Please take a moment to read the following important instructions:
Take appropriate input and print the appropriate output in the terminal. Remember to use the appropriate formulas for calculations. Write your roll number and name at the top of the program as a comment. Write suitable comments to define the logic used in the program. Your program should handle valid inputs within the specified range and provide appropriate messages for invalid inputs.

1. Write a C program to calculate the discount on a purchase based on the purchase amount and membership status. If the purchase amount is greater than $100 and the customer is a member, they get a 10% discount. If the purchase amount is greater than $100 but the customer is not a member, they get a 5% discount. If the purchase amount is less than or equal to $100, no discount is applied.

2. Write a C program that prompts the user to enter an integer representing a day of the week (1 for Sunday, 2 for Monday, and so on) and an integer representing a month (1 for January, 2 for February, and so on). The program should display the name of the entered day of the week and the name of the entered month.

3. Write a C program that calculates the shipping cost for a package based on its weight and destination. The program should interactively prompt the user for the following information:

   (a) Enter the weight of the package in kilograms.

   (b) Is the destination domestic or international? (1 for domestic, 0 for international)

   The program should then use conditional statements to calculate the shipping cost according to the following rules:

   - If the weight is less than or equal to 1 kg and the destination is domestic, the cost is 5 INR.

- If the weight is less than or equal to 1 kg and the destination is international, the cost is 10 INR.

- If the weight is between 1 kg and 5 kg (inclusive) and the destination is domestic, the cost is 10 INR.

- If the weight is between 1 kg and 5 kg and the destination is international, the cost is 20 INR.

- For weights above 5 kg, an additional cost of 2 INR per kilogram is added.

After calculating the shipping cost based on the provided inputs, the program should display the final cost in INR, specifying whether it's for domestic or international shipping.

4. Write a C program that allows a user to input two numbers and an operation (Airthmatic or bitwise). The program should use only switch statement. If the user enters an invalid operation, display an error message.

5. Write a program that allows a user to input a month (1-12), a day (1-31), and whether it's a leap year (Y/N). The program should utilize nested switch statements to determine the season based on the input. The seasons should be categorized as follows:

- Winter: December (12), January (1), February (2)
- Spring: March (3), April (4), May (5)
- Summer: June (6), July (7), August (8)
- Fall: September (9), October (10), November (11)

If the input month is invalid (not between 1 and 12), the program should display an error message. If the month is February and it's a leap year (indicated by 'Y' or 'y' input), it should specify "Winter (Leap Year)." Otherwise, it should specify "Winter" for February.

6. Write a program, take a character as input, checks if it's an alphabet, and then determines if it's a vowel or consonant, whether it's in lowercase or uppercase. Finally, it checks if it's a digit or a special character and provides appropriate input and output.