Day : Conditional Statements (4-8-2025)

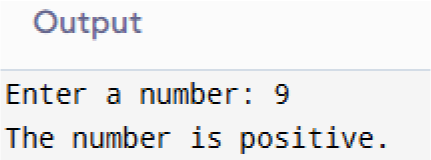
1. Write a program to check if a number is positive, negative, or zreo

IPO
Input:enter a value as an input
Process:check weather the number is positive or negative
Output:output the variable

Coding,

```
#include <stdio.h>
int main()
{
    float number;
    printf("Enter a number: ");
    scanf("%f", &number);
    if (number > 0)
    {
        printf("The number is positive.\n");
    } else if (number < 0) {
        printf("The number is negative.\n");
    }
    else
    {
        printf("The number is zero.\n");
    }

    return 0;
}
```

Output



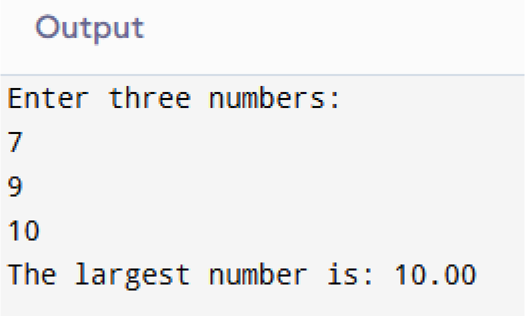
```
Enter a number: 9
The number is positive.
```

2.Write a program to find the largest among three numbers.
IPO
Input:enter a value as an input
Process:to find the largest among three numbers
Output:output the variable

Coding

```
 #include <stdio.h>

int main()
{
    float num1, num2, num3;
    printf("Enter three numbers: ");
    scanf("%f %f %f", &num1, &num2,num3);
    if (num1 >= num2 && num1 >= num3)
{
        printf("The largest number is: %.2f\n", num1);
    }
else if (num2 >= num1 && num2 >= num3)
 {
        printf("The largest number is: %.2f\n", num2);
    } else
 {
        printf("The largest number is: %.2f\n", num3);
    }

    return 0;
}
```

Output



```
Enter three numbers:
7
9
10
The largest number is: 10.00
```

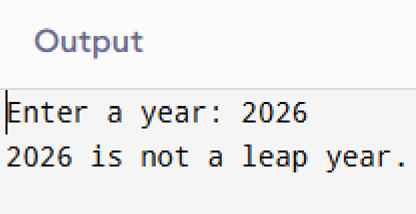
3. Write a program to check if a year is a leap year.

IPO
Input:enter a value as an input
Process:to check if a year is leap year
Output:output the variable

Coding,

```
#include <stdio.h>

int main()
{
    int year;
    printf("Enter a year: ");
    scanf("%d", &year);
    if ((year % 4 == 0 && year % 100 != 0) || (year % 400 == 0))
    {
        printf("%d is a leap year.\n", year);
    } else {
        printf("%d is not a leap year.\n", year);
    }

    return 0;
}
```

Output;



```
Enter a year: 2026
2026 is not a leap year.
```

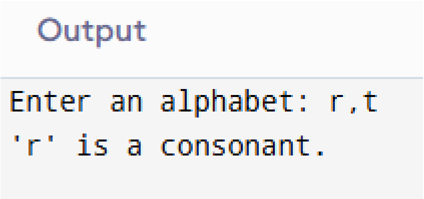
4. Write a program to check whether a character is a vowel or consonant.

IPO
Input:enter a value as an input
Process:to check whether a character is a vowel or consonant
Output:output the variable

Coding,

```
#include <stdio.h>

int main()
{
    char ch;
    printf("Enter an alphabet: ");
    scanf(" %c", &ch);
    if ((ch >= 'A' && ch <= 'Z') || (ch >= 'a' && ch <= 'z'))
    {
        char lower = (ch >= 'A' && ch <= 'Z') ? ch + 32 : ch;
        if (lower == 'a' || lower == 'e' || lower == 'i' || lower == 'o' || lower == 'u')
        {
            printf("'%c' is a vowel.\n", ch);
        } else {
            printf("'%c' is a consonant.\n", ch);
        }
    } else
    {
        printf("'%c' is not an alphabet.\n", ch);
    }

    return 0;
}
```

Output



```
Enter an alphabet: r,t
'r' is a consonant.
```

5. Write a program to assign grades based onmarks.

IPO

Input:enter a value as an input

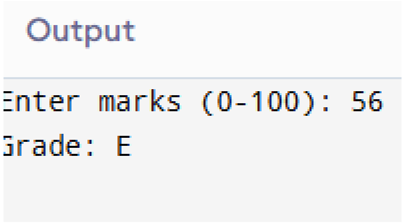
Process:to assign grades based on marks

Output:output the variable

Coding;

```
#include <stdio.h>

int main()
{
    int marks;
    printf("Enter marks (0-100): ");
    scanf("%d", &marks);
    if (marks < 0 || marks > 100) {
        printf("Invalid marks! Please enter between 0 and 100.\n");
    } else
    {
        if (marks >= 90) {
            printf("Grade: A\n");
        } else if (marks >= 80)
        {
            printf("Grade: B\n");
        } else if (marks >= 70)
        {
            printf("Grade: C\n");
        }
        else if (marks >= 60)
        {
            printf("Grade: D\n");
        }
        else if (marks >= 50)
        {
            printf("Grade: E\n");
        } else
        {
            printf("Grade: F\n");
        }
    }

    return 0;
}
```

Output;



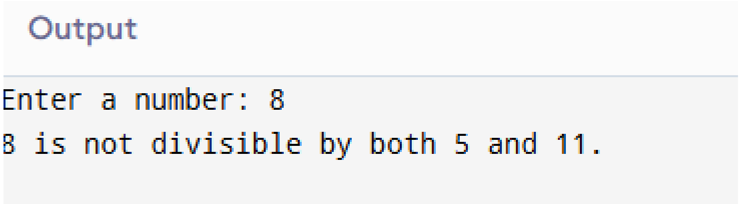
```
Enter marks (0-100): 56
Grade: E
```

6. whether a number isWrite a program to check divisible by 5 and 11.
IPO
Input:enter a value as an input
Process:to check whether a number is divisible by 5 and 11
Output:output the variable

Coding;

```
#include <stdio.h>

int main()
 {
    int number;

        printf("Enter a 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;
}
```

Output



```
Enter a number: 8
8 is not divisible by both 5 and 11.
```

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

IPO

Input:enter a value as an input

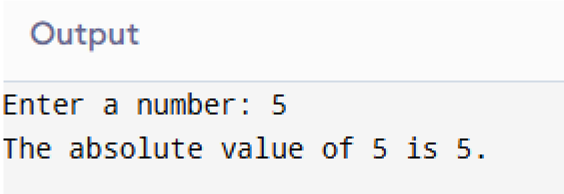
Process:to find the absolute value of a number

Output:output the variable

Coding

```
#include <stdio.h>

int main()
{
    int number, absolute;
    printf("Enter a number: ");
    scanf("%d", &number);
    if (number < 0)
    {
        absolute = -number;
    }
    else
    {
        absolute = number;
    }
    printf("The absolute value of %d is %d.\n", number, absolute);

    return 0;
}
```

Output;



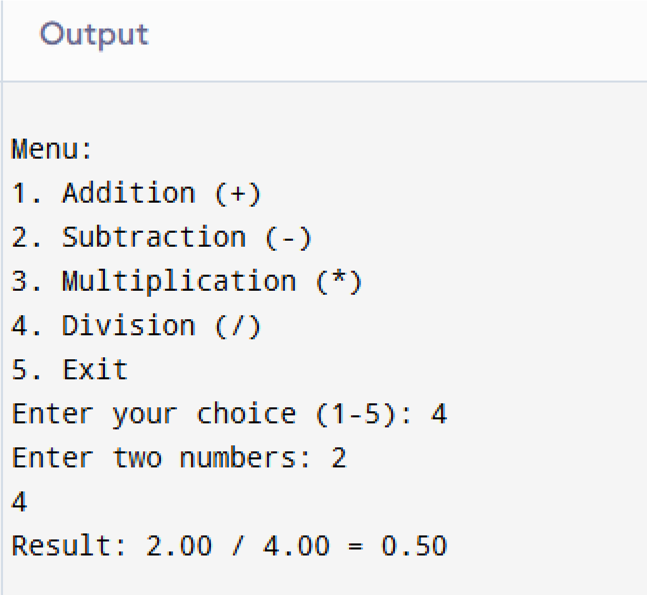
```
Enter a number: 5
The absolute value of 5 is 5.
```

8. Write a menu-driven program to perform +, -, *, / operations.
IPO
Input:enter a value as an input
Process: a menu drive program to preform +-*/operations
Output:output the variable

Coding;

```
#include <stdio.h>

int main()
{
    int choice;
    float num1, num2, result;

    while (1)
    {
        printf("\nMenu:\n");
        printf("1. Addition (+)\n");
        printf("2. Subtraction (-)\n");
        printf("3. Multiplication (*)\n");
        printf("4. Division (/)\n");
        printf("5. Exit\n");
        printf("Enter your choice (1-5): ");
        scanf("%d", &choice);

        if (choice == 5)
        {
            printf("Exiting the program.\n");
            break;
        }
        printf("Enter two numbers: ");
        scanf("%f %f", &num1, &num2);
        switch (choice)
        {
            case 1:
                result = num1 + num2;
                printf("Result: %.2f + %.2f = %.2f\n", num1, num2, result);
                break;
            case 2:
                result = num1 - num2;
                printf("Result: %.2f - %.2f = %.2f\n", num1, num2, result);
                break;
            case 3:
                result = num1 * num2;
                printf("Result: %.2f * %.2f = %.2f\n", num1, num2, result);
                break;
            case 4:
                if (num2 == 0)
                {
                    printf("Error: Division by zero is not allowed.\n");
                } else
                {
                    result = num1 / num2;
                    printf("Result: %.2f / %.2f = %.2f\n", num1, num2, result);
                }
                break;
            default:
                printf("Invalid choice! Please select a valid option (1-5).\n");
        }
    }

    return 0;
}
```

Output



```
Menu:
1. Addition (+)
2. Subtraction (-)
3. Multiplication (*)
4. Division (/)
5. Exit
Enter your choice (1-5): 4
Enter two numbers: 2
4
Result: 2.00 / 4.00 = 0.50
```

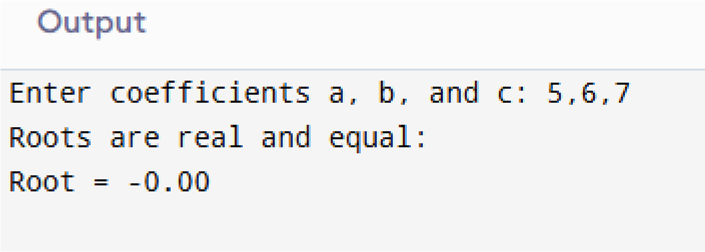
9. Write a program to find roots of a quadratic equation.

IPO
Input:enter a value as an input
Process: to find roots of a quadratic equation
Output:output the variable

Coding;

```
#include <stdio.h>
#include <math.h>

int main()
{
    double a, b, c, discriminant, root1, root2, realPart, imagPart;
    printf("Enter coefficients a, b, and c: ");
    scanf("%lf %lf %lf", &a, &b, &c);

    if (a == 0)
    {
        printf("Coefficient 'a' cannot be zero in a quadratic equation.\n");
        return 1;
    }
    discriminant = b*b - 4*a*c;

    if (discriminant > 0)
    {
        root1 = (-b + sqrt(discriminant)) / (2*a);
        root2 = (-b - sqrt(discriminant)) / (2*a);
        printf("Roots are real and different:\n");
        printf("Root 1 = %.2lf\n", root1);
        printf("Root 2 = %.2lf\n", root2);
    } else if (discriminant == 0)
    {
        root1 = -b / (2*a);
        printf("Roots are real and equal:\n");
        printf("Root = %.2lf\n", root1);
    } else
    {
        realPart = -b / (2*a);
        imagPart = sqrt(-discriminant) / (2*a);
        printf("Roots are complex and imaginary:\n");
        printf("Root 1 = %.2lf + %.2lfi\n", realPart, imagPart);
        printf("Root 2 = %.2lf - %.2lfi\n", realPart, imagPart);
    }

    return 0;
}
```

Output



```
Enter coefficients a, b, and c: 5,6,7
Roots are real and equal:
Root = -0.00
```

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

IPO

Input:enter a value as an input

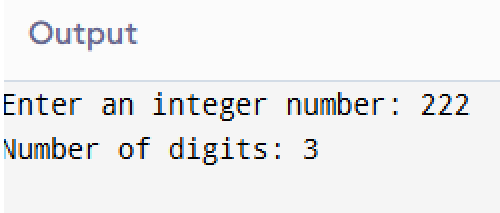
Process: to find the number of digits in a number

Output:output the variable

Coding;

```
#include <stdio.h>

int main()
{
    int number, count = 0;
    printf("Enter an integer number: ");
    scanf("%d", &number);
    if (number == 0)
    {
        count = 1;
    } else
    {
        if (number < 0)
        {
            number = -number;
        }
        while (number != 0)
        {
            number /= 10;
            count++;
        }
    }

    printf("Number of digits: %d\n", count);

    return 0;
}
```

Output



```
Enter an integer number: 222
Number of digits: 3
```