Lesson 6 Lab 9.3 – Arrays and Flowchart

Critical Review

Arrays in Raptor are defined as follows:

```
arrayName[SIZE]
```

Size can either be a variable that is declared, or a specific number such as 10.

Array indices in Raptor start at 1. This is different than what is explained in the textbook, and also in Python.

This lab requires you to create a flowchart for the blood drive program in Lab 9.1. Use an application such as Raptor or Visio.

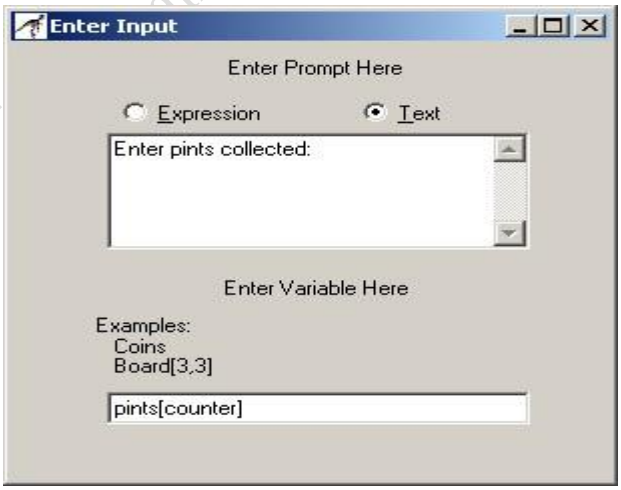
Step 1: Start Raptor and save your document as *Lab 9-3*. The *.rap* file extension will be added automatically.

Step 2: Start by adding a comment box with the necessary variables.

Step 3: Add your loop to run multiple times and your module calls in the main module.

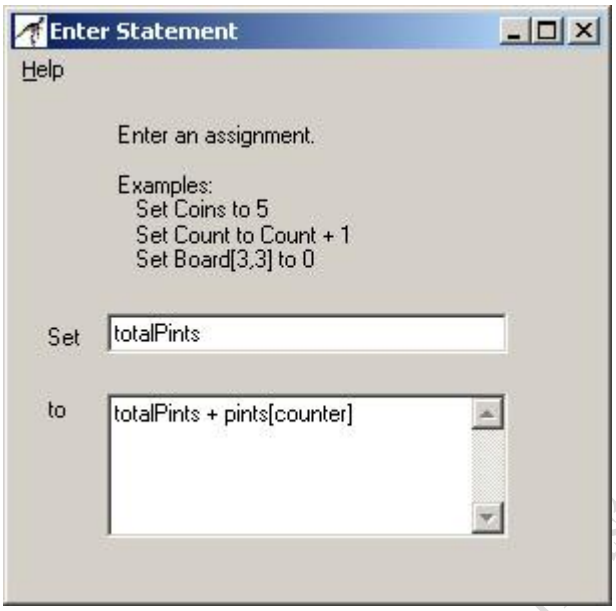
Step 4: Add the getPints( ) module in main. Go to the getPints() module and add the following inside the module:

- Add an assignment statement that sets counter to 1. Remember, counter has to be set to one because Raptor arrays must start at 1, not 0.
- Add a loop that runs as long as counter is less than 7. Remember, this should be written as counter > 7 because if yes, then the loop ends.
- Add an input statement that asks the user to enter number of pints, storing the answer in the array. The input should be entered as below.
- Add an assignment statement that will increment counter by 1.



Step 5: Add the getTotal( ) module in main. Go to the getTotal() module and add the following inside the module:

- Add an assignment statement that sets counter back to 1.
- Add an assignment statement that sets totalPints to 0.
- Add a loop that runs 7 times.
- Add an assignment statement that accumulates the value of the array. The input should be as below:
- Add an assignment statement that will increment counter by 1.



Step 6: Add the getAverage( ) module in main. Go to the getAverage() module and add the following inside the module:

- Add an assignment statement that sets counter back to 1.
- Add an assignment statement that sets averagePints to totalPints divided by 7.

Step 7: Add the getHigh( ) module in main. Go to the getHigh() module and add the following inside the module:

- Add an assignment statement that sets counter to 2. This refers to the second location in the array.
- Add an assignment statement that sets highPints to the 1 index of the pints array.
- Add a loop that iterates 7 times.
- Inside the loop, add a selection statement that determines if pints in the counter location is greater than highPints.
- If that is true, then set highPints to pints in the counter location.
- Increment counter by 1.

Step 8: Add the getLow( ) module in main. Go to the getLow() module and add the following inside the module:

- Add an assignment statement that sets counter to 2. This refers to the second location in the array.
- Add an assignment statement that sets lowPints to the 1 index of the pints array.

- Add a loop that iterates 7 times.
- Inside the loop, add a selection statement that determines if pints in the counter location is less than lowPints.
- If that is true, then set lowPints to pints in the counter location.
- Increment counter by 1.

Step 9: Add the displayInfo( ) module in main. Go to the display() module and add the following inside the module:

- Display the averagePints variable
- Display the highPints variable
- Display the lowPints variable

Step 10: Using the following input values, check your results. If there are errors, verify steps 1 through 10.

Element	34	39	25	18	43	31	12

Output should be as follows:

The average pints collected: 28.8571
The highest amount was: 43
The lowest amount was: 12

Step 11: Execute the program to make sure it works and upload your completed RAPTOR (.rap) file as your submission.