TI-Nspire™ Software Script

Creating a program (Tutorial E4)

http://www.atomiclearning.com/k12/en/movie/86423/play_window?type=Tutorial&sid=2421

[00:00:00.00]
You can write your own functions and programs using the Program Editor in the Calculator application. I'll insert

[00:00:07.00]
the Calculator application by clicking Insert and choosing Calculator. The TI-Nspire software considers Functions

[00:00:16.00]
and Programs very similar things. One difference is that Functions can return a value that can be graphed or entered

[00:00:24.00]
in a table, just like sin(x). In this case, I want to write a simple set of instructions that will randomly generate

[00:00:33.00]
a number, and then display the word "heads" or "tails" depending on which number was generated. I'll write this as a program.

[00:00:42.00]
I'll go over to the Document Tools on the left side, and click on Functions and Programs, then Program Editor, New.

[00:00:54.00]
I'll call this program coins by typing "c-o-i-n-s", and I'll make sure that the Type is set to Program. I'll leave

[00:01:09.00]
the Library Access set to the default, and then click OK to move into the Program Editor. I'll enter into a split

[00:01:18.00]
screen view, with my calculator entry on the left, and my Program Editor on the right. As you can see, the program

[00:01:26.00]
framework has already been entered. I'll press the down arrow key once to move to the field below the Program statement.

[00:01:35.00]
I'll be using the variable x in my program, but I need
to be careful whenever I do that, because other programs

[00:01:43.00]
and functions might be sharing the variable named "x". This
is called a global variable. I don't want that type of

[00:01:52.00]
variable;I want to tell the software to make a version
of the variable x that only applies within my program. This

[00:02:00.00]
is called a local variable, and I can create that by clicking
Define Variables, then choosing Local. Now, I'll type my

[00:02:11.00]
variable name, "x". To start a new line, I'll the press
the Enter key on the keyboard. Now, I need to tell the

[00:02:21.00]
program to generate my random number and store it in my
local x variable. Next, I'll click on the Window menu, and

[00:02:31.00]
I'll choose Utilities. On the left side I'll click to show
the Catalog. I'll click right in the Catalog and then

[00:02:41.00]
press "R" on the keyboard to move to the r's. Now I'll
press the down arrow key until I highlighted the random Integer

[00:02:50.00]
function, randInt(). Notice at the bottom of the catalog
there's a hint that shows me what this function requires.

[00:02:58.00]
According to the hint, I'll need to supply both lower and
upper bounds, separated by a comma. I'll press Enter to

[00:03:08.00]
copy randInt() to the program line, and then I'll enter
my bounds. I only want it to generate a 1 or a 2. 1 will

[00:03:19.00]
represent heads, and 2 will represent tails. I'll type
"1" then a comma, then "2" so randInt can only return

[00:03:31.00]
a 1 or a 2. Those are the only two possibilities. I'll
press the right-arrow key to move the cursor past the close

[00:03:40.00]
parenthesis. Once a number is generated, I'll need to store
it in my local x variable so I can test it. I'll go back

[00:03:50.00]
over to the Catalog again, and this time I'll press the
"z" key to move to the bottom of the alphabet. Now, I'll

[00:03:58.00]
press the down arrow key until I highlight the right-arrow
symbol, and press Enter. This symbol allows me to store

[00:04:08.00]
an expression or value in a variable, then type "x". When
I run the program later, the line "randInt(1,2) store x"

[00:04:21.00]
will generate a random value of 1 or 2, and store it in
my local variable, X. Now I'll press Enter to start a new

[00:04:32.00]
line. To test the stored x value, I'll need a programming
statement called "If...Then...Else". This is called a conditional

[00:04:42.00]
statement, because it executes commands based on conditions.
In this case, we want to tell the software If x=1, then

[00:04:53.00]
display the word 'heads.' Otherwise, display the word 'tails.
Another template helps you enter this statement; in the

[00:05:03.00]
Document Tools, just click Control, and then "If...Then.
Else...End If". After the template is inserted, I'll leave

[00:05:15.00]
the cursor right where it’s sitting, just to the right
of the word “If,” and I’ll type “x= 1”. Then I’ll press

[00:05:26.00]
the down arrow key to start a new line, and then I’ll click
I/O, and then choose Disp. Now I’ll type: (“heads”). This

[00:05:44.00]
means that if x=1, the software will display the word “Heads”
Now I’ll press the down arrow key twice to move to the

[00:05:54.00]
blank line under “Else,” and I’ll click I/O, and then choose
Disp. Now I’ll type: (“tails”). Since x can only be 1 or 2,

[00:06:12.00]
I know that if it’s not 1, it must be 2, so if x doesn’t
equal 1, then I want my program to display the word “tails.”

[00:06:21.00]
Now, I’ll click Check Syntax & Store, and then choose the
Check Syntax & Store option. If I’ve entered the program

[00:06:33.00]
correctly, I’ll see a message letting me know the syntax
is correct and that it’s been stored. If there’s a problem

[00:06:40.00]
with the syntax, the software will display an Error dialog
box instead. To run the program, I’ll click the work area

[00:06:49.00]
on the left to make it active, and in the Calculator entry
line I’ll right-click and choose Select Variables. Now

[00:07:02.00]
I’ll highlight my “coins” program, and then click to choose
it. I’ll then see an empty set of parentheses, and then

[00:07:12.00]
I’ll press Enter. I can run the program repeatedly by
just continuing to press Enter. Notice that it randomly

[00:07:21.00]
generates either the word “heads” or “tails” and displays
one of those words every time I press Enter.

[00:07:30.00]