CL1002 – Programming Fundamentals Lab

Quiz # 03 BS CS (Section B)

Difficulty level: ★★☆☆☆

Note:

- Submit a pdf containing all your C code with all possible screenshots of every task output on Google Classroom.
- Please submit your file in this format (roll-no-name) i.e. (23P-1234-Ali.pdf).

Problem: 1

Write a C program that outputs inflation rates for two successive years and whether the inflation is increasing or decreasing. Ask the user to input the current price of an item and its price one year and two years ago. To calculate the inflation rate for a year, subtract the price of the item for that year from the price of the item one year ago and then divide the result by the price a year ago and then multiply it with 100. Your program must contain at least the following functions: a function to calculate inflation rate, and a function to compare the inflation rates of two successive years. Use appropriate parameters to pass the information in and out of the function. Do not use any global variables. Test your program on the price of the current year 120.5, a year ago 115.5 and two years ago 112.75.

Problem: 2

Imagine you're developing a GPS navigation application. You need to design a feature that takes a starting location represented by a letter and a numerical distance in miles as input and then calculates the destination location based on this input. For instance, if the user enters 'A' as the starting location and '5' as the distance, your program should determine and display the destination location, such as 'F'. Additionally, if the user enters 'Z' as the starting location, the navigation should wrap around to 'A,' ensuring a seamless transition to the next location. For example, if 'Z' is the starting point, and the distance is '2,' the program would display 'B' as the destination. Create a program in C and write a function for navigation.

Problem: 3

Create a C program that takes a numerical input and performs mathematical calculations based on the value provided. If the input falls within the range from 0 to 1 (inclusive), the program should calculate the inverse sine function. For input values outside this range, the program should compute the cosine function (cos). Ensure you create a user-defined function to handle the calculations and return the answer.

Problem: 4

Create a C program that prompts the user to input their birth year and then determines whether that year contains February 28 or 29 days, based on whether it's a leap year or not. Additionally, test your program using your own birth year to ensure it works correctly.