Strathmore UNIVERSITY

ASSIGNMENT TWO

INTRODUCTION TO PROGRAMMING (EVENING)

Due Date: Tuesday 10th December 2024 at 10:00 AM (eLearning)

Instructions.

1. **Attempt all the questions**
2. **Write the source code for each question in its own file. One source file per question.**
3. **Publish all your source files in one GitHub repository**
4. **Create a zip folder containing all your source files plus one notepad file containing the GitHub link to your repository. Submit this zipped folder on eLearning before the due time**
5. **Each question is worth 5 marks.**

1. Create a C++ function to check if a customer is qualified for a loan given the conditions below. The function name must be your first name followed by the word LoanCalculator e.g **fredLoanCalculator().** Capture the customer details from the user. Write a main function to test your function.

Conditions
Age must be above 22 years
Bank balance more than 50,000
CRB status should be good
Must have been a customer for more than 6 months

2. Write a simple C++ program using **if…else-if…else** conditional (decision) structure to out an appropriate full name and grade of a student depending on the score entered by the user. Ask the user to input the full name of the student, the course and the score. Grade distribution is as shown below:

Score	Grade
70 and above	A
60 - 69	B

50 - 59	C
40 - 49	D
Below 40	F
Any other	Invalid score

3. Implement the program in question 2 above using a selection decision structure (**switch case)**
4. Write a C++ program using Switch…Case to determine the maximum number given two numbers from a user.
5. Write a C++ program that displays a menu with options such as:
    - Calculate the area of a circle
    - Calculate the area of a rectangle
    - Calculate the area of a triangle
    - Quit

    Implement a **switch...case** statement to perform the corresponding calculation based on the user's choice.

6. Create a program that simulates a traffic light. The program should display the color of the traffic light (red, yellow, or green) based on a timer. Use a switch...case statement to control the behavior of the traffic light.
7. Write a program for a library that calculates the late fee for returning a book. The fine varies based on the number of days late and the type of book (e.g., regular, children's, or reference). Use if, else if, and else statements to determine the fine amount.
8. Develop a program for a shopping cart that calculates the total cost after applying different discounts based on the purchase amount. Use if, else if, and else statements to determine which discount to apply.
9. Design a program for a cinema that calculates the ticket price based on the age of the customer and the type of movie (e.g., regular or 3D). Use if, else if, and else statements to determine the ticket price.
10. Create a simple ATM withdrawal program that verifies the user's account balance and transaction limits before processing a withdrawal. Use **if and else** statements to handle different scenarios, such as insufficient funds or exceeding daily limits.