CSE4102: Introduction to Computer Applications and Programming

LAB-04

Instructions:

- You are not allowed to use any syntax or functions not covered in the class till date.
- **Do not copy** code from online or another student.
- You have to solve the problems during the sessional class.

Programming Problem-1:

Write a C program to check if a given year is a leap year or not. A year is a leap year if:

- It is divisible by 4, but not divisible by 100, **or**
- It is divisible by 400.

Sample Output

Input: Enter a year: 2024
Output: 2024 is a leap year.

Input: Enter a year: 1900
Output: 1900 is not a leap year.

Programming Problem-2:

Write a C program to check if a given number is a prime number. A prime number is a number greater than 1 that has no divisors other than 1 and itself.

Sample Output:

Input: Enter a number: 29
Output: 29 is a prime number.

Input: Enter a number: 12
Output: 12 is not a prime number.

Programming Problem-3:

Write a C program that calculates the sum of all even numbers from 1 to a given number `n` using a `while` loop.

Sample Output:

Input: Enter the value of n: 10
Output: The sum of even numbers from 1 to 10 is 30.

Programming Problem-4:

Write a C program that takes three numbers as input and prints the largest of the three using `if-else` conditions.

Sample Output:

Input: Enter three numbers: 12 25 18
Output: The largest number is 25.

<u>Programming Problem-5:</u> Engine Hours Monitoring and Maintenance Notification System

In the aviation industry, maintaining the operational integrity of aircraft engines is crucial for safety and reliability. Regular maintenance is mandated based on the number of flight hours accumulated since the last maintenance check. Tracking these hours effectively allows maintenance personnel to schedule necessary inspections and repairs.
Develop a C program that assists aircraft maintenance engineers in monitoring engine hours and determining when maintenance is required. The system should continuously prompt the user for input regarding the hours flown since the last maintenance check and provide notifications when the maintenance threshold is reached.

Requirements:

1. The program should initialize the engine hours to zero and define a maintenance threshold (set at 50 hours).
2. It should prompt the user to enter the number of hours flown since the last maintenance.
3. If the entered hours exceed or meet the threshold, the program should notify the user that maintenance is required and ask if they would like to reset the hours.
4. If the user chooses to reset the hours, the program should set the engine hours back to zero and confirm the reset.
5. If the hours flown are below the threshold, the program should inform the user that no maintenance is required yet and display the current hours.
6. The program should operate in an infinite loop, allowing continuous monitoring until the user decides to terminate it.