**HOMEWORK ASSIGNMENT #6**

**Please complete the following items from Chapter 6 and submit by the assigned due date.**

**Algorithm Workbench *(3 pts each)***

**1.** As shown in this chapter, which of the following pseudocode statements generates a random number in the range of 1 through 100 and assigns it to a variable named rand.

**a.** Set random = random(1, 100)

**b.** Set rand = random(10, 100)

**c.** Set rand = random(1, 100)

**d.** Set rand = rand(1, 100)

C

**3.** A pseudocode program contains the following function definition:

Function Integer cube(Integer num)

Return num \* num \* num

End Function

Which statement from below would pass the value 4 to this function and assigns its return value to the variable result.

**a.** Set value = cube(4)

**b.** Set result = cube(4)

**c.** Set result = cube(2)

**d.** Set resultvalue = cube(14)

B

**Debugging Exercises: *(5 pts)***

**2. Can you find the reason that the following pseudocode function does not return the value indicated in the comments?**

// The calcDiscountPrice function accepts an item's price and

// the discount percentage as arguments. It uses those

// values to calculate and return the discounted price.

Function Real calcDiscountPrice(Real price, Real percentage)

// Calculate the discount.

Declare Real discount= price \* percentage

// Subtract the discount from the price.

Declare Real discountPrice = price - discount

// Return the discount price.

Return discount

End Function

**a.** This function returns the wrong value.

**b.** The discountPrice should subtract the percentage.

**c.** The line "// Return the discount price." should be "// Return the discountPrice."

**d.** discountPrice should be declared as an integer not a real number.

A

**Programming Exercises: *(7 pts pseudocode, 7 pts flowchart)***

***\*\*\* PLUS – You can earn an extra 5 pts Extra Credit for the Python code***

**11.** **Rock, Paper, Scissors Game!** Yes, you are going to write your first game!!!

Design a program that lets the user play the game of Rock, Paper, Scissors against the computer.

The program should work as follows:

(1) When the program begins, a random number in the range of 1 through 3 is generated. If the number is 1, then the computer has chosen Rock. If the number is 2, then the computer has chosen Paper. If the number is 3, then the computer has chosen Scissors. (Don't display the computer's choice yet.)

(2) The user enters his or her choice of "Rock," "Paper," or "Scissors" at the keyboard.

(3) The computer's choice is displayed.

(4) The program should display a message indicating whether the user or the computer was the winner. A winner is selected according to the following rules:

* If one player chooses Rock and the other player chooses Scissors, then Rock wins. (The Rock smashes the Scissors.)
* If one player chooses Scissors and the other player chooses Paper, then Scissors wins. (Scissors cut Paper.)
* If one player chooses Paper and the other player chooses Rock, then Paper wins. (Paper wraps Rock.)
* If both players make the same choice, the game must be played again to determine the winner.

***The Raptor flowchart and Python code must be uploaded separately (your .rap file and your .py file), along with another document containing the answers to Algorithm Workbench and Debugging Exercise items.***

main()

Declare Integer pc

Declare String shootPC

Declare String shootPlayer

Set shootPC = “Rock”

Set shootPlayer = “Rock”

While shootPC == shootPlayer

Set pc = random(1, 3)

Call computerRPC(pc, shootPC)

Call userInput(shootPlayer)

If shootPC == shootPlayer, then

Display “The computer chose”, shootPC

Display “The computer and the player tied!”

End If

End While

Call gameResults(shootPC, shootPlayer)

End Module

//

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//

computerRPC(pc, shootPC)

If pc == 1, then

Set shootPC = “Rock”

Else If pc == 2, then

Set shootPC = “Paper”

Else

Set shootPC = “Scissors”

End If

End If

End If

Return shootPC

End Module

//

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//

userInput(shootPlayer)

Display “Would you like to choose Rock, Paper, or Scissors?”

Input shootPlayer

While shootPlayer ≠ “Rock” OR shootPlayer ≠ “Paper” OR shootPlayer ≠ “Scissors”, then

Display “Please enter Rock, Paper, or Scissors. This program is case sensitive.”

Input shootPlayer

End While

Return shootPlayer

End Module

//

//----------------------------------

//

gameResults(shootPC, shootPlayer)

Display “The computer player chose”, shootPC

//Player win conditions

If shootPC == “Rock” AND shootPlayer == “Paper”, then

Display “The player has won!”

Else If shootPC == “Paper” AND shootPlayer == “Scissors”, then

Display “The player has won!”

Else If shootPC == “Scissors” AND shootPlayer == “Rock”, then

Display “The player has won!”

//Computer win conditions

Else If shootPC == “Rock” AND shootPlayer == “Scissors”, then

Display “The computer has won!”

Else If shootPC == “Paper” AND shootPlayer == “Rock”, then

Display “The computer has won!”

Else If shootPC == “Scissors” AND shootPlayer == “Paper”, then

Display “The computer has won!”

End If

End If

End If

End If

End If

End If

Return shootPC, shootPlayer

End Module