LAB 02 SWITCH CASE

Question #1:

Write a C++ program to ask user to enter a number and check whether the entered number is zero or negative number or positive number.

Note: Use switch within a Switch (Nested Switch)

Question #2:

Write a C++ program to take a whole number in the range of 1 and 99999 as input from the user and show the number of digits entered by user. Example:

- if enters 7, the program should show "You have Entered a 1 Digit Number"
- if enters 342, the program should show "You have Entered a 3 Digit Number",
- if enters some other number, show "Invalid Input".

Note: Use ternary operators and Switch Case Statement.

Question #3:

Write a C++ program to check whether an entered year is Leap year or not using Ternary operators. And repeatedly ask input from user until input year is not 0.

Question #4:

Write a C++ program to find the number of days in a month using Switch…case. Use best approach for this program.

Note: Instead of repeating same action on multiple cases, you can group similar cases together and perform single action on group of cases. To group, arrange all similar cases one after other and remove break statement from all cases other than last case.

Question #5:

In a Math class, students are asked to calculate the roots of a quadratic equation. Students find that a quadratic equation can have either one or two distinct real or complex roots depending upon nature of discriminant of the equation. Where discriminant of the quadratic equation is given by

$$\Delta = b^2 - 4ac$$

Case 1: If discriminant is zero, roots can be

$$-\frac{b}{2a}$$

Case 2: If **discriminant is positive**. Roots will be:

$$\frac{-b+\sqrt{\Delta}}{2a} \quad \text{and} \quad \frac{-b-\sqrt{\Delta}}{2a}$$

Case 3: If **discriminant is negative**. Then it will have two distinct complex roots given by.

$$\frac{-b}{2a} + i\frac{\sqrt{-\Delta}}{2a} \quad \text{and} \quad \frac{-b}{2a} - i\frac{\sqrt{-\Delta}}{2a}$$

Now, write a C++ program to find the roots of quadratic equation using Switch…case. First take inputs from user of quadratic equations **(aX^2 + bX + c),** Calculate discriminant and then compute roots of quadratic equation based on the nature of discriminant using nested switch case.

Question #6:

METRO's store is having a sale on everything in the store. Customers will receive additional discounts on their total purchase depending upon how much they buy. Write a C++ program that asks for the total purchase from the user and then take the amount to calculate the discount and new amount, then print out all the 3 values.
The discount scheme is as fellow:

Total Purchase	Discount
Less than 1000	**10%**
1000 to 2000	**20 %**
2000 to 5000	**30%**
5000 to 7500	**40%**
Above 7500	**50%**

Output should be look like this

```
Total Purchase      Rs/- 5225
Discount            Rs/- 2090
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New Price           Rs/- 3135

Thank you for shopping with us
```

Note: Use ternary operator to solve the problem

END