CL-1002
Programming Fundamentals
Lab # 2

Objectives:

- Introduction to procedural flow.
- Exhibit the understanding of pseudocode.
- Exhibit the understanding of drawing Flow Charts.

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

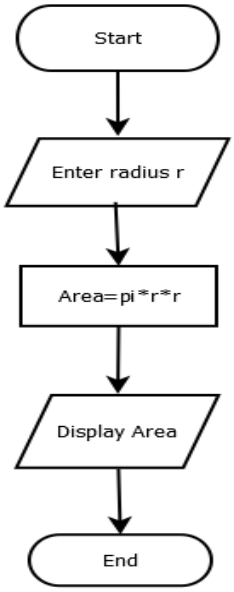
1. First think about statement problems and then write your logic on Copy / Notebook.
2. Write pseudocode in handwritten on **Paper using Pen.**
3. Write **Your Name** and **Roll No** on your Paper/Sheet's first page.
4. Do not copy from any source otherwise you will be penalized with negative marks.
5. Complete your lab **within given Time Slot**.

Problem: Write pseudocode of decision-based problems.

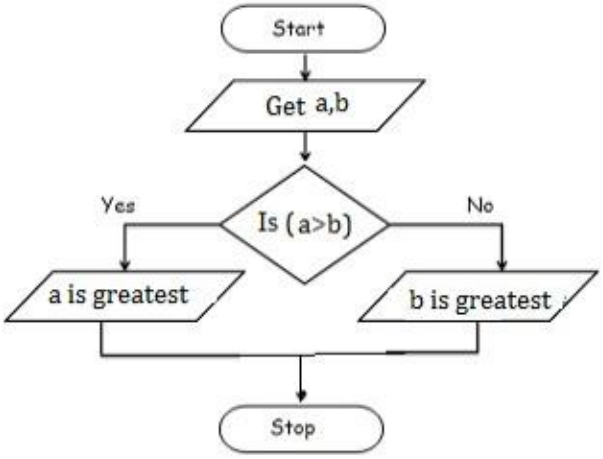
1. Write a pseudocode to check whether a number is even or odd.
2. Write a pseudocode to input week number and print week day.
3. Write pseudocode to print positive number entered by the user. If user enters a negative number, it prints "Number is negative".
4. Write pseudocode to check whether a character is Vowel or Consonant.
5. Write pseudocode to determine whether a character is in lower-case (97-122) or upper case (65-90).
6. Write pseudocode to that year input from user and check whether it's Leap Year or Not.
7. Write pseudocode to read the age of a candidate and determine whether it is eligible for casting his/her own vote or not. **Eligibility (age >= 18)**
8. Write a pseudocode to accept a coordinate point in a XY coordinate system and determine in which quadrant the coordinate point lies.
9. Write pseudocode to a company decided to give bonus of 5% to employee if his/her year of service is more than 5 years. Ask user for their salary and year of service and print the net bonus amount.

2. FLOWCHARTS

Problem-1: Calculate the area of a circle.



Problem-2: Draw the flow chart for finding the greatest of two numbers



1. Draw a flow chart of a program that check if an entered number is an Integer Number.
2. Draw flow chart to check if an entered number is even or odd.
3. Draw flow chart of a program that finds the greatest of three number.
4. Draw flow chart of a program that checks exams of two students. Program checks if two exams have more than 60% similarity then both students are declared as fail. Otherwise checks if 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.
5. Draw a flowchart for a program to input marks of five subjects Physics, Chemistry, Biology, Mathematics and Computer. Calculate percentage and grade according to following:
   Percentage >= 90% : Grade A
   Percentage >= 80% : Grade B
   Percentage >= 70% : Grade C
   Percentage >= 60% : Grade D
   Percentage >= 40% : Grade E
   Percentage < 40% : Grade F
6. Write a C program to input electricity unit charges and calculate total electricity bill according to the given condition:
   For first 50 units Rs. 0.50/unit
   For next 100 units Rs. 0.75/unit
   For next 100 units Rs. 1.20/unit
   For unit above 250 Rs. 1.50/unit
   An additional surcharge of 20% is added to the bill
7. Draw a flow diagram for a program that calculates the area of a shape. It asks you enter number of sides of the shape then asks you to enter the lengths. It is restricted to three major shapes. If user enters '0' as number of sides then you enter 'radius' length and program print area of the circle. If user enters '3' then program prints the area of the triangle. If user enters '4' then program prints the area of the rectangle.

Best of Luck ☺

You need to done with your exercise within given time.