CL1002 – Programming Fundamentals Lab

Quiz # 02 BS CS (Section A)

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

Create a C program that divides tasks into functions. The program should calculate various financial aspects of a summer job based on the following information:

You have found an exciting summer job that pays $15.50 per hour, and you will be working for five weeks. Suppose that the total tax you pay on your summer job income is 14%. After paying the taxes, you spend 10% of your net income to buy new clothes and other accessories for the next school year and 1% to buy school supplies. After buying clothes and school supplies, you use 25% of the remaining money to buy savings bonds. For each dollar you spend to buy savings bonds, your parents spend $0.50 to buy additional savings bonds for you.

Your program should prompt the user to enter the number of hours worked each week. Then, it should use the provided pay rate and the number of hours worked to perform the following calculations within separate functions:

a. Calculate income before taxes from your summer job.

b. Calculate income after taxes from your summer job.

c. Calculate the money spent on clothes and other accessories.

d. Calculate the money spent on school supplies.

e. Calculate the money spent to buy savings bonds.

f. Calculate the money your parents spend to buy additional savings bonds for you.

Ensure that your program is well-structured, with each financial aspect being computed within its respective function (each function should return value) for clarity and modularity.

Enter 35 as input working hours for each week.

Output

Enter the number of hours you worked each week: 35

Income before taxes: $2712.50

Income after taxes: $2328.75

Money spent on clothes and accessories: $232.88

Money spent on school supplies: $23.29

Money spent on savings bonds: $576.94

Money your parents spent on additional savings bonds for you: $288.47

Problem: 2

Write a C program that calculates interest on unpaid balances using the following inputs:

- **netBalance (balance shown in the bill)**
- **payment (payment made)**
- **d1 (number of days in the billing cycle)**
- **d2 (number of days payment is made before the billing cycle)**
- **monthly_interest_rate**

The program should calculate the average daily balance and then calculate the interest on the unpaid balance using the formula:

averageDailyBalance = (netBalance * d1 - payment * d2) / d1

The interest is then calculated as:

interest = averageDailyBalance * monthly_interest_rate

However, there is a policy of bank that if averageDailyBalance of user is greater than 10,000, then multiply it by a factor of 1.5 for calculating interest; if it is less than or equal to 10,000, multiply it by a factor of 0.75.

Instructions:

- **Create two functions, averageDailyBalance and calculateInterest, which should return values.**

Test your program with the following input values to ensure it works correctly.

Input:

netBalance = 12000

payment = 8000

d1 = 30

d2 = 15

monthly_interest_rate = 0.02