Practice problems on Branching

1. Write down a program that will take a number as input and will print its absolute value without using any library function. The absolute value of a number is the magnitude of it ignoring its sign. You can only use Ternary operator to solve this problem.
2. Write down a program that will take an integer as input and print YES if the number is divisible by 5 but not divisible by 7 and print NO otherwise.
3. Given a 3-digit number as input by the user find and print its minimum digit. For example if the user input is 361 the output is 1.
4. Write a C program that calculates the purchase amount after discount at the Agora shop. The discount rate depends on the purchase amount and summarized below:

Purchase amount	Discount rate
First 5,000 TK	5%
Next 5,000 TK	10%
Remaining above 10,000	20%

5. Write a program that takes an arithmetic operator ('+', '-', '*' or '/') and two operands as input and perform the corresponding arithmetic operation on the operands. **You must use switch-case to solve the problem.**

6. Write a C program to check whether a character given as input is an alphabet or not. If it is an alphabet, then it should also specify whether it is a vowel or a consonant.

7. Write a C program to sort four numbers in ascending order. You cannot use any array to solve this problem.

   Hint: You can determine largest and second largest number among three numbers. Therefore, you can effectively sort three numbers from smallest to largest. You have to work out how you can use this knowledge of three numbers to four numbers.

   Sample input: 29 76 56 -20
   Sample output: -20 29 56 76

8. Write a C program that will take three numbers as input which denote the length of three sides of a triangle. The program will output the area of the triangle if it is a valid one. Otherwise, it will write "no triangle possible".

   Sample input: 1.0 2.0 3.0
   Sample output: no triangle possible

   Sample input: 3.0 4.0 5.0
   Sample output: 6.0

9. Write a C program to determine if a character is VOWEL or CONSONANT. If the character is not a valid alphabet, your program will output: Not in alphabet

   Sample input: A
   Sample output: Vowel

   Sample input: a
   Sample output: Vowel

   Sample input: Z
   Sample output: Consonant

   Sample input: z
   Sample output: Consonant

   Sample input: #
   Sample output: Not in alphabet

10. The marks to grade mapping in a certain university is as follows:

    A - 80-100%
    B - 70-79%
    C - 60-69%
    D - 50-59%
    F - 0-50%

    Write a C program that will take the grade as input and output the grade percentage.
    Sample input: A
    Sample output: 80-90%

    Sample input: X
    Sample output: Invalid grade

    Hint: Using switch-case may result in cleaner code.

11. Electricity bill at a certain power distribution company is computed as follows:
    First 50 units: BDT 4 per unit
    Next 30 units: BDT 3 per unit
    Next 20 units: BDT 2 per unit
    Next any units: BDT 1 per unit

    Write a C program that will take number of units used this month and calculate the bill in BDT.
    Sample input: 102.5
    Sample output: BDT 332.5 Only

    Sample input: 25.0
    Sample output: BDT 100.0 Only