



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.

1.1 Sequences Problems

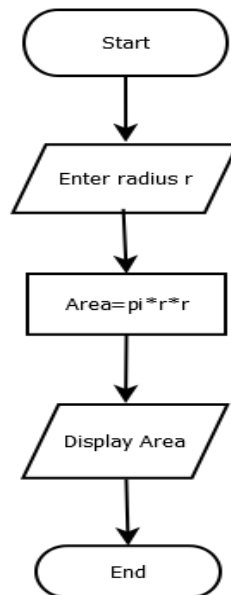
1. Write a program logic that calculate the total bill of the shopping, a person purchases two keyboards each worth of 100\$, three mouse each worth of 50\$. Calculate the Total in PKR.
2. Write a program that calculates the current balance in a savings account. The program should obtain from the user the following information: the starting balance, the total amount of deposits made, and the total amount of withdrawals made. After the program has calculated the current balance, it should be displayed on the screen. Assume one input for deposits and one input for withdrawals. Make the pseudo-code for this problem.
3. A brand offered 10% discount on each shirt purchased. The original price of the shirt is 550, find the discounted price of one shirt. Write the pseudocode for this problem statement.

1.2 Decision Problems

1. Write pseudocode to print positive number entered by the user. If user enters a negative number, it is skipped.
2. Write pseudocode to add bonus of 100\$ to each person whose salary is greater than 1500\$.
3. Write a pseudocode to check whether a number is even or odd.
4. Write pseudocode to check whether a character is Vowel or Consonant.
5. Write pseudocode to determine whether a character is in lower-case or upper case.
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 \geq 18)**
8. Write a pseudocode to check whether a character is an alphabet, digit or special character.

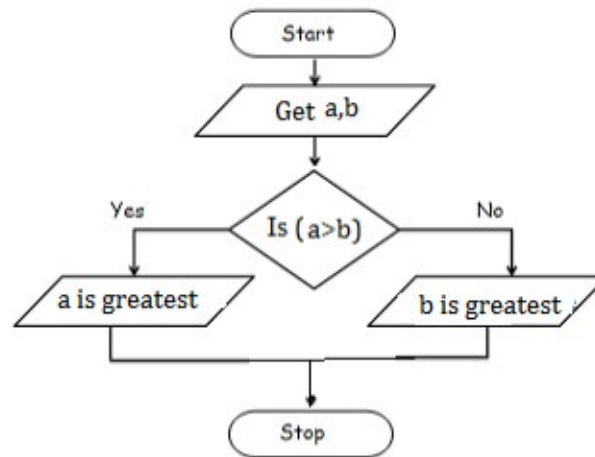
2. FLOWCHARTS

Problem-1: Calculate the area of a circle.

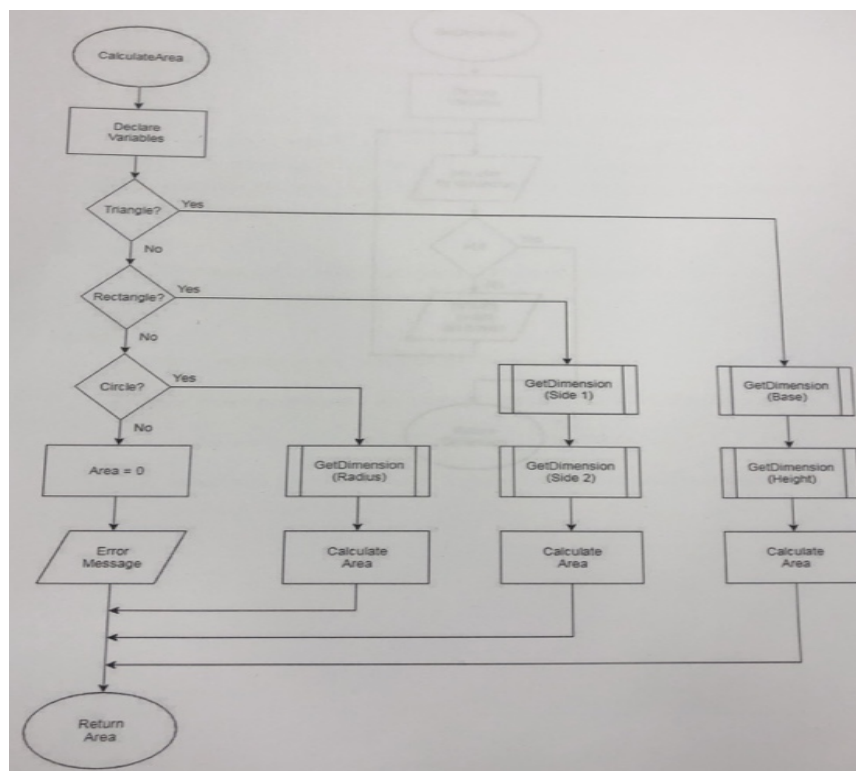


Program-2: Draw flow chart of a program that takes two numbers as input and outputs as “divisible” if number-1 is divisible by number-2 otherwise outputs “not divisible”.

Problem-3: Draw the flow chart for finding the greatest of two numbers



Problem-4: 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 return area of the circle. If user enters '3' then program returns the area of the triangle. If user enters '4' then program returns the area of the rectangle.



1. Draw a flow chart of a program that check if an entered number is an Armstrong Number.
2. Draw flow chart to check of an entered number of 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 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.
5. 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.
6. 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.
7. 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.