Newports Institute of Communications and Economics

Assignment 01		
Course Title: Programming Fundamentals		
Instructor Name: Mustafa Ali Bamboat	**Marks: 10**	**Date: 14-DEC-2024**

Important Instructions:

1. **File Submission Guidelines**:
   - You are required to submit the solutions for both questions in a single ZIP file.
   - A Google Form link will be provided on the WhatsApp group for uploading the ZIP file. Ensure that you upload **only one ZIP file** containing the following:
     - For Question 1: Name the solution file as `Q1_<RollNumber>.cpp`, e.g., `Q1_1243_1111.cpp`.
     - For Question 2: Name the solution file as `Q2_<RollNumber>.cpp`, e.g., `Q2_1243_1111.cpp`.
   - Create a folder named `A1_<RollNumber>` (e.g., `A1_1243_1111`) and copy both solution files into this folder.
   - Compress (ZIP) the folder and upload the ZIP file via the provided Google Form.

2. **Academic Integrity**:
   - Plagiarism is strictly prohibited. Your solutions will be checked using plagiarism detection tools.
   - Any form of copying or sharing solutions will result in negative marking for all parties involved.

3. **Deadline**:
   - Late submissions will not be accepted under any circumstances. Ensure that you upload your solution on time.

(CLO_1): (Cognitive Level C2 i.e. Understanding (PLO_1 i.e. Engineering Knowledge)

Question 1. Write a C++ program that takes three integer numbers from the user. Your program will first print the integers in ascending order and then in descending order. You cannot use arrays to solve this problem. Assume all numbers are distinct.

For example: if the integers given by the user are 67, -5, 3, then the ascending order printing will be: -5, 3, 67 and descending order printing will be 67, 3, -5.

Question 2. You have to develop a restaurant order payment application. For Example, your restaurant is offering the following meals.

Code	Meal	Per kg price in Pakistani Rupees
1	Chicken Handi	1800
2	Chicken Karahi	2000
3	Chicken Tikka	2200
4	Chicken Haleem	500
5	Creamy Chicken	2500

Your program should print the name of dishes along with their corresponding codes so that a user can select one of the dishes by using its code. For example, if the user selects code 1, then it means Chicken Handi, 2 means Chicken Karahi, so on and so forth. If the user has entered an invalid code, your program will print some error message and terminate.

After the user has been asked the dish that he wants to buy, your program will ask the user to enter the quantity of the dish that he wants to buy in kilograms. The quantity will be greater than 0. If the user has entered an invalid quantity, then print some error message and terminate the program. After that, the program should ask from the user about currency in which he/she wants to give payment. For this assignment, you are required to use three currencies. One is Pakistani rupee, second is dollar and the last one is euro. Use 1 for Pakistani rupee, 2 for euro, and 3 for dollar. If the user has entered an invalid option, then your program will print some error message and terminate. After that, your program will calculate the meal price, sales tax on the meal price and total price of the meal (calculated after adding meal price and sales tax). For calculating sales tax, you can use meal price in rupees which is hard coded in this case, and calculate sales tax on it using the table given below.

Meal Price Sales Tax applicable	Meal Price Sales Tax applicable
Less than or equal to 1000	No sales Tax on it.
Greater than 1000 and less than or equal to 3000	2% of meal price.
Greater than 3000	5% of meal price.

After calculating the sales tax, the program will calculate the total amount or price payable by using the following formula:

$$Total\_Amount = Meal\_Price + Sales\_Tax$$

Hint: You can calculate everything in Pakistani rupees, and then convert them into the desired currency. After calculating the total amount in rupees, you are required to convert the amount into the desired currency (based on the user's choice). For example, if the user selected rupees then simply display final price, i.e., (Total Amount = Meal_Price + Sales_Tax) in rupees but if the user selected dollar or euro, then simply convert the final meal price that you calculated earlier (in rupees) into dollar or euro according to the currency exchange rate. Also display the amount of sales tax and the meal price excluding sales tax.

Note: Use current exchange rate for this assignment as given below

1 dollar	278 rupees
1 euro	294 rupees

Sample Output: