CL-1002
Programming Fundamentals
Lab # 3

Objectives:

- Practice on pseudocode
- conditional statements
- Flow charts

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

1. Use understandable names of variables.
2. First think about statement problems and then write/draw your logic on copy.
3. Please submit your file in this format **23F-1234_L1**.
4. Do not submit your assignment **after the deadline**.
5. **Do not copy code from any source otherwise you will be penalized with negative marks.**

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

1. You are tasked with creating a program for a retail store that calculates discounts for customers based on their total purchase amount. The store offers different discount levels based on the total purchase amount as follows:
    - If the total purchase amount is less than $50, there is no discount.
    - If the total purchase amount is between $50 and $100 (inclusive), the customer receives a 5% discount.
    - If the total purchase amount is between $100 and $200 (inclusive), the customer receives a 10% discount.
    - If the total purchase amount is $200 or more, the customer receives a 15% discount.

    Write a program that takes the total purchase amount as input and calculates the discount the customer is eligible for. Then, display the total purchase amount and the discount amount applied to the customer's order.

    Formula: Discount Amount = (Percentage / 100) * Original Price
2. You are tasked with creating a program that calculates letter grades for students based on their numerical scores. The grading scale is as follows:
    - A: 90-100
    - B: 80-89
    - C: 70-79
    - D: 60-69

- F: Below 60

Write a program that takes a student's numerical score as input and then determines and displays the corresponding letter grade using if-else if statements.

3. You are tasked with creating a program that classifies temperatures into different categories based on the following criteria:
    - If the temperature is 32 degrees Fahrenheit or below, classify it as "Freezing."
    - If the temperature is between 33 and 60 degrees Fahrenheit (inclusive), classify it as "Cool."
    - If the temperature is between 61 and 80 degrees Fahrenheit (inclusive), classify it as "Moderate."
    - If the temperature is above 80 degrees Fahrenheit, classify it as "Hot."

    Write a program that takes the temperature as input and then determines and displays its classification using if-else if statements.

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

4. Design the pseudo-code and flowchart for a program that will compute the average of 10 exam scores entered by the user. List the variables needed for this program.
5. Modify problem #1 to allow the user to input the total number of exam scores that will compute the average of 10 exam scores entered by the user. List the variables needed for this program.
6. Modify problem #1 to allow the user to input the total number of exam scores that will compute the average of 10 exam scores entered by the user. If input score is greater then 100 or less then 0 then print “wrong input. Please try again”. List the variables needed for this program.
7. Design the pseudo-code and flowchart for a program that will obtain 10 exam scores from the user and determine whether the score is passing (a score of 60 or above) or failing. Your pseudo-code should count the number of passing and failing scores. Output the average of the scores, the number of failing scores, and the number of passing scores. List the necessary variables for this program.
8. Design the pseudo-code and flowchart for a program that will compute and output the sales tax due with a tax rate of 7% of each item and the total purchase price of 4 items. List the necessary variables for this program.
9. You are to design the pseudo-code and flowchart for a program that takes input from user to enter the number of eggs gathered and the program will output the number of dozens as well as the number of excess eggs. Continue this process until a negative number is entered.
10. Design the pseudo-code and flowchart for a program that accepts an unknown number of ages from the keyboard until zero is entered. If the age is greater than or equal to 100 output "You have lived a century" otherwise if age is greater than or equal to 50 output " You have lived a

half century " otherwise “You have still x year left to live half century ” while x=50-age you entered. List the necessary variables for this program.

Best of luck ☺

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