



CL-217

Programming Fundamentals

Lab # 2

Objectives:

- Practice on pseudocode and flow charts

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 problems and then write/draw your logic on copy.
3. **Microsoft VISIO** should be used to make the flowcharts. Flowcharts made with any other software would not be accepted.
4. Write pseudocode on **Microsoft word** and attach **Microsoft Visio file in .jpeg format(save your file in .jpeg format)** of flow chart of every task also on Microsoft word.
5. Please submit your file with this name **20F1234_lab1**.
6. **Do not copy from any source otherwise you will be penalized with negative marks.**
7. Submit your lab on **Google Classroom**.

Problem: Write pseudocode and design of flow charts of simple sequence programs.

1. Read in a number and print it out.
2. Adding three numbers.
3. Finding the average of three numbers.
4. Find the area of a Rectangle
5. Calculate the Interest of a Bank Deposit (formula " $\text{Interest} = \text{Amount} * \text{Years} * \text{Rate} / 100$ ")
6. Convert Temperature from Fahrenheit ($^{\circ}\text{F}$) to Celsius ($^{\circ}\text{C}$) (formula $C = 5/9 * (F - 32)$)
7. Compute the perimeter of a rectangle.
8. Make a program that calculates the total of a retail sale. The program should ask the user for the following: the retail price of the item being purchased and the sales tax rate. Once the information has been entered the program should calculate and display the following: the sales tax for the purchase and the total sale.
9. 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. Draw the flowchart for this pseudo-code.

10. Draw a flowchart to match the following pseudo-code.

- Give variable num1 a starting value of 5
- Give variable num2 a starting value of 10
- Add 7 to num2
- Store the value num1 times num2 in variable num3
- Store the value num2 minus num1 in num2
- Output num1, num2 and num3

Problem: Write pseudocode and design of flow charts of selection programs.

1. Design the pseudo-code and flowchart for a program that obtains the length and width of a rectangle from the user, calculates and output its area. The program also checks if the length and width are equal, outputs a message indicating that the figure is a square.
2. Design the pseudo-code and flowchart for a program that obtains three test scores from a student. Calculates their average test score and output this value. If their average score is 75% or more outputs a message indicating that they may proceed to the next class.
3. Log in to Facebook account
4. Design the pseudo-code and flowchart for a program that obtains a name and age from the user. If the user is 18 or older, outputs a message indicating they are old enough to drive. For people under 18, outputs a message indicating how many years they must wait before they can drive legally.
5. Design the pseudo-code and flowchart for a program that obtains from the user an hourly pay rate and the number of hours worked for the week. The program calculates and outputs their weekly pay according to the following:
 - Regular pay is the pay up to 40 hours.
 - Overtime pay is pay for the hours over 40. Overtime is paid at a rate of 1.5 times the hourly rate.
 - Gross pay is the sum of the regular pay and the overtime pay. Hint: This calculation is not conditional.
6. Design the pseudo-code and flowchart for a program that obtains a temperature in degrees Fahrenheit from the user. If the temperature is 80 degrees or more, displays a message that says, " weather is perfect for playing cricket " otherwise displays a message stating "Don't go outside, weather is too cold".
7. Design the pseudo-code and flowchart for a program that obtains three numbers from the user. Assume numbers are not same. Find the largest and smallest of these three numbers

and store the largest number and smallest number in separate variables. Output this variable with an appropriate message.

8. Design the pseudo-code and flowchart for a program to find the eligibility of admission for a professional course based on the following criteria:
 - Marks in Maths ≥ 65
 - Marks in Phy ≥ 55
 - Marks in Chem ≥ 50
 - Total in all three subject ≥ 180
 - Total in Math and Physics ≥ 140
9. Design the pseudo-code and flowchart for a program that input a number from the user between 1 to 7 and displays the name of the weekday. Such as
Enter number: 2
Its Tuesday
10. Design the pseudo-code and flowchart for a program to input basic salary of an employee and calculate gross salary according to given conditions.
 - Basic Salary ≤ 10000 : HRA = 20%, DA = 80%
 - Basic Salary is between 10001 to 20000: HRA = 25%, DA = 90%
 - Basic Salary ≥ 20001 : HRA = 30%, DA = 95%

Proper text alignment and screenshots will hold extra marks !

Best of luck 😊

You are done with your exercise, submit on slate at given time.