**C++ Programming Task**

**1. Write a C++ program using a class named Student that does the following:**

1. Accept the following details for a student:
   * Student Name
   * Roll Number
   * Marks in 5 subjects
2. Using appropriate member functions of the class:
   * Calculate the **total marks**
   * Calculate the **average marks**
   * Determine the **result** (Pass or Fail)  
     *(Assume pass if marks in all subjects are ≥ 35)*
   * Assign a **grade** based on the average:

Grade A: ≥ 75

Grade B: ≥ 60 and < 75

Grade C: ≥ 50 and < 60

Grade D: ≥ 35 and < 50

Grade F: < 35

1. Display the student's:
   * Name
   * Roll Number
   * Marks in each subject
   * Total
   * Average
   * Result
   * Grade

Create two objects for Student class and execute

**2. Rewrite the C++ program using a class named Student with the constructors and destructor**

**3. Create the Identity class with PersonId and PersonName. Create he Student class based on the Identity class and also get 3 marks. Calculate total, average, result and grade and display all in a neat format.**

**4. Rewrite the 3rd program with constructors and destructor in both parent class and child class.**

**5.Write a C++ program to get the employee id, name and basic salary of the employee and write the overloading function “display( )” to welcome the employee, print all the employee details check the employee is taxable employee or not by checking the basic salary. [If the salary is above 5 lakhs the employee is taxable employee otherwise not]**

**6. Write a C++ program using a structure named Product that:**

1. Accepts the following details for a product:
   * Product ID
   * Product Name
   * Quantity
   * Price per unit
2. Calculates:
   * **Total Amount** = Quantity × Price
   * **Discount** based on the total amount:

If Total >= 5000 → 20% discount

If Total >= 3000 and < 5000 → 15% discount

If Total >= 1000 and < 3000 → 10% discount

Otherwise → No discount

* + **Payable Amount** = Total - Discount

1. Displays:
   * Product ID
   * Name
   * Quantity
   * Price per unit
   * Total amount
   * Discount amount
   * Payable amount

**Sample Input**

**Product ID: 1001**

**Name: Bluetooth Speaker**

**Quantity: 3**

**Price per unit: 2000**

**Sample output:**

**Product ID: 1001**

**Product Name: Bluetooth Speaker**

**Quantity: 3**

**Price per Unit: 2000**

**Total Amount: 6000**

**Discount: 1200**

**Payable Amount: 4800**

**7. Write a C++ program that:**

1. Defines an enum named Weekday with the following values:  
   Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday
2. Prompts the user to enter a number between **0 and 6**, where:
   * 0 = Sunday
   * 1 = Monday
   * ...
   * 6 = Saturday
3. Displays the corresponding **day name** using the enum.
4. Additionally, check if the selected day is a **weekday** or a **weekend**, and display:
   * "Weekend" for Sunday and Saturday
   * "Weekday" for Monday to Friday

**Sample Input:**

**Enter a number (0 to 6): 5**

**Sample Output:**

**The day is: Friday**

**It is a Weekday.**

**8. Write a C++ program to demonstrate the concept of union by:**

1. Defining a union named Data with the following members:
   * An int named intValue
   * A float named floatValue
   * A char array named charValue of size 10
2. In the main() function:
   * Assign a value to each member **one after the other**
   * Display the value of each member **after each assignment**
3. Explain (via output) how **only one member holds a valid value at a time** (because union shares the same memory location for all members).

**Sample Input**

**Assigning intValue = 100**

**intValue: 100**

**Assigning floatValue = 10.5**

**floatValue: 10.5**

**intValue (after assigning float): garbage valuekf**

**Assigning charValue = Hello**

**charValue: Hello**

**floatValue (after assigning char): garbage value**