

National University of Computer and Engineering Sciences

Peshawar Campus



Programming Fundamentals

HomeTask 1

Note:

will be awarded **zero** marks without any investigation.

- Comment your code properly.
- Home Task After Due Date will not be Accepted.
- **Plagiarism of any shape or form will not be tolerated. In case of plagiarism, the particular question will be marked zero and 50% marks from total obtained marks will be deducted.**

Write all codes in C++

Question No 1:**Check if a Year is a Leap Year**

Write a program that asks the user to enter a year and uses **if-else** to determine if it is a leap year.

Question No 2:**Determine the Largest of Three Numbers**

Write a program that takes three numbers as input and uses nested **if-else** to find the largest number among them.

Question No 3:**Check for Vowel or Consonant (Switch Statement)**

Write a program that takes a character as input and uses a **switch** statement to check if it is a vowel (a, e, i, o, u) or a consonant.

Question No 4:**Simple Calculator (Switch Statement)**

Write a program that acts as a simple calculator. It should take two numbers and an operator (+, -, *, /) as input, then use a **switch** statement to perform the appropriate operation.

Question No 5:

Find the Season Based on Month (Switch Statement)

Write a program that takes a month number (1 for January, 2 for February, etc.) and uses a **switch** statement to determine the season:

- 12, 1, 2: "Winter"
- 3, 4, 5: "Spring"
- 6, 7, 8: "Summer"
- 9, 10, 11: "Autumn"

Question No 6:

Calculate Electricity Bill (Nested if-else)

Write a program that calculates an electricity bill based on the following conditions using nested **if-else**:

- For the first 100 units: Rs. 5 per unit
- For the next 100 units: Rs. 7 per unit
- For units above 200: Rs. 10 per unit

Take the number of units consumed as input from the user and calculate the total bill.

Question No 7:

Bank ATM Simulation (Nested if-else and switch)

Write a program to simulate a bank ATM. The program should allow the user to:

- **Deposit money**
- **Withdraw money**
- **Check balance**

Implement the following logic:

- The user has to input a PIN number. If the PIN is incorrect after three attempts, block the account.
- Use a **switch** statement to perform different operations (Deposit, Withdraw, Check Balance).

- Use nested **if-else** to check the balance before withdrawal. The withdrawal amount cannot exceed the balance

Question No 8:

Marksheet with Subject-Wise Conditions (Nested if-else) Create a program that generates a detailed mark sheet for a student. Input marks for five subjects. Use nested **if-else** statements to check the following conditions:

- If the student fails any subject (marks less than 40), display "Failed".
- If the total percentage is greater than or equal to 75, display "Distinction".
- If the percentage is between 60 and 75, display "First Division".
- If the percentage is between 50 and 60, display "Second Division".
- If the percentage is between 40 and 50, display "Third Division".
- Also, if the student fails in 2 or more subjects, display "Repeat the Year".

Question No 9:

Online Food Order System (Switch with Nested if-else) Create an online food order system. The user selects a food item and quantity, and the system calculates the total price. Food items include:

- Pizza: Rs. 500
- Burger: Rs. 200
- Sandwich: Rs. 100

Use a **switch** statement to handle food selection. Inside each case, use nested **if-else** to check for special conditions:

- For orders greater than Rs. 1000, apply a 10% discount.
- If the user orders more than 5 items of any type, apply a flat Rs. 100 discount.
- If the order is placed during peak hours (set by the user), apply a 15% surcharge on the total bill.

Question No 10:

Airline Ticket Booking System (Switch, Nested if-else)

Write a program for an airline ticket booking system. It should:

- Ask the user to select a class:
 - 1 for Economy

- 2 for Business
 - 3 for First Class
- Based on the class, use a **switch** statement to display the base ticket price:
 - Economy: Rs. 5000
 - Business: Rs. 12000
 - First Class: Rs. 25000
- Use **nested if-else** within each case to apply additional charges based on the passenger's age:
 - Age < 12: 50% discount on base price
 - Age between 12 and 60: No discount
 - Age > 60: 20% discount

Submission Guidelines:

Submit the soft copy of your code in Google Classroom.

And Submit the handwritten code to CR in the class.

Your handwritten code must be in A4 page.