of the note then the 'wrong answer sound' will be produced. The student will then be allowed to make another response.

9. If the name of the note is not correctly identified by the third try, then the correct answer will be displayed and the student will be asked to enter it.

10. The process of displaying a note and the student naming the note continues until all of the notes contained in the data statements have been correctly identified by the student.

11. The student's score is then displayed and the student is given the option of repeating the exercise.

NOTE RECOGNITION PRACTICE

VALID ENTRIES

Valid entries must be defined for the student and for the instructor, since the student must name only the note without regards to the octave. The instructor, however, must define not only the name of the note to be displayed, but also the octave in which the note is to be displayed. For certain notes the instructor must also define the clef in which the note is to be displayed.

FOR THE STUDENT:

Valid entries consist of a one character response. The character must be one of the following letters: A,B,C,D,E,F or G. The BACKSPACE key may be used at any time to make corrections. After an entry has been made then the RETURN key may be pressed.

Hitting any other key on the computer keyboard will produce the 'invalid key sound' and will result in the entry being ignored.

FOR THE INSTRUCTOR:

When using teaching mode the instructor must enter a two or three character response. The first character must be the name of the note and must be one of the following letters: A,B,C,D,E,F or G. The second character must be the octave number and must be the number 1,2,3,4 or 5. NOTE RECOGNITION PRACTICE wll allow certain notes to be displayed in either the base clef or the treble clef. These notes are A2, B2, C3, D3 and E3. Therefore, valid entries for these notes must include a third character. The third character must be the letter 'T' for the treble clef or the letter 'B' for the base clef.

See Figure V.1 on page V.4 for a complete list of all valid entries.

NOTE RECOGNITION PRACTICE

TEACHING MODE

This exercise contains a teaching mode. Teaching mode can be used to introduce the names of the notes to the student or to assist a student having difficulty with a particular level of the exercise.

Teaching mode may be used at any time during the exercise except when the student's score is being displayed.

To enter teaching mode, hold down the OPTION key and press the RETURN key. The words 'TEACHING MODE' will be displayed and you will be asked to enter the name of a note. Type in the name of the note that is to be displayed, then hit the RETURN key. See VALID ENTRIES above for a description of the entries that can be made in teaching mode. After hitting the RETURN key the base clef or the treble clef will be displayed (depending on the entry made), the note will be displayed, and the sound of the note will be produced. The exercise will then ask for the name of another note. This process continues until you exit teaching mode.

To exit teaching mode, hit only the RETURN key without entering the name of a note. The exercise will then return to the same note that was being displayed before you entered teaching mode. Teaching mode may be entered as many times as desired during an exercise.

NOTE RECOGNITION PRACTICE

FORMAT OF THE DATA STATEMENTS

The first data statement must begin on or after line number 1000 and must contain the title of the exercise. See SECTION I - GENERAL INFORMATION for more information regarding the title.

The data statements following the data statement containing the title define the notes to be used in the exercise. The format of each note contained in a data statement is the same format as that described in the VALID ENTRIES section above. Figure V.1 on page V.4 has a complete list of all notes that can be used in data statements.

The last data statement must be the word 'END'.

ERROR MESSAGES

As with the other MUSIC TUTOR exercises, the data statements associated with the exercise are pre-edited for validity. Thus, should the exercise contain an invalid data statement, an error message will be displayed before the first item on the exercise is displayed. This assures that the student can perform the exercise without interruption caused by an invalid data statement.

All of the error messages follow the standard MUSIC TUTOR error message format. See SECTION I - GENERAL INFORMATION for details of the standard error message format. Possible error messages are:

NO TITLE FOUND

> This error will occur when there are no data statements beginning on or after line number 1000. Use the ENTER command to enter the data statements required to drive the exercise, then rerun it.

TITLE TOO LONG (38 MAX)

> The length of the data statement containing the title is longer than 38 characters. Shorten the title and rerun the program.

NOTE RECOGNITION PRACTICE

ERROR MESSAGES (Cont.)

WORD IN TITLE TOO LONG (20 MAX)

One word in the data statement containing the title is longer than 20 characters. Pick a shorter word, rekey the title, and rerun the program.

MORE THAN 12 WORDS IN TITLE

The data statement containing the title has more than 12 words in it. This can be resolved in one of two ways. First, select a shorter title (less than 12 words), rekey the data statement, and rerun. Another alternative is to tie two or more words together by typing a reverse video blank between them. See SECTION I - GENERAL INFORMATION for details on creating MUSIC TUTOR quiz and exercise titles.

INVALID NOTE NAME

A data statement was found that did not contain the name of a valid note. See Figure V.1 on page V.4 for a complete list of all valid notes. Correct the data statement and rerun the exercise.

NO END STATEMENT

An 'out of data' condition has occured and the last data statement does not contain the word 'END'. Add a data statement to the end of the exercise that contains only the word 'END', then rerun the exercise.

NOTE RECOGNITION PRACTICE

EXAMPLES

```
1000 DATA NOTE RECOGNITION PRACTICE LEVEL#1
```

The title of the exercise will be displayed as:

NOTE
RECOGNITION
PRACTICE
LEVEL#1

```
1010 DATA A1,C2,B3,A3,F3,END
```

After the title is displayed, the 'A' note in the first octave will be displayed in the base clef staff. After the student correctly ideftifies the note, the 'C' note in the second octave will be displayed in the base clef. After the student identifies that note, the 'B' note in the third octave will be displayed in the treble clef. This process continues until the student correctly identifies the last note - 'F'. The student's score will then be displayed and the student will be given the option of repeating the exercise.

```
1010 DATA C3T,C3B,A2B,A2T,END
```

The process is the same as above except the 'C' note will be displayed first in the treble clef then in the base clef. The 'A' key will then be displayed in the base clef, then in the treble clef.

SECTION VI

NOTE
COUNTING
PRACTICE

NOTE COUNTING PRACTICE

CONCEPTS PRESENTED

NOTE COUNTING PRACTICE is an exercise that can be used by students at all levels. The purpose of the exercise is to teach the student how to determine the count that a particular note will get when used in a certain time signature. This is done by displaying a musical staff for the treble clef, displaying a time signature and a note. The student must then identify the counts that the note will get and type in the answer.

Since NOTE COUNTING PRACTICE can display a large variety of different notes, when creating data statements it is convenient to use abbreviations. This is done by using only the first letter of the name of the note. For example, a quarter note is abbreviated 'Q'. A whole note is 'W', and so forth. Rests are represented by adding the letter 'R' to the abbreviation. For example, a sixteenth rest is 'SR', an eight rest is 'ER', and so forth. Dotted notes are identified by adding a period to the end of the abbreviation. For example, a dotted half note is 'H.', a dotted thirty-second rest is 'TR.', and so forth. Triplets are identified by QT, ET and ST for quarter, eighth and sixteenth note triplets respectively. Figure VI.1 on page VI.4 is a complete list of all notes possible in NOTE COUNTING PRACTICE.

MUSIC TUTOR comes with data statements for twelve levels of difficulty. Each level is described below. See Figure VI.2 on page VI.5 for a complete listing of the notes used in each level. There are ten problems in each level.

LEVEL 1.
In this level the student must identify the counts received by quarter, half, and whole notes in 2/4, 3/4, and 4/4 time.

LEVEL 2.
This level has rests and dotted half notes added. The time signature is 4/4 time.

LEVEL 3.
This level adds eighth notes and eighth rests. The time signatures used are 2/4, 3/4, and 4/4 time.

LEVEL 4.
A dotted quarter note is added and the time signature used is 6/8.

NOTE COUNTING PRACTICE

CONCEPTS PRESENTED (Cont.)

LEVEL 5.

This level is a review of the notes that have previously been introduced. A mixture of time signatures is used. They are 2/4, 3/4, 4/4, and 6/8 time.

LEVEL 6.

The notes introduced in this level are sixteenth note, eighth note triplet, and dotted quarter note. Time signatures used are 2/4, 3/4, and 4/4 time.

LEVEL 7.

This level is basicly the same as level six, except that 6/8 time is used.

LEVEL 8.

In this level the 2/2 time signature is introduced.

LEVEL 9.

This level is a review of previously covered notes in various time signatures.

LEVEL 10.

Here the student is introduced to the thirty-second note and the sixteenth note triplet. Time signatures used are 2/2, 2/4, 3/4, 4/4, 6/8, and 9/8 time.

LEVEL 11.

This level is used as a review of dotted notes in various time signatures.

LEVEL 12.

This is the most difficult level in the exercise. A variety of notes is used in unusual time signatures.

NOTE COUNTING PRACTICE

Abbrev.	------- Note -------
W	Whole note
H	Half note
Q	Quarter note
E	Eighth note
S	Sixteenth note
T	Thirty-second note
W.	Dotted whole note
H.	Dotted half note
Q.	Dotted quarter note
E.	Dotted eighth note
S.	Dotted sixteenth note
T.	Dotted thirty-second note
WR	Whole rest
HR	Half rest
QR	Quarter rest
ER	Eighth rest
SR	Sixteenth rest
TR	Thirty-second rest
WR.	Dotted whole rest
HR.	Dotted half rest
QR.	Dotted quarter rest
ER.	Dotted eighth rest
SR.	Dotted sixteenth rest
TR.	Dotted thirty-second rest
QT	Quarter note triplet
ET	Eighth note triplet
ST	Sixteenth note triplet

Figure VI.1 - Valid Abbreviations

NOTE COUNTING PRACTICE

	LEVEL NUMBER							
ITEM#	1		2		3		4	
1	4/4	Q	4/4	H.	4/4	Q	6/8	Q
2	4/4	W	4/4	QR	4/4	W	6/8	E
3	4/4	H	4/4	H	3/4	E	6/8	H
4	2/4	H	4/4	WR	3/4	QR	6/8	Q.
5	3/4	Q	4/4	Q	3/4	ER	6/8	ER
6	4/4	W	4/4	W	2/4	H	6/8	Q
7	4/4	Q	4/4	HR	4/4	WR	6/8	HR
8	4/4	H	4/4	H.	2/4	E	6/8	Q.
9	4/4	W	4/4	QR	4/4	H.	6/8	QR
10	2/4	Q	4/4	W	4/4	HR	6/8	E

	LEVEL NUMBER							
ITEM#	5		6		7		8	
1	4/4	W	4/4	S	6/8	SR	2/2	Q
2	6/8	Q.	3/4	QR	6/8	Q.	2/2	WR
3	3/4	Q	2/4	Q.	6/8	E	2/2	H
4	2/4	HR	4/4	ET	6/8	ET	2/2	H.
5	6/8	E	4/4	ER	6/8	H.	2/2	ET
6	4/4	WR	2/4	ET	6/8	HR	2/2	QR
7	3/4	ER	3/4	SR	6/8	S	2/2	E
8	2/4	H	4/4	Q.	6/8	QR	2/2	HR
9	6/8	H	3/4	ET	6/8	ER	2/2	Q.
10	4/4	H.	4/4	WR	6/8	ET	2/2	S

	LEVEL NUMBER							
ITEM#	9		10		11		12	
1	12/8	W	4/4	ST	4/4	E.	24/32	T
2	3/2	H	6/8	ET	6/8	E.	5/4	WR
3	6/8	Q	2/2	T	2/2	E.	7/8	S.
4	4/4	S	9/8	W	6/8	Q.	3/2	W.
5	3/4	ET	2/4	T	4/4	Q.	12/8	W.
6	9/8	Q.	3/4	ER	2/2	Q.	12/16	SR
7	2/2	W	6/8	T	6/8	S.	9/8	ST
8	2/2	E	2/2	ET	4/4	S.	7/4	QT
9	12/16	S	4/4	TR	2/2	H.	6/4	W.
10	12/16	H	4/4	ST	4/4	T.	5/2	QT

Figure VI.2 - Time Signatures and Notes Used in Each Level.

NOTE COUNTING PRACTICE

PROCESS

1. Load the program.

   For the disk version, place the MUSIC TUTOR disk in the disk drive, type in the following, then hit the RETURN key:

   ```
   LOAD "D:COUNT"
   ```

   For the tape version, place the NOTE COUNTING PRACTICE tape in the tape player, press the PLAY key, type in CLOAD, then hit the RETURN key TWICE.

2. Select the desired level.

   The disk version does not contain any data statements when loaded. Therefore, the data statements must be entered for the desired level before the practice can be run. To enter the desired level type in the following, then hit the RETURN key:

   ```
   ENTER "D:COUNT.Lx"
   ```

   Where the 'x' is the number coresponding to the level desired. For example, to enter level one, type in ENTER "D:COUNT.L1" and hit the RETURN key.

   The tape version contains data statements for ALL levels when loaded. However, all of the data statements have the word 'REM' after the line number and before the actual data statement. This causes the line to be a REMARK line. To select the desired level delete the word 'REM' from the lines containing the data statements for the desired level. For example, change

   ```
   1020 REM DATA 4/4,Q,1,4/4,W,2,END
        to
   1020 DATA 4/4,Q,1,4/4,W,2,END
   ```

   Don't forget to remove the 'REM' from the line containing the title for the desired level.

3. When the student is prepared, then run the exercise by typing in 'RUN' then hitting the RETURN key.

4. The first display will be the title of the exercise. While the title is being displayed, the program will read the remaining data statements and verify their contents. Should an invalid data statement be found, then an error message will be displayed. See the ERROR MESSAGES section below for a detail description of each possible error message.

NOTE COUNTING PRACTICE

PROCESS (Cont.)

5. The display after the title will be a musical staff for the treble clef. A time signature and a note or rest will then be displayed. Which note or rest is displayed is determined by the item read from the data statement.

6. If the item read from the data statement is a note then the words 'HOW MANY COUNTS DOES THIS NOTE GET?' will be displayed. If the item read from the data statement is a rest then the words 'HOW MANY COUNTS DOES THIS REST GET?' will be displayed. The word 'ANSWER...' will then be displayed and the exercise will wait for a response from the student.

7. If the student enters the correct answer then the 'right answer sound' will produced and the word 'RIGHT !' will be displayed.

8. If the student does not enter the correct answer then the 'wrong answer sound' will be produced and the exercise will again wait for a response from the student.

9. If the correct answer is not entered by the third try, then the correct answer will be displayed and the student will be asked to enter it.

10. The process of displaying a time signature and a note, then the student entering the counts received by the note continues until all notes contained in the data statements have been displayed and the student has correctly answered each problem on the exercise.

11. The student's score is then displayed and the student is given the option of repeating the exercise.

NOTE COUNTING PRACTICE

VALID ENTRIES

Valid entries must be defined for the student and for the instructor, since the student must enter the count received by the note displayed. The instructor, however, must enter the name of the note to be displayed.

FOR THE STUDENT:

When responding to a problem in the exercise, the student may use any of the following keys: numeric keys, space bar or the slash (/). The slash is needed to enter fractions such as '1/2' or '1/4'. The space bar is needed when entering an integer and a fraction such as '1 1/2' or '1 1/4'. The BACKSPACE key may be used at any time to make corrections. After an entry has been made then the RETURN key may be pressed.

Hitting any other key on the computer keyboard will produce the 'invalid key sound' and will result in the entry being ignored.

FOR THE INSTRUCTOR:

When using teaching mode the instructor must enter a one, two or three character response. The first character must be the name of the note and must be one of the following letters: W,H,Q,E,S or T. The second character, if used, must be either 'R' (for rest), 'T' (for triplet), or period (for dotted). The third character, if used, must be a period (.). The period is used to represent dotted notes. Triplets cannot be dotted.

See Figure VI.1 on page VI.4 for a complete list of all valid entries.

NOTE COUNTING PRACTICE

TEACHING MODE

This exercise contains a teaching mode. Teaching mode can be used to introduce the names of the notes to the student or to assist a student having difficulty with a particular level of the exercise.

Teaching mode may be used at any time during the exercise except when the student's score is being displayed.

To enter teaching mode, hold down the OPTION key and press the RETURN key. The words 'TEACHING MODE' will be displayed and you will be asked to enter the name of a note. Type in the note that is to be displayed, then hit the RETURN key. See VALID ENTRIES above for a description of the entries that can be made in teaching mode. After hitting the RETURN key the note will be displayed and the exercise will ask for the name of another note. This process continues until you exit teaching mode.

To exit teaching mode, hit only the RETURN key without entering the name of a note. The exercise will then return to the same note that was being displayed before you entered teaching mode. Teaching mode may be entered as many times as desired during an exercise.

NOTE COUNTING PRACTICE

FORMAT OF THE DATA STATEMENTS

The first data statement must begin on or after line number 1000 and must contain the title of the exercise. See SECTION I - GENERAL INFORMATION for more information regarding the title.

The data statements following the data statement containing the title define the notes to be used in the exercise. For each note to be displayed, there must be three data statements. They are the time signature, the note, and the correct answer.

The time signature must be in the following format:

<top value>/<bottom value>

Where <top value> is the number of counts in each measure and <bottom value> is the value received by a whole note. The top value and bottom value must be separated by a slash (/). For example, 2/2 and 3/4 are valid time signatures. The top value and bottom value must be greater than one and less than thirty-three.

The data statement following the time signature must contain the note to be displayed. The format of the note is the same format as that defined in the VALID ENTRIES section above. Figure VI.1 on page VI.4 has a complete list of all notes that can be used in data statements.

The third data statement must contain the correct answer for the problem. The response made by the student is compared to this value to determine if the correct answer has been entered.

The last data statement in the exercise must be the word 'END'.

NOTE COUNTING PRACTICE

ERROR MESSAGES

As with the other MUSIC TUTOR exercises, the data statements associated with the exercise are pre-edited for validity. Thus, should the exercise contain an invalid data statement, an error message will be displayed before the first item on the exercise is displayed. This assures that the student can perform the exercise without interruption caused by an invalid data statement.

All of the error messages follow the standard MUSIC TUTOR error message format. See SECTION I - GENERAL INFORMATION for details of the standard error message format. Possible error messages are:

NO TITLE FOUND

> This error will occur when there are no data statements beginning on or after line number 1000. Use the ENTER command to enter the data statements required to drive the exercise, then rerun it.

TITLE TOO LONG (38 MAX)

> The length of the data statement containing the title is longer than 38 characters. Shorten the title and rerun the program.

WORD IN TITLE TOO LONG (20 MAX)

> One word in the data statement containing the title is longer than 20 characters. Pick a shorter word, rekey the title, and rerun the program.

MORE THAN 12 WORDS IN TITLE

> The data statement containing the title has more than 12 words in it. This can be resolved in one of two ways. First, select a shorter title (less than 12 words), rekey the data statement, and rerun. Another alternative is to tie two or more words together by typing a reverse video blank between them. See SECTION I - GENERAL INFORMATION for details on creating MUSIC TUTOR quiz and exercise titles.

NOTE COUNTING PRACTICE

ERROR MESSAGES (Cont.)

INVALID TIME SIGNATURE

A data statement was found that did not contain a valid time signature. See the FORMAT OF THE DATA STATEMENTS section for a complete description of the time signature format. Correct the data statement and rerun the exercise.

INVALID NOTE

A data statement was found that did not contain the name of a valid note. See Figure VI.1 on page VI.4 for a complete list of valid notes. Correct the data statement and rerun the exercise.

NO END STATEMENT

An 'out of data' condition has occured and the last data statement does not contain the word 'END'. Add a data statement to the end of the exercise that contains only the word 'END', then rerun the exercise.

NOTE COUNTING PRACTICE

EXAMPLES

1000 DATA NOTE COUNTING PRACTICE LEVEL#1

The title of the exercise will be displayed as:

NOTE
COUNTING
PRACTICE
LEVEL#1

1010 DATA 4/4,Q,1,2/4,H,2,END

After the title is displayed, a quarter note will be displayed in 4/4 time and the correct answer to the problem will be 1. After the student correctly answers the problem, a half note will be displayed in 2/4 time and the correct answer will be 2. After the student answers that note, the student's score will then be displayed and the student will be given the option of repeating the exercise.

1010 DATA 6/8,E.,1 1/2,2/2,QR.,3/4,END

The process is the same as above except that a dotted eighth note will be displayed in 6/8 time and the correct answer to the problem will be 1 1/2. Then a dotted quarter rest will be displayed in 2/2 time with a correct answer of 3/4.

SECTION VII

MEASURE PRACTICE

MEASURE PRACTICE

CONCEPTS PRESENTED

MEASURE PRACTICE is an exercise that is similar to NOTE COUNTING PRACTICE, except that the student must determine the counts received by a series of notes. The purpose of the exercise is two fold. First, it is a logical extention of the NOTE COUNTING PRACTICE and will teach the student how to determine the count that a particular note will get when used in a certain time signature. Second, it teaches the student how to use the top value of the time signature to determine how many counts are in a measure of music. This is done by displaying a musical staff for the treble clef, displaying a time signature and a a series of notes (up to twenty-four) on the screen. The student must then identify the counts that each note will get, and where the measure bars should be placed.

Like NOTE COUNTING PRACTICE, when creating data statements abbreviations are used for the notes. For example, a dotted half note is 'H.', a dotted thirty-second rest is 'TR.', and so forth. Triplets are identified by QT, ET and ST for quarter, eighth and sixteenth note triplets respectively. Figure VII.1 on page VII.3 is a complete list of all notes possible in MEASURE PRACTICE.

MUSIC TUTOR comes with data statements for twelve levels of difficulty. See Figure VII.2 on page VII.4 for a complete listing of the notes used in each level. There are ten problems in each level

MEASURE PRACTICE

Abbrev.	Note
W	Whole note
H	Half note
Q	Quarter note
E	Eighth note
S	Sixteenth note
T	Thirty-second note
W.	Dotted whole note
H.	Dotted half note
Q.	Dotted quarter note
E.	Dotted eighth note
S.	Dotted sixteenth note
T.	Dotted thirty-second note
WR	Whole rest
HR	Half rest
QR	Quarter rest
ER	Eighth rest
SR	Sixteenth rest
TR	Thirty-second rest
WR.	Dotted whole rest
HR.	Dotted half rest
QR.	Dotted quarter rest
ER.	Dotted eighth rest
SR.	Dotted sixteenth rest
TR.	Dotted thirty-second rest
QT	Quarter note triplet
ET	Eighth note triplet
ST	Sixteenth note triplet

Figure VII.1 - Valid Abbreviations

MEASURE PRACTICE

NOTE	1	2	3	4	5	6	7	8	9	10	11	12
	2/4	3/4	4/4	4/4	6/8	4/4	4/4	2/2	6/8	6/4	9/8	3/2
W	.	.	X	X	.	X	X	X	.	X	X	X
H	X	X	X	X	X	X	X	X	X	X	X	X
Q	X	X	X	X	X	X	X	X	X	.	X	X
E	.	.	.	X	X	X	X	X	X	X	X	X
S	.	.	.	.	.	X	.	.	X	X	X	X
T	.	.	.	.	.	.	.	.	.	X	X	.
W.	.	.	.	.	.	.	.	.	.	X	.	X
H.	.	X	X	X	X	X	X	X	X	X	X	X
Q.	.	.	.	.	X	X	X	.	X	X	X	X
E.	.	.	.	.	.	.	.	.	X	X	X	X
S.	.	.	.	.	.	.	.	.	.	.	.	.
T.	.	.	.	.	.	.	.	.	.	.	.	.
WR	.	.	X	X	.	X	X	X	.	X	.	X
HR	.	.	X	X	X	X	X	X	.	X	X	X
QR	.	.	X	X	X	X	X	X	X	X	X	X
ER	.	.	.	X	X	X	X	.	X	X	X	.
SR	.	.	.	.	.	X	.	.	X	X	X	X
TR	.	.	.	.	.	.	.	.	.	.	X	.
WR.	.	.	.	.	.	.	.	.	.	X	.	X
HR.	.	.	.	.	.	.	.	.	.	X	X	X
QR.	.	.	.	.	.	.	.	.	.	X	X	X
ER.	.	.	.	.	.	.	.	.	.	.	X	.
SR.	.	.	.	.	.	.	.	.	.	.	.	.
TR.	.	.	.	.	.	.	.	.	.	.	.	.
QT	.	.	.	.	.	.	.	.	.	X	X	X
ET	.	.	.	.	.	.	X	.	.	X	X	X
ST	.	.	.	.	.	.	.	.	.	X	X	.

LEVEL NUMBER / TIME SIGNATURE

Figure VII.1 - Time Signatures And Notes Used In Each Level

X - Indicates the note is used in the level.

. - Indicates the note is not used the level.

MEASURE PRACTICE

PROCESS

1. Load the program.

   For the disk version, place the MUSIC TUTOR disk in the disk drive, type in the following, then hit the RETURN key:

   ```
   LOAD "D:MEASURE"
   ```

   For the tape version, place the MEASURE PRACTICE tape in the tape player, press the PLAY key, type in CLOAD, then hit the RETURN key TWICE.

2. Select the desired level.

   The disk version does not contain any data statements when loaded. Therefore, the data statements must be entered for the desired level before the practice can be run. To enter the desired level type in the following, then hit the RETURN key:

   ```
   ENTER "D:MEASURE.Lx"
   ```

   Where the 'x' is the number coresponding to the level desired. For example, to enter level one, type in ENTER "D:MEASURE.L1" and hit the RETURN key.

   The tape version contains data statements for ALL levels when loaded. However, all of the data statements have the word 'REM' after the line number and before the actual data statement. This causes the line to be a REMARK line. To select the desired level delete the word 'REM' from the lines containing the data statements for the desired level. For example, change

   ```
   1020 REM DATA 4/4,Q,H,Q,M,W,M,Q,Q,END
        to
   1020 DATA 4/4,Q,H,Q,M,W,M,Q,Q,END
   ```

   Don't forget to remove the 'REM' from the line containing the title for the desired level.

3. When the student is prepared, then run the exercise by typing in 'RUN' then hitting the RETURN key.

4. The first display will be the title of the exercise. While the title is being displayed, the program will read the remaining data statements and verify their contents. Should an invalid data statement be found, then an error message will be displayed. See the ERROR MESSAGES section below for a detail description of each possible error message.

MEASURE PRACTICE

PROCESS (Cont.)

5. The display after the title will be a musical staff for the treble clef. A time signature and a series of notes will then be displayed. Which notes are displayed is determined by the items read from the data statements. A flashing measure bar will be displayed after the first note on the screen.

6. The student can move the flashing measure bar by pressing the '<' key (to move left) or the '>' key (to move right). The flashing measure bar may also be move by using a joystick plugged into port one.

7. The student must determine from the time signature and the notes displayed where the measure bar should be placed, move the flashing measure bar to the correct position and press the RETURN key. If the joystick is being used, then the student may press the red button on the joystick instead of pressing the RETURN key.

8. If the student has properly placed the flashing measure bar, then the 'right answer sound' will produced and the word 'RIGHT !' will be displayed. The flashing measure bar will then become a fixed measure bar and a new flashing measure bar will be displayed. The student can then move this new flashing measure bar to the next correct position.

9. If the student has not correctly positioned the flashing measure bar then the 'wrong answer sound' will be produced and the flashing measure bar will remain in the current position.

10. Once all of the measure bars on the screen have been properly positioned, then (depending on the data statements) a new screen of notes will be displayed and the process is repeated.

11. The process continues until all data statements have been used and the student has correctly positioned all measure bars.

12. The student's score is then displayed and the student is given the option of repeating the exercise.

MEASURE PRACTICE

VALID ENTRIES

The student has the option of using the computer keyboard or a joystick to move the flashing measure bar. If the keyboard is used, then the only valid entries are the '<' key (to move the measure bar left), the '>' key (to move the measure bar right), and the RETURN key (to indicate the measure bar is in the correct position). If a joystick is used, then the flashing measure bar may be moved left or right by pressing the joystick in the desired direction. The joystick trigger (the red button) may be used to indicate the measure bar is correctly positioned.

Hitting any other key on the computer keyboard will produce the 'invalid key sound' and will result in the entry being ignored. The 'invalid key sound' may also be produced if the student attempts to move the measure bar out of range.

TEACHING MODE

This exercise does not contain a teaching mode.

MEASURE PRACTICE

FORMAT OF THE DATA STATEMENTS

The first data statement must begin on or after line number 1000 and must contain the title of the exercise. See SECTION I - GENERAL INFORMATION for more information regarding the title.

The data statements following the data statement containing the title define the notes to be used in the exercise. For each screen of notes to be displayed, multiple data statements are required. They are the time signature, the notes, the measure indicator, and the end of screen delimiter.

The time signature must be in the following format:

<top value>/<bottom value>

Where <top value> is the number of counts in each measure and <bottom value> is the value received by a whole note. The top value and bottom value must be separated by a slash (/). For example, 2/2 and 3/4 are valid time signatures. The top value and bottom value must be greater than one and less than thirty-three.

The data statements following the time signature must contain the notes to be displayed. Figure VII.1 on page VII.3 has a complete list of all notes that can be used in data statements.

The measure indicator is used by the exercise to determine if the student has correctly positioned the flashing measure bar. The letter 'M' is used as a measure delimiter.

The end of screen delimiter is the word 'END' and is used to indicate that no more notes are to be displayed on the current screen. This allows multiple screens of notes to be displayed.

The last data statement in the exercise must be the word 'END'. Note that the end of screen delimiter is also the word 'END'. Thus the last TWO data statements in the exercise will always be 'END'.

MEASURE PRACTICE

FORMAT OF THE DATA STATEMENTS (Cont.)

The data statements must meet the following restrictions:

- The first data statement for EACH screen of notes must be the time signature.

- A maximum of twenty-four notes may be displayed on EACH screen. NOTE: each triplet requires two note positions. Thus, for example, the data statements Q,QT,W would occupy FOUR note positions (one for the quarter note, two for the triplet, and one for the whole note).

- Each screen of notes must have at least one measure bar defined, but no more than eight measure bars defined.

There is no maximum to the number of screens of notes that can be defined by the data statements. However, since all data statements are pre-edited while the title is being displayed, a large number of data statements will cause the title to be displayed an inordinate amount of time.

MEASURE PRACTICE

ERROR MESSAGES

As with the other MUSIC TUTOR exercises, the data statements associated with the exercise are pre-edited for validity. Thus, should the exercise contain an invalid data statement, an error message will be displayed before the first item on the exercise is displayed. This assures that the student can perform the exercise without interruption caused by an invalid data statement.

All of the error messages follow the standard MUSIC TUTOR error message format. See SECTION I - GENERAL INFORMATION for details of the standard error message format. Possible error messages are:

NO TITLE FOUND

> This error will occur when there are no data statements beginning on or after line number 1000. Use the ENTER command to enter the data statements required to drive the exercise, then rerun it.

TITLE TOO LONG (38 MAX)

> The length of the data statement containing the title is longer than 38 characters. Shorten the title and rerun the program.

WORD IN TITLE TOO LONG (20 MAX)

> One word in the data statement containing the title is longer than 20 characters. Pick a shorter word, rekey the title, and rerun the program.

MORE THAN 12 WORDS IN TITLE

> The data statement containing the title has more than 12 words in it. This can be resolved in one of two ways. First, select a shorter title (less than 12 words), rekey the data statement, and rerun. Another alternative is to tie two or more words together by typing a reverse video blank between them. See SECTION I - GENERAL INFORMATION for details on creating MUSIC TUTOR quiz and exercise titles.

MEASURE PRACTICE

ERROR MESSAGES (Cont.)

NO TIME SIGNATURE

The first data statement after the title must be a time signature. If no data statements exist after the data statement containing the title then this error message will occur. Enter the data statements required and rerun the exercise.

INVALID TIME SIGNATURE

A data statement was found that did not contain a valid time signature. See the FORMAT OF THE DATA STATEMENTS section for a complete description of the time signature format. Correct the data statement and rerun the exercise.

INVALID NOTE

A data statement was found that did not contain the name of a valid note. See Figure VII.1 on page VII.3 for a complete list of valid notes. Corect the data statement and rerun the exercise.

TOO MANY NOTES FOR SCREEN

The data statements defining a screen of notes to be displayed contains more notes than can be displayed on one screen. Either reduce the number of notes to be displayed, or split the notes into two screens. See the FORMAT OF THE DATA STATEMENTS section for more details.

NO MEASURES

Between the time signature and the end of screen delimiter there must be at least one measure indicator (M). This error message indicates no measure indicator was found. See the FORMAT OF THE DATA STATEMENTS section for more details.

MEASURE PRACTICE

ERROR MESSAGES (Cont.)

MORE THAN 8 MEASURES ON SCREEN

Between the time signature and the end of screen delimiter the maximum number of measure indicators (M) that can be used is eight. This error message indicates that more than eight measure indicators was found. Either reduce the number of notes on the screen, or split the notes into two screens. See the FORMAT OF THE DATA STATEMENTS section for more details.

CONSECTUTIVE MEASURES

This error message indicates that two measure indicators (M) were found with no notes in between. Correct the data statement and rerun the exercise.

NO END STATEMENT

An 'out of data' condition has occured and the last data statement does not contain the word 'END'. The data statements describing each screen of notes to be displayed must have an end of screen delimiter (the word 'END'). Add a data statement to the end of the exercise that contains only the word 'END', then rerun the exercise.

NO FINAL END STATEMENT

The last data statement must be the word 'END'. This error message indicates that an end of screen delimiter was found, but no data statements were found after the delimiter. Add the word 'END' as the last data statement and rerun the exercise.

MEASURE PRACTICE

EXAMPLES

```
1000 DATA MEASURE PRACTICE LEVEL#1
```

The title of the exercise will be displayed as:

MEASURE
PRACTICE
LEVEL#1

```
1010 DATA 4/4,Q,H,Q,M,W,M,H,H,M,Q,Q,END
```

A screen of eight notes will be displayed. The notes that will be displayed are quarter note, half note, quarter note, whole note, half note, half note, quarter note and quarter note. A time signature of 4/4 will be used. The correct positions for the measure bars are after the third note (Q), after the forth note (W), and after the sixth note (H).

SECTION VIII

KEY SIGNATURE PRACTICE

KEY SIGNATURE PRACTICE

CONCEPTS PRESENTED

KEY SIGNATURE PRACTICE is an exercise that can be used by students at all levels. The purpose of the exercise is to teach the student how to determine the key signature of a piece of music by looking at the number of sharps and flats. This is done by displaying a musical staff for the treble clef, and displaying from one to seven sharps or flats, or no sharps or flats (as in the key of C major). The student must then identify the key signature and enter the correct answer.

MUSIC TUTOR comes with data statements for eight levels of difficulty. Each level is described below. There are ten problems in each level.

LEVEL 1.
In this level the student must identify only three different major key signatures. They are C (no sharps or flats), F (one flat), and G (one sharp). Most students learn these key signatures by rote.

LEVEL 2.
This level adds two more major key signatures. They are B flat (two flats) and D (two sharps).

LEVEL 3.
This level includes all of the major scale sharp keys.

LEVEL 4.
Included in this level are all of the major scale flat keys.

LEVEL 5.
This level is a review of the major scale key signatures, both flat and sharp.

LEVEL 6.
Up to this level only the major scale has been used. This level introduces the student to the minor key signatures and presents the sharp keys of the minor mode.

LEVEL 7.
This level presents the flat keys in the minor mode.

LEVEL 8.
This level is a review of the minor key signatures, both sharp and flat.

KEY SIGNATURE PRACTICE

PROCESS

1. Load the program.

   For the disk version, place the MUSIC TUTOR disk in the disk drive, type in the following, then hit the RETURN key:

   ```
   LOAD "D:KEYSIG"
   ```

   For the tape version, place the KEY SIGNATURE PRACTICE tape in the tape player, press the PLAY key, type in CLOAD, then hit the RETURN key TWICE.

2. Select the desired level.

   The disk version does not contain any data statements when loaded. Therefore, the data statements must be entered for the desired level before the practice can be run. To enter the desired level type in the following, then hit the RETURN key:

   ```
   ENTER "D:KEYSIG.Lx"
   ```

   Where the 'x' is the number coresponding to the level desired. For example, to enter level one, type in ENTER "D:KEYSIG.L1" and hit the RETURN key.

   The tape version contains data statements for ALL levels when loaded. However, all of the data statements have the word 'REM' after the line number and before the actual data statement. This causes the line to be a REMARK line. To select the desired level delete the word 'REM' from the lines containing the data statements for the desired level. For example, change

   ```
   1020 REM DATA MAJOR,F,C,G,F,C,END
        to
   1020 DATA MAJOR,F,C,G,F,C,END
   ```

   Don't forget to remove the 'REM' from the line containing the title for the desired level.

3. When the student is prepared, then run the exercise by typing in 'RUN' then hitting the RETURN key.

4. The first display will be the title of the exercise. While the title is being displayed, the program will read the remaining data statements and verify their contents. Should an invalid data statement be found, then an error message will be displayed. See the ERROR MESSAGES section below for a detail description of each possible error message.

KEY SIGNATURE PRACTICE

PROCESS (Cont.)

5. The display after the title will be a musical staff for the treble clef. A series of sharps or flats (or no sharps or flats) will be displayed. The number of sharps or flats displayed is determined by the item read from the data statement.

6. The exercise will then display the appropriate message such as 'WHAT MAJOR KEY SIGNATURE HAS 1 SHARP?', or 'WHAT MINOR KEY SIGNATURE HAS 3 FLATS?'. The word 'ANSWER...' will then be displayed and the exercise will wait for a response from the student.

7. If the student enters the correct answer then the 'right answer sound' will produced and the word 'RIGHT !' will be displayed.

8. If the student does not enter the correct answer then the 'wrong answer sound' will be produced and the exercise will again wait for a response from the student.

9. If the correct answer is not entered by the third try, then the correct answer will be displayed and the student will be asked to enter it.

10. The process of displaying a series of sharps or flats, then the student entering the name of the key signature continues until all key signatures contained in the data statements have been displayed and the student has correctly answered each problem on the exercise.

11. The student's score is then displayed and the student is given the option of repeating the exercise.

KEY SIGNATURE PRACTICE

VALID ENTRIES

Valid entries consists of a one or two character response. The first character of the response must be one of the following letters: A, B, C, D, E, F, or G. The second character of the response (if used) must be either 'F' for flat or 'S' for sharp.

Valid MAJOR key signatures are:

C G D A E B FS CS F BF EF AF DF GF CF

Valid MINOR key signatures are:

A E B FS CS GS DS AS D G C F BF EF AF

The BACKSPACE key may be used at any time to make corrections. After an entry has been made then the RETURN key may be pressed.

Hitting any other key on the computer keyboard will produce the 'invalid key sound' and will result in the entry being ignored.

KEY SIGNATURE PRACTICE

TEACHING MODE

This exercise contains a teaching mode. Teaching mode can be used to introduce the various key signatures to the student or to assist a student having difficulty with a particular level of the exercise.

Teaching mode may be used at any time during the exercise except when the student's score is being displayed.

To enter teaching mode, hold down the OPTION key and press the RETURN key. The words 'TEACHING MODE' will be displayed and you will be asked to enter the name of a note. Type in the name of the keysignature that is to be displayed, then hit the RETURN key. See VALID ENTRIES above for a description of the entries that can be made in teaching mode. After hitting the RETURN key the appropriate number of sharps or flats will be displayed and the exercise will ask for the name of another key signature. This process continues until you exit teaching mode.

To exit teaching mode, hit only the RETURN key without entering the name of a note. The exercise will then return to the same key signature that was being displayed before you entered teaching mode. Teaching mode may be entered as many times as desired during an exercise.

KEY SIGNATURE PRACTICE

FORMAT OF THE DATA STATEMENTS

The first data statement must begin on or after line number 1000 and must contain the title of the exercise. See SECTION I - GENERAL INFORMATION for more information regarding the title.

The data statement following the data statement containing the title must contain either the word 'MAJOR' or the word 'MINOR'. This indicates which mode (major or minor) is to be used in the exercise.

The names of the key signatures to be used in the exercise must come next. See the VALID ENTRIES section for a list of all valid major key signatures and minor key signatures.

The last data statement in the exercise must be the word 'END'.

KEY SIGNATURE PRACTICE

ERROR MESSAGES

As with the other MUSIC TUTOR exercises, the data statements associated with the exercise are pre-edited for validity. Thus, should the exercise contain an invalid data statement, an error message will be displayed before the first item on the exercise is displayed. This assures that the student can perform the exercise without interruption caused by an invalid data statement.

All of the error messages follow the standard MUSIC TUTOR error message format. See SECTION I - GENERAL INFORMATION for details of the standard error message format. Possible error messages are:

NO TITLE FOUND

> This error will occur when there are no data statements beginning on or after line number 1000. Use the ENTER command to enter the data statements required to drive the exercise, then rerun it.

TITLE TOO LONG (38 MAX)

> The length of the data statement containing the title is longer than 38 characters. Shorten the title and rerun the program.

WORD IN TITLE TOO LONG (20 MAX)

> One word in the data statement containing the title is longer than 20 characters. Pick a shorter word, rekey the title, and rerun the program.

MORE THAN 12 WORDS IN TITLE

> The data statement containing the title has more than 12 words in it. This can be resolved in one of two ways. First, select a shorter title (less than 12 words), rekey the data statement, and rerun. Another alternative is to tie two or more words together by typing a reverse video blank between them. See SECTION I - GENERAL INFORMATION for details on creating MUSIC TUTOR quiz and exercise titles.

KEY SIGNATURE PRACTICE

ERROR MESSAGES (Cont.)

MAJOR OR MINOR NOT SPECIFIED

The data statement following the data statement containing the title must contain either the word 'MAJOR' or the word 'MINOR'. Correct the data statement and rerun the exercise.

INVALID KEY SIGNATURE

A data statement was found that did not contain the name of a valid key signature. See the VALID ENTRIES section for a complete list of valid key signatures. Correct the data statement and rerun the exercise.

CAN'T FIND END STATEMENT

An 'out of data' condition has occured and the last data statement does not contain the word 'END'. Add a data statement to the end of the exercise that contains only the word 'END', then rerun the exercise.

KEY SIGNATURE PRACTICE

EXAMPLES

1000 DATA KEY SIGNATURE PRACTICE LEVEL#1

The title of the exercise will be displayed as:

KEY
SIGNATURE
PRACTICE
LEVEL#1

1010 DATA MAJOR,C,F,G,END

After the title is displayed, the treble clef staff will be displayed and no sharps or flats (C major) will be displayed. After the student correctly answers the problem, one flat (F major) will be displayed. The next display will be one sharp (G major). After the student answers that key signature, the student's score will then be displayed and the student will be given the option of repeating the exercise.

1010 DATA MINOR,FS,AS,AF,END

The process is the same as above except that three sharps (F sharp minor) will be displayed. Then seven sharps (A sharp minor) will be displayed. Finally, seven flats (A flat minor) will be displayed.