

Lesson 7 Lab 10.4 – Programming Challenge 1 -- Going Green and File Interaction

Create a RAPTOR Flowchart for the following programming problem. Note that in addition to what the program already does, it should create a file called savings.txt and store the savings array to a file. The pseudocode is provided.

Last year, a local college implemented rooftop gardens to promote energy efficiency and save money. Write a program that will allow the user to enter the energy bills from January to December for the year prior to going green. Next, allow the user to enter the energy bills from January to December of the past year after going green. The program should calculate the energy difference from the two years and display the two years' worth of data, along with the savings. Additionally, the savings array should be printed to a file called savings.txt.

The Pseudocode

```
Module main()
    //Declare local variables
    Declare endProgram = "no"

    Declare Real notGreenCost[12]
    Declare Real goneGreenCost[12]
    Declare Real savings[12]
    Declare String months[12] = "January", "February", "March", "April", "May", "June", "July",
        "August", "September", "October", "November", "December"
    Declare Integer option = 0

    While endProgram == "no"
        //function calls
        If option == 1 Then
            getNotGreen(notGreenCost, months)
            getGoneGreen(goneGreenCost, months)
            energySaved(notGreenCost, goneGreenCosts, savings)
        Else If option == 2 Then
            displayInfo(notGreenCost, goneGreenCosts, savings, months)
        Else If option == 3 Then
            writeToFile(months, savings)
        Else If option == 4 Then
            readFromFile(months, savings)
        End If

        Display "Do you want to end the program? Yes or no"
        Input endProgram
    End While
End Module
```

```

Module writeToFile(String months[], Real savings[])
  Declare outFile AppendMode savingsFile
  Open savingsFile "savings1.txt"
  Write savingsFile "Savings"
  Declare Integer counter = 0
  While counter < 12
    Write savingsFile months[counter]
    Write savingsFile savings[counter]
    Set counter = counter + 1
  End While
  Close savingsFile
End Module

```

```

Module readFromFile(String months[], Real savings[])
  Declare inFile savingsFile
  Open inFile "savings1.txt"
  Read savingsFile str1
  Display str1
  Read savingsFile months
  Display months
  Read savingsFile savings
  Display savings
  Close inFile
End Module

```

```

Module getNotGreen(Real notGreenCost[], String months[])
  Set counter = 0
  While counter < 12
    Display "Enter NOT GREEN energy costs for", months[counter]
    Input notGreenCosts[counter]
    Set counter = counter + 1
  End While
End Module

```

```

Module getGoneGreen(Real goneGreenCost[], String months[])
  Set counter = 0
  While counter < 12
    Display "Enter GONE GREEN energy costs for", months[counter]
    Input goneGreenCosts[counter]
    Set counter = counter + 1
  End While
End Module

```

```

Module energySaved(Real notGreenCost[], Real goneGreenCost[], Real savings[])
  Set counter = 0
  While counter < 12
    Set savings[counter] = notGreenCost[counter] - goneGreenCost[counter]
    Set counter = counter + 1
  End While
End Module

```

```
Module displayInfo(Real notGreenCost[], Real goneGreenCost[], Real savings[], String months[])
  Set counter = 0
  While counter < 12
    Display "Information for", months[counter]
    Display "Savings $", savings[counter]
    Display "Not Green Costs $", notGreenCost[counter]
    Display "Gone Green Costs $", goneGreenCost[counter]
  End While
End Module
```

Create the RAPTOR Flowchart

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