

DIGITAL MOOD RING: PROGRAMMING CONCEPTS AND CALCULATOR SKILLS

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
 - DispAt 5, “Temperature=”, t, “°C”
 - DispAt 4, “Time=”, n*0.5, “sec”
- For loops to repeat a set of commands a specified number of times
 - For n, 1, 10
 commands within loop
EndFor
- 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 assign operator, :=
 - f:=9/5 x t+32
- List variables of a set of values and accessing individual elements of the list using the position number.
 - time:={0.5, 1, 1.5, 2}
 - time[5]:=2.5
- True/False comparison operators used in conditional statements for program control: =, ≠, <, ≤, >, ≥
- Assignment of initial values to variables to give the program known starting points.
 - key:=“ “
 - time:={ }
- While loops to repeat a set of commands while a condition is true
 - While key≠“esc”
 commands within loop
EndWhile
- Keyboard inputs using the TI-Nspire getKey command that returns a text string of the name of the last key pressed
 - key:=getKey()
- 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
EndIf
- 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

Summary of TI-Nspire concepts and skills

- Home/On key to turn the calculator on and to return to the home screen, which is a jumping off point for managing the calculator.
- TI-Nspire document files combine a set of pages containing apps. Apps include calculator, program editor, grapher and others.
- Home screen document management includes
 - New document to start a new document file
 - My Documents to view and manage documents
 - Current returns to the document that is open
- Select from menus using arrow keys and enter or by the shortcut of the number or letter preceding the menu item
- The keyboard is divided into three sections:
 - Alpha entry (bottom)
 - Math entry (middle)
 - Navigation and document management (top)
- Press and release the ctrl key to access function labeled above the keys.
- esc key to back out of menus and dialogues
- ctrl-z to undo, ctrl-c to copy, ctrl-x to cut, ctrl-v to paste
- ctrl-s to save the document
- The delete key is a destructive backspace
- ctrl-doc key (+page) to add a page to a document
- Move from page to page in a document by using ctrl left arrow and ctrl right arrow or by using the touchpad to move the pointer to the page number tab and center clicking
- The menu key brings up selections that are available in each app
- Use the program editor app to create and edit programs.
- Use Check Syntax and Store to update changes made to programs before running the program.
 - ctrl-r and ctrl-b are useful shortcuts on the Check Syntax and Store menu.
 - ctrl-r, Run, checks syntax, stores and pastes the program name to a calculator page
- Programs are run on the calculator app
 - Type or paste the program name on a blank row, then press enter to run the program
- Use the var, variable, key to view and access the variables in a document
- Use the catalog (book symbol) key to see a menu of all the functions in the calculator