**The University of Lahore, CS&IT Department**

**Programming Fundamentals**

**Assignment # 01**

**Start Date: 09/10/2024 Section: 2-I Total Marks: 20**

**Due Date: 14/10/2024** **Program: BSCS**

**Instructions**

1. Understanding the problems is part of the assignment. So, no query, please.
2. You will get zero marks if found any type of plagiarism.
3. No submission after due date.
4. Upload pdf file containing your code and screenshots of outputs.

**Q1:** Write a C++ program that ask the user to input the previous and present readings of your electric meter. The program should automatically calculate the total number of units consumed. The unit price should be applied as per the following defined policy. [5]

|  |  |
| --- | --- |
| **Units Consumed** | **Per Unit Cost** |
| 1-100 | 4.86 |
| 101-200 | 6.57 |
| 201-350 | 9.21 |
| 351-800 | 14.81 |
| 801-999 | 19.25 |
| 1000-2500 | 24.58 |
| More than 2501 | 34.12 |

### Q2: Scenario: ****Simple ATM Simulation**** [5]

#### **Scenario:**

You are tasked with creating a simple ATM simulation program. In this program, the user can perform basic banking operations such as checking their balance, depositing money, withdrawing money, and exiting the ATM

#### **Requirements:**

1. The user starts with a balance of $1000.
2. The program should display a menu with the following options:
   * Check Balance
   * Deposit Money
   * Withdraw Money
   * Exit
3. The user can perform multiple operations until they choose to exit.
4. Implement error handling for invalid input, such as attempting to withdraw more money than available.

**Q3:** **Scenario: Coffee Shop Order System.** [5]

#### **Scenario:**

You are tasked with creating a simple coffee shop order system. The program should allow customers to select a type of coffee and specify the size. The coffee types available are Espresso, Latte, and Cappuccino, and the sizes are Small, Medium, and Large.

**Requirements:**

1. The program should prompt the user to select a type of coffee from the available options.
2. Based on the selection, the program should then prompt the user to select a size.
3. The price of each coffee type and size combination is as follows:
   * Espresso: Small ($2), Medium ($3), Large ($4)
   * Latte: Small ($3), Medium ($4), Large ($5)
   * Cappuccino: Small ($4), Medium ($5), Large ($6)
4. If the user enters an invalid coffee type or size, the program should inform them and allow them to try again.
5. The program should keep asking the user if they want to place another order until they choose to exit.

### Q3: Write a program the displays a diamond of asterisks using nested loops. [5]

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