DIGITAL MOOD RING: PROGRAMMING CONCEPTS AND CALCULATOR SKILLS

TEXAS INSTRUMENTS

Summary of programming concepts in the project

- Control of a red-green-blue LED output
  - Send("SET COLOR 255 0 0")

- Display of text strings, variable values and expressions
  - Output(4,1,"TIME (SEC) =")
  - Output(4,13,N*0.5)

- For loops to repeat a set of commands a specified number of times
  - For(N,1,10)

    commands within loop

    End

- Connecting, reading and getting to a variable temperature sensor inputs
  - Send("CONNECT TEMPERATURE 1 TO IN 1")
  - Send("READ TEMPERATURE 1")
  - Get(T)

- Storing variables to variables using the store operator.
  - 9/5 x T+32➔F

- List variables of a set of values and accessing individual elements of the list using the position number.
  - {0.5,1,1.5,2}➔L_1
  - 2.5➔L_1(5)

- True/False comparison operators used in conditional statements for program control: =,≠,<,≤,>,≥

- Assignment of initial values to variables to give the program known starting points.
  - 0➔K
  - 0➔dim(L_1)

- While loops to repeat a set of commands while a condition is true
  - While K≠45

    commands within loop

    End

- Keyboard inputs using the TI-84 Plus CE getKey command that returns a two-digit number for the row and column (top left key, y=, is 11) of the last key pressed.
  - getKey➔K

- If-Then conditional statements that do a set of commands if a condition is true and are skipped if the condition is false
  - If T<22

    Then

    commands within If-Then block

    End

- Boolean operator *and* to require two conditional statements to be true for the entire statement to be true
  - If T≥22 and T<25

    Then

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Summary of TI-84 Plus CE concepts and skills

- ON starts at the home screen. The home screen is used for calculations, running programs and for program display commands.

- 2nd Quit will return you to the home screen from any situation on the calculator.

- Select from menus using arrow keys and enter or by the shortcut of the number or letter preceding the menu item

- clear key to back out of menus and dialogues

- The keyboard is divided into three sections:
  - Scientific calculator and math functions (bottom)
  - Entry, navigation and setup (middle)
  - Graphing and function keys (top)

- Press and release the 2nd key to access function labeled above the keys. The input cursor changes to an up arrow to indicate 2nd entry mode. Press the 2nd key again to toggle back to normal entry mode.

- Press and release the Alpha key to access Alpha characters labeled above the keys. The input cursor changes to an Alpha to indicate Alpha entry mode. Press the Alpha key again to toggle back to normal entry mode.

- The delete key deletes the character at the current cursor location.

- 2nd Insert sets insert mode to enter characters before the current cursor location. Insert mode is indicated by an underline cursor. 2nd Insert or arrow key toggles back to normal entry mode.

- Pressing the prgm key while on the home screen gives you options to select a program to run on the home screen, to edit an existing program or to create a new program.

- Editing a program or creating a new program puts you in the program editor. Pressing the prgm key while in the program editor brings up menus with programming functions.

- Alpha f5 while in the program editor brings up a menu of editor tools, including copy, paste and insert line and execute program.

- 2nd Quit while in the program editor exits the editor and returns you to the home screen.

- The Sto➔ key stores values to variables.

- The calculator has single variable values of A-Z and Θ and list variables of L1 and L6.

- 2nd catalog brings up a list of the functions of the calculator.

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