CL-1002
Programming Fundamentals
Lab # 3

Objectives:

- Introduction to if-else if.
- Introduction to while loop.
- Exhibit the understanding of pseudocode and flow chart.

Note: Carefully read the following instructions (*Each instruction contains a weightage*)

1. Use proper **font family** and **font size** of **heading**, **sub heading** and **normal text**.
2. First think about statement problem then write/draw your logic on copy.
3. Write pseudocode of every task on **Microsoft Word**.
4. File tittle should in proper format (**22F-1001-Lab2**)
5. Do not copy from any source otherwise you will be penalized with negative marks.
6. Complete your lab **within given Time Slot**.

Problem: Write pseudocode and flow chart of decision-based and iterative problems.

1. Write pseudocode to check whether a character is Vowel or Consonant. (using AND,OR operator)
2. Write pseudocode to read the age and nationality of a candidate and determine whether it is eligible for casting his/her own vote or not. Only Pakistan national and 18 above can cast their vote.
3. Write pseudocode to display the table of a user define number.
4. Write pseudocode to find largest number from three number given by user.
5. Write pseudocode that display first ten integer number.
6. Write pseudocode that display the sum and average of first ten integer number.
7. Write pseudocode that calculate the factorial user define number
8. Write a program that take base and power from user and calculate power (like base=3, pow=2 , output: 9)
9. Write a program that calculate the multiplication of two numbers without using multiply symbol.

10. Write a program that display the number, its square and cube till n number. Where n is any number taken from user.
    (n = 3
    1 1 1
    2 4 8
    3 9 81)
11. Write a program that display the sum of the following series:
    ($x + x^2 + x^3$)where x is the input
12. Write a program that take number from user and check whether it is prime or not.
13. Write a program to find sum of the series (1 + 11 + 111 + 1111 …. N terms). Where N is input.

Problem 1: Draw the flow chart to calculate the area of a circle. (pi*r*r)

Problem 2: Draw the flow chart to display average of three input number.

Problem 3: Draw the flow chart to display whether the input number is even or odd.

Problem 4: Draw the flow chart to display whether the input year is leap or not.

Problem 5: Draw flow chart of a program that checks exams of two students. Program checks of two exams have more than 60% similarity then both students are declared as fail. Otherwise checks of a student has more than 50% marks then student is declared as pass, if student has less than 50% marks then student is declared as fail.

Problem 6: Draw flow chart of a program that charges income tax to different employees of FAST-NUCES. If employee is in faculty he/she is charged 4% of his salary as income tax. If employee is in management staff he/she is charged 3% of his salary as income tax. If employee is an attendant/guard he/she is charged 2% of his salary as income tax.

Problem 7: Draw a flow chart for a program that asks the user for choice of shape. If user enters ‘circle’ as choice then it asks you to enter ‘radius’ and program return area of the circle. If user enters ‘triangle’ as choice then program asks you enter the length of sides and returns the parameter of the triangle. If user enters ‘rectangle’ then program asks you to enter height and width and finally returns the area of the rectangle.

Problem 8: Draw flow chart of a program that suggests degree programs of a BS degree applicants. If student’s intermediate marks are less than 40% he/she is straight away rejected with message saying “not qualified”. Otherwise, if student’s aggregate is above 60% he/she is admitted to BSCS program. Otherwise, if student’s aggregate is above 55% he/she is admitted to BSSE program. Otherwise, if student’s aggregate is above 50% he/she is admitted to BSAI

program. Otherwise, if student's aggregate is above 45% he/she is admitted to BSBA program. Otherwise, student is shown message as "not qualified".

Best of Luck ☺

You need to done with your exercise within given time.