	Air University - Aerospace and Aviation Campus, Kamra **Department of Computer Science**

Programming Fundamental(CS111)

Assignment # 01

[CLO-1, Taxonomy Level-C2, PLO-2]

Solution

Course: BSCS-1 **Semester: 1st (**Fall 2023)

Due Date: 17/10/2023 **Total** Marks**:** 30

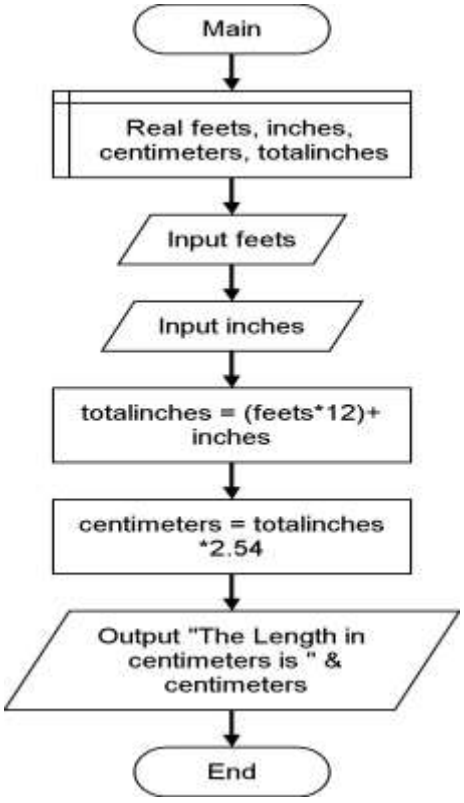
Instructions

1. *Plagiarism, copy & past material will lead to the cancellation of your assignment.*
2. *Write your* Name, Reg# on the first page (title page) of your submission.
3. No late submission

1. Algorithm:

```
Inputs:
  feet
  inches

Outputs:
  centimeters

Main Algorithm:

1. Start
2. Display a message to user asking for input:
   "Please Enter the Length in Feet/Inches:"
3. Read the input value for 'feet' and inches as a floating-point/double number.
4. Read the input value for 'inches' as a floating-point number.
5. Calculate the total length in inches:
     total_inches = (feet * 12) + inches
6. Convert the total inches to centimeters using the conversion factor:
      centimeters = total_inches * 2.54
8. Display the result with a message, showing the original length in feet and
inches and the equivalent length in centimeters:
   "The length of {feet} feet and {inches} inches is equal to {centimeters}
centimeters."
9. End
```

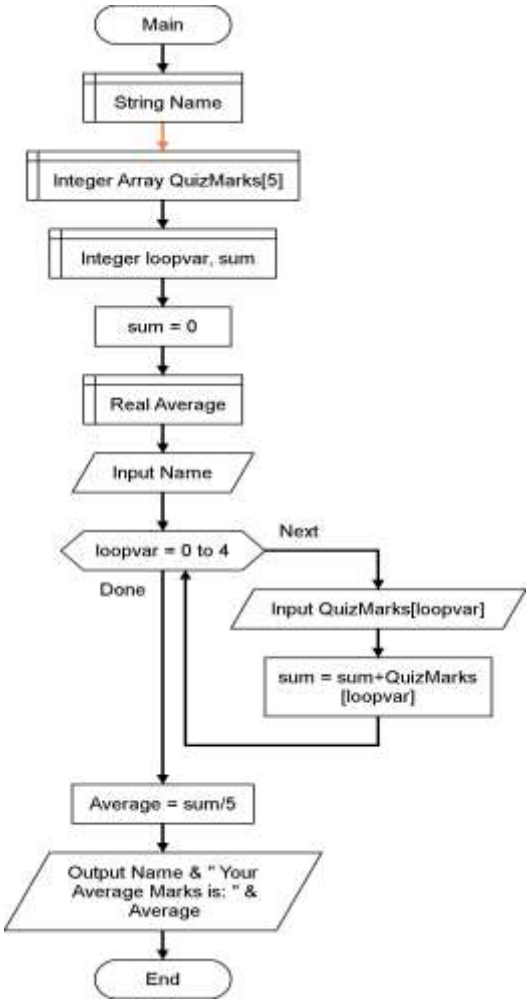
Flowchart:



2. Algorithm:

```
Inputs:
  student_name
  quiz_marks (an array or list to store the five quiz marks)

Outputs:
  student_name
  quiz_marks
  average_marks

Main Algorithm:

1. Start
2. Display a message asking for input, student's name:
   "Please Enter Your Name:-"
3. Read the Name from in a String variable, student_name
4. Repeat the following steps to input five quiz marks:
      a. Display a message asking for input:
         "Enter quiz mark  (out of 100):"
      b. Read the input value for 'quiz_mark' as an integer.

5. Calculate the average mark:
     sum = Sum of elements in 'quiz_marks'
     average_mark = sum / 5
6. Display the student's name and the five quiz marks:
   "Student Name: {student_name}"
   "Quiz Mark: 1-5
7. Display the average mark:
   "Average Mark: {average_mark}"

8. End
```

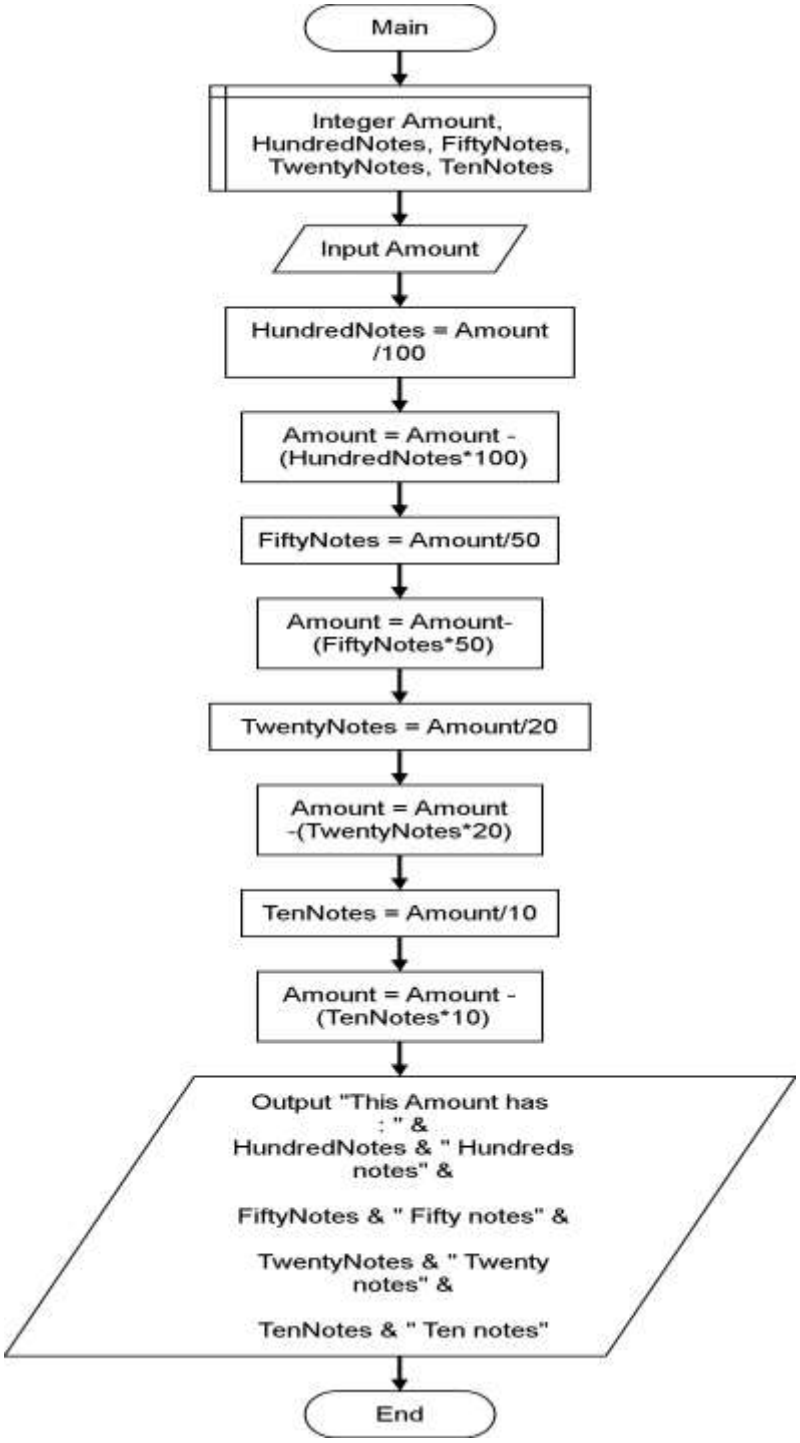
Flowchart:


Main
String Name
Integer Array QuizMarks[5]
Integer loopvar, sum
sum = 0
Real Average
Input Name
loopvar = 0 to 4
Next
Done
Input QuizMarks[loopvar]
sum = sum+QuizMarks [loopvar]
Average = sum/5
Output Name & " Your Average Marks is: " & Average
End

3. Algorithm:

```
Inputs:
  total_amount

Outputs:
  hundred_notes
  fifty_notes
  twenty_notes
  ten_notes

Main Algorithm:

1. Start
2. Display a message asking for input, total amount in PKR:
   "Please Enter the total Amount (PKR):-"
3. Read the amount in an integer variable, total_amount
4. Calculate the number of 100 Rs notes:
    hundred_notes = total_amount / 100
    Reduce 'total_amount' by (hundred_notes * 100)
5. Calculate the number of 50 Rs notes:
   fifty_notes = total_amount / 50
   Reduce 'total_amount' by (fifty_notes * 50)

6. Calculate the number of 20 Rs notes:
    twenty_notes = total_amount / 20
    Reduce 'total_amount' by (twenty_notes * 20)

7. Calculate the number of 10 Rs notes:
   - ten_notes = total_amount / 10
   - Reduce 'total_amount' by (ten_notes * 10)

8. Display the number of each type of note to be returned:
   "100 Rs Notes: {hundred_notes}"
   "50 Rs Notes: {fifty_notes}"
   "20 Rs Notes: {twenty_notes}"
   "10 Rs Notes: {ten_notes}"


9. End
```

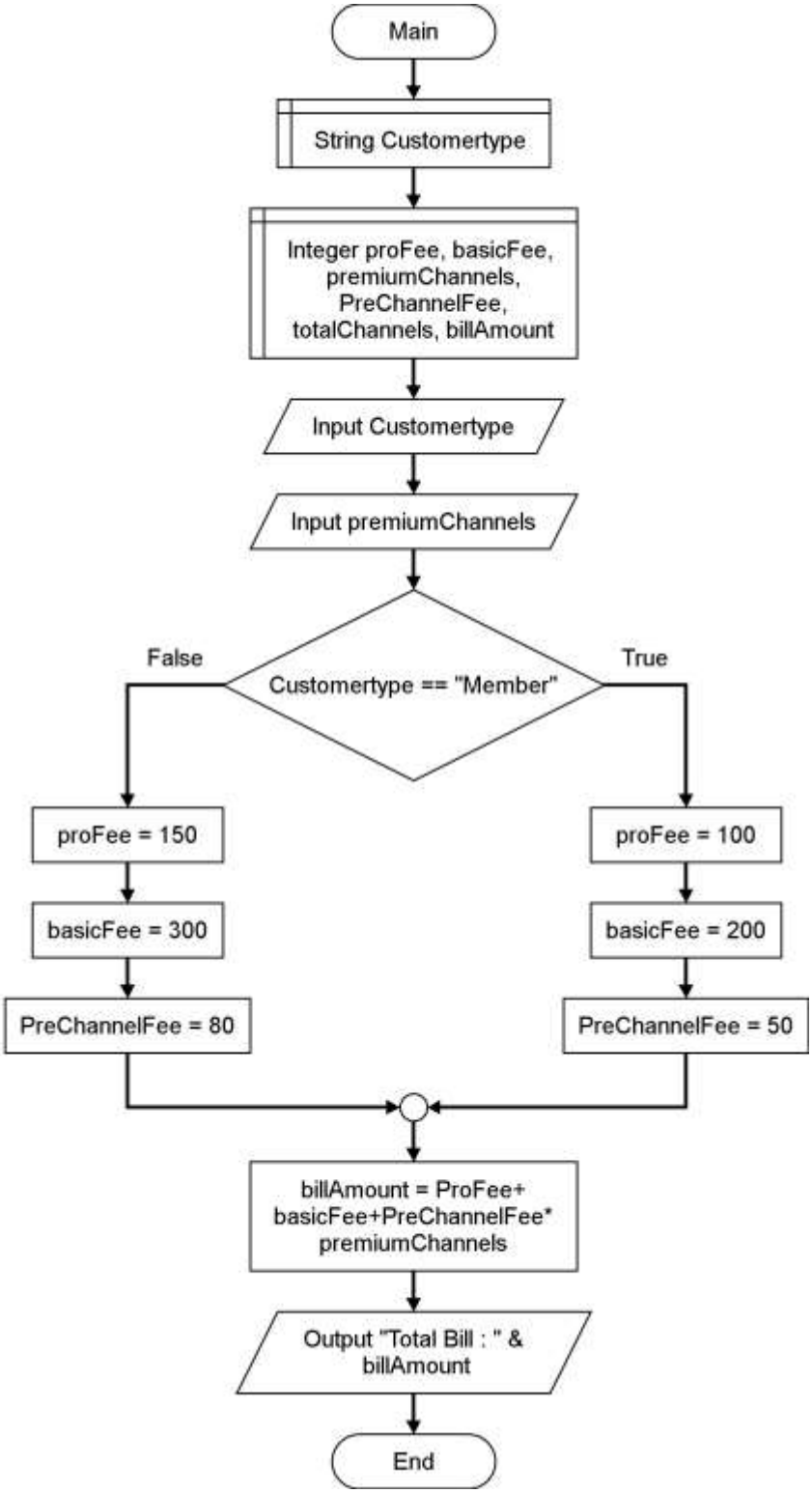
Flowchart:


Main
Integer Amount, HundredNotes, FiftyNotes, TwentyNotes, TenNotes
Input Amount
HundredNotes = Amount /100
Amount = Amount - (HundredNotes*100)
FiftyNotes = Amount/50
Amount = Amount- (FiftyNotes*50)
TwentyNotes = Amount/20
Amount = Amount -(TwentyNotes*20)
TenNotes = Amount/10
Amount = Amount - (TenNotes*10)
Output "This Amount has : " & HundredNotes & " Hundreds notes" &
FiftyNotes & " Fifty notes" &
TwentyNotes & " Twenty notes" &
TenNotes & " Ten notes"
End

4. Algorithm:

```
Inputs:
  customer_type
  premium_channels
  total_channels

Outputs:
  bill_amount

Main Algorithm:

1. Start
2. Display a message asking for input:
   "Enter customer type (Member/Non-Member):"
3. Read the input value for 'customer_type' as a string.
4. Display a message asking for input:
   "Enter the number of premium channels subscribed:"
5. Read the input value for 'premium_channels' as an integer.

6. Calculate the basic service fee based on the customer type:
   If 'customer_type' is "Member":
       basic_service_fee = 200
   If 'customer_type' is "Non-Member":
       basic_service_fee = 300

7. Calculate the premium channels fee:
   premium_channels_fee = premium_channels * 50
   premium_channels_fee = premium_channels * 80

8. Calculate the bill processing fee based on the customer type:
   If 'customer_type' is "Member":
        bill_processing_fee = 100
   If 'customer_type' is "Non-Member":
         bill_processing_fee = 150

9. Calculate the total bill amount:
   bill_amount = basic_service_fee + premium_channels_fee + bill_processing_fee

10. Display the customer's bill amount:
    "Customer's Bill Amount: {bill_amount} PKR"

11. End
```

Flowchart:


Main
String Customertype
Integer proFee, basicFee, premiumChannels, PreChannelFee, totalChannels, billAmount
Input Customertype
Input premiumChannels
Customertype == "Member"
False
True
proFee = 150
basicFee = 300
PreChannelFee = 80
proFee = 100
basicFee = 200
PreChannelFee = 50
billAmount = ProFee+ basicFee+PreChannelFee* premiumChannels
Output "Total Bill : " & billAmount
End