✅ Day : Conditional Statements (4-8-2025)

1. Write a program to check if a number is positive, negative, or zero.

Input: A number n

Process:
If n > 0 → positive
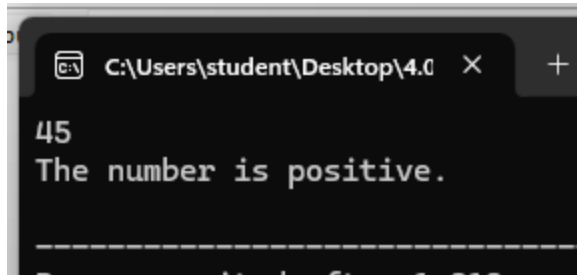If n < 0 → negative
Else → zero

Output: Message indicating whether the number is positive, negative, or zero

```c
#include <stdio.h>
int main()
{
    int num;
    scanf("%d", Cnum);
    if (num > 0)
        printf("The number is positive.\n");
    else if (num < 0)
        printf("The number is negative.\n");
    else
        printf("The number is zero.\n");

    return 0;
}
```
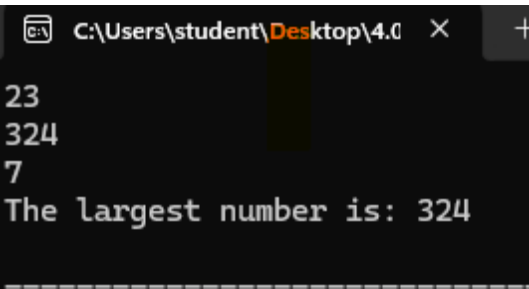


```
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45
The number is positive.

_____
```

2. Write a program to find the largest among three numbers.

- Input: Three numbers **a, b, c**

- Process: Compare the numbers to find the largest using `if...else if...else`

- Output: The largest number

```c
#include <stdio.h>
int main()
{
    int a, b, c;
    scanf("%d %d %d", &a, &b, &c);
    if (a >= b && a >= c)
        printf("The largest number is: %d\n", a);
    else if (b >= a && b >= c)
        printf("The largest number is: %d\n", b);
    else
        printf("The largest number is: %d\n", c);
    return 0;
}
```

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```
23
324
7
The largest number is: 324
```

3. Write a program to check if a year is a leap year.
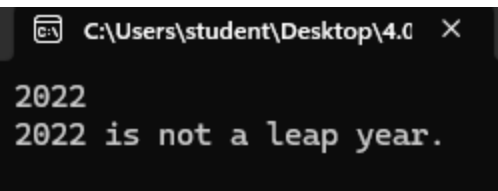
Input: A year (integer)

Process:

☐ **A year is a leap year if:**
- **It is divisible by 400, or**
- **It is divisible by 4 and not divisible by 100**

Output: Whether the year is a leap year or not

```c
#include <stdio.h>
int main()
{
    int year;
    scanf("%d", &year);
    if ((year % 400 == 0) || (year % 4 == 0 && year % 100 != 0))
        printf("%d is a leap year.\n", year);
    else
        printf("%d is not a leap year.\n", year);
    return 0;
}
```

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```
2022
2022 is not a leap year.
```

```c
#include <stdio.h>
int main() {
    char ch;
    printf("Enter a character: ");
    scanf(" %c", &ch);

    if ((ch >= 'A' && ch <= 'Z') || (ch >= 'a'
&& ch <= 'z'))
    {
        if (ch == 'a' || ch == 'e' || ch == 'i' || ch
== 'o' || ch == 'u' ||
            ch == 'A' || ch == 'E' || ch == 'I' ||
ch == 'O' || ch == 'U')
            printf("%c is a vowel.\n", ch);
        else
            printf("%c is a consonant.\n",ch);
    }
    else
    {
        printf("Invalid input. Please enter an
alphabet.\n");
    }

    return 0;
}
```

4. Write a program to check whether a character is a vowel or consonant.

Input: A character
Process:
- **Convert character to lowercase (optional)**
- **Check if it is one of: `'a', 'e', 'i', 'o', 'u'`**
- **If it's an alphabet but not a vowel → consonant**
- **If not an alphabet → invalid input**
Output: Whether the character is a vowel, consonant, or invalid


```
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Enter a character: u
u is a vowel.
```
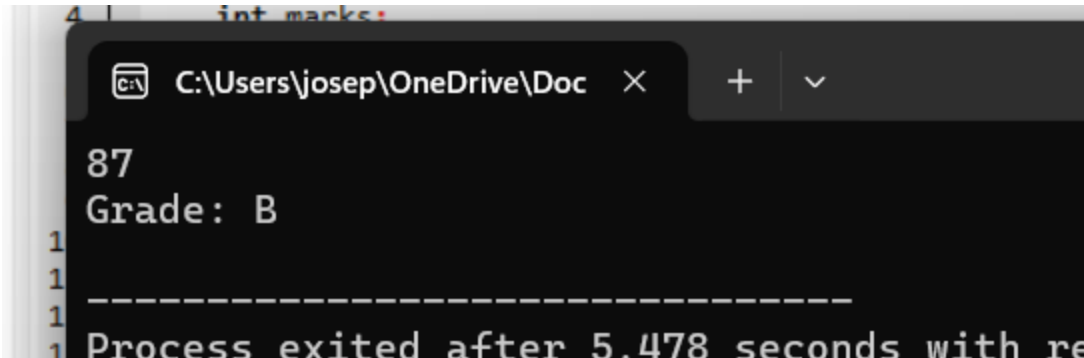
5. Write a program to assign grades based on marks

.

Input: Marks

Process: Check mark range and assign grade using if-else

Output: Display the grade (A, B, C, D, F or Invalid)

```c
#include <stdio.h>
int main()
{
    int marks;
    scanf("%d", &marks);
    if (marks >= 90 && marks <= 100)
    {
        printf("Grade: A\n");
    } else if (marks >= 80 && marks < 90)
    {
        printf("Grade: B\n");
    } else if (marks >= 70 && marks < 80)
    {
        printf("Grade: C\n");
    } else if (marks >= 60 && marks < 70)
    {
        printf("Grade: D\n");
    } else if (marks >= 0 && marks < 60)
    {
        printf("Grade: F\n");
    } else {
        printf("Invalid marks entered.\n");
    }

    return 0;
```



```
4 |         int marks;

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87
Grade: B
1
1
1   _____
1   Process exited after 5.478 seconds with re
```
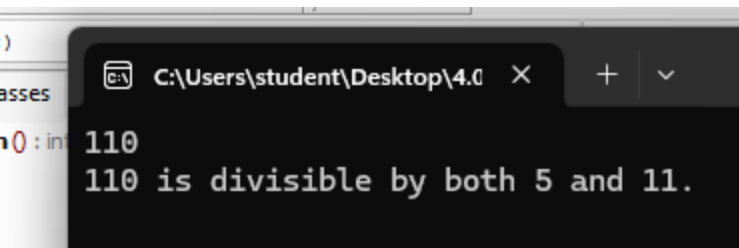
6. Write a program to check whether a number is divisible by 5 and 11.

Input: A number

Process: Check if the number is divisible by both 5 and 11 using the modulus operator %

Output: Display whether the number is divisible by both 5 and 11

```c
#include <stdio.h>
int main()
{
    int number;
    scanf("%d", &number);
    if (number % 5 == 0 && number % 11 == 0)
    {
        printf("%d is divisible by both 5 and 11.\n", number);
    }
    else
    {
        printf("%d is NOT divisible by both 5 and 11.\n", number);
    }
    return 0;
}
```



```
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110
110 is divisible by both 5 and 11.
```

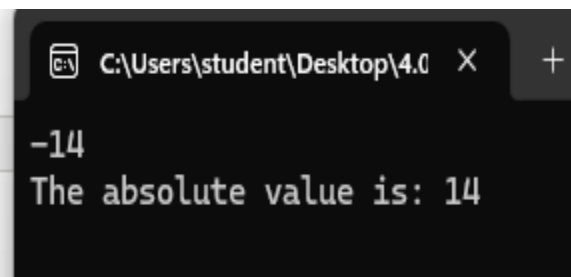# 7.Write a program to find the absolute value of a number.

Input: A number (integer or float)

Process: Use the absolute value function or logic to convert negative numbers to positive

Output: Display the absolute value of the number

```c
#include <stdio.h>
int main()
{
    int num, absValue;
    scanf("%d", &num);
    if (num < 0)
        absValue = -num;
    else
        absValue = num;
    printf("The absolute value is: %d\n", absValue);

    return 0;
}
```


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```
-14
The absolute value is: 14
```

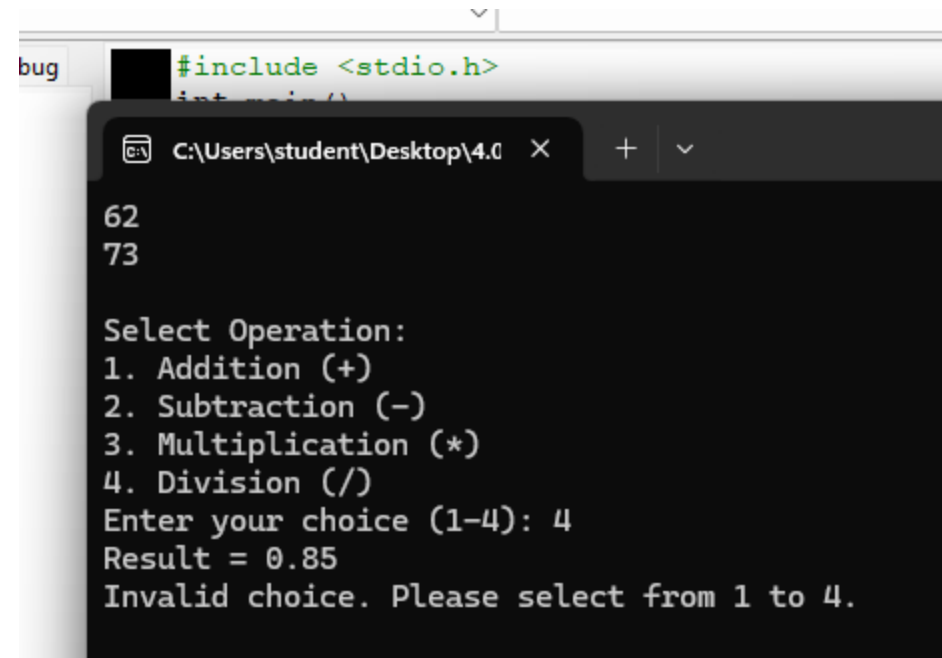## 8. Write a menu-driven program to perform +, -, *, / operations.

Input: Two numbers and choice of operation (+, -, *, /)

Process: Perform the selected arithmetic operation using conditional checks

Output: Display the result of the operation

```c
#include <stdio.h>
int main()
{
    float num1, num2, result;
    int choice;
    scanf("%f %f", &num1, &num2);
    printf("\nSelect Operation:\n");
    printf("1. Addition (+)\n");
    printf("2. Subtraction (-)\n");
    printf("3. Multiplication (*)\n");
    printf("4. Division (/)\n");
    printf("Enter your choice (1-4): ");
    scanf("%d", &choice);
    switch(choice)
    {
        case 1:
            result = num1 + num2;
        case 2:
            result = num1 - num2;
        case 3:
            result = num1 * num2;
        case 4:
            if(num2 != 0) {
                result = num1 / num2;
                printf("Result = %.2f\n", result);
            } else

            {
                printf("Error: Division by zero is not allowed.\n");
            }
        default:
            printf("Invalid choice. Please select from 1 to 4.\n");
    }
}
```



```
62
73

Select Operation:
1. Addition (+)
2. Subtraction (-)
3. Multiplication (*)
4. Division (/)
Enter your choice (1-4): 4
Result = 0.85
Invalid choice. Please select from 1 to 4.
```
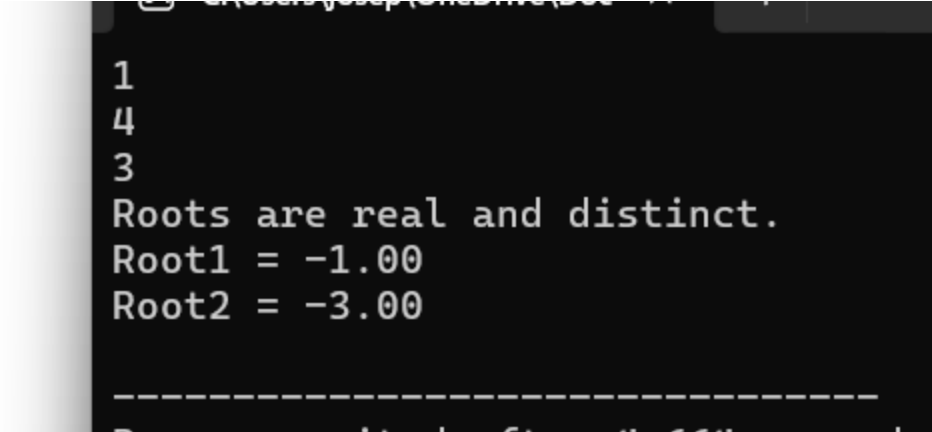
9. Write a program to find roots of a quadratic equation.

Input: Coefficients a, b, c of the quadratic equation

Process: Calculate discriminant $D = b^2 - 4ac$ and find roots using quadratic formula

Output: Display the roots (real & distinct, real & equal, or complex)

```c
#include <stdio.h>
#include <math.h>
int main()
{
float a, b, c, discriminant, root1, root2, realPart, imagPart;
 scanf("%f %f %f", &a, &b, &c);
discriminant = bb - 4ac;
 if (discriminant > 0) { root1 = (-b + sqrt(discriminant)) / (2a); root2 = (-b - sqrt(discriminant)) / (2a);
printf("Roots are real and distinct.\n");
printf("Root1 = %.2f\nRoot2 = %.2f\n", root1, root2);
}
else if (discriminant == 0) { root1 = -b / (2a);
printf("Roots are real and equal.\n");
printf("Root = %.2f\n", root1);
}
else
{
realPart = -b / (2a);
 imagPart = sqrt(-discriminant) / (2a);
 printf("Roots are complex and imaginary.\n");
 printf("Root1 = %.2f + %.2fi\n", realPart, imagPart);
 printf("Root2 = %.2f - %.2fi\n", realPart, imagPart); }
return 0;
}
```

```
1
4
3
Roots are real and distinct.
Root1 = -1.00
Root2 = -3.00

--------------------------------
```

10. Write a program to find the number of digits in a number.

Input: An integer number

Process: Convert the number to string (handle negative sign if present) and count the characters

Output: Display the count of digits

```c
#include <stdio.h>
int main()
{
    int num, count = 0;
    scanf("%d", &num);
    if (num == 0)
        count = 1;
    else
{
        while (num != 0) {
            num /= 10;
            count++;
        }
    }
    printf("Number of digits = %d\n", count);
    return 0;
}
```

```
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13783
Number of digits = 5
```