CL1002 – Programming Fundamentals Lab

Quiz # 02 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

Create a C program that divides tasks into functions. The program should help individuals manage their monthly expenses and savings based on their specific monthly income. Consider the following information:

You are building a personal finance tool. The program should allow the user to input their monthly salary and then calculate how much they can allocate to various expense categories and savings based on certain percentages.

Your program should interactively prompt the user to enter their monthly salary. Then, it should use the provided income to calculate the following within separate functions:

The amount allocated to each expense category based on the provided percentages:

- Rent or Mortgage Payment: 30% of the monthly salary
- Groceries: 15% of the monthly salary
- Utilities: 50% of the Groceries expense
- Transportation: 10% of the monthly salary
- Savings: 20% of the monthly salary
- The total amount saved each month and whether the user is meeting their savings expectations.

If the total amount saved is more than $500, display "You are meeting your expectations." Otherwise, display "You are not meeting your expectations."

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

Example Output:

Enter your monthly salary: $3500

Amount allocated to rent or mortgage payment: $1050.00

Amount allocated to groceries: $525.00

Amount allocated to utilities: $262.50

Amount allocated to transportation: $350.00

Amount saved each month: $700.00

You saved $613.00 this month and you are meeting your expectations.

Problem: 2

Problem Statement: House Model Comparison

Ali and Ahmed are exploring the purchase of a house in a new development. They are considering two house models: **Colonial** and **Split-Entry.** The builder has provided them with the base price and the finished area (in square feet) for each of these models. Ali and Ahmed want to identify the model that offers the most cost-effective price per square foot.

Your task is to write a program that takes as input the base price and the finished area (in square feet) for both the Colonial and Split-Entry house models. The program should then determine and display which model has the lowest price per square foot.

To achieve this, you can use the following formula to calculate the price per square foot using function for each model:

Price per Square Foot = Base Price / Finished Area

The program should compare the calculated price per square foot for both models and identify the one with the lowest value.

House Model Comparison

Enter the base price for the Colonial house model in $: 250000

Enter the finished area (in square feet) for the Colonial house model: 2000

Enter the base price for the Split-Entry house model in $: 220000

Enter the finished area (in square feet) for the Split-Entry house model: 1800

Price per square foot for the Colonial house: $125.00

Price per square foot for the Split-Entry house: $122.22

The Split-Entry house offers the lowest price per square foot.