

Assignment 3

1. Write a program to check whether a given number is positive or non-positive.

Program -

```
#include<stdio.h>
int main()
{
    int num;
    printf("Enter a number: ");
    scanf("%d",&num);
    if(num > 0)
        printf("%d is positive!",num);
    else
        printf("%d is Non-positive!",num);
    return 0;
}
```

Output -

Enter a number: 5
5 is positive!

2. Write a program to check whether a given number is divisible by 5 or not.

Program -

```
#include<stdio.h>
int main()
{
    int num;
    printf("Enter a number: ");
    scanf("%d",&num);
    if(num%5)
        printf("%d is not divisible by 5",num);
    else
        printf("%d is divisible by 5",num);
    return 0;
}
```

Output -

Enter a number: 35
35 is divisible by 5

3. Write a program to check whether a given number is an even number or an odd number.

Program -

```
#include<stdio.h>
int main()
{
    int num;
    printf("Enter a number: ");
    scanf("%d",&num);

    if(num%2)
        printf("%d is an odd number!",num);
    else
        printf("%d is an even number!",num);

    return 0;
}
```

Output -

Enter a number: 56
56 is an even number!

4. Write a program to check whether a given number is an even number or an odd number without using % operator.

Program -

```
#include<stdio.h>
int main()
{
    int num;
    printf("Enter a number: ");
    scanf("%d",&num);
    if(num & 1)
        printf("%d is an odd number!",num);
    else
        printf("%d is an even number!",num);
    return 0;
}
```

Output -

Enter a number: 356
356 is an even number!

5. Write a program to check whether a given number is a three-digit number or not.

Program -

```
#include <stdio.h>

int main()
{
    int num;
    printf("Enter a number: ");
    scanf("%d",&num);

    if(num >= 100 && num <= 999)
        printf("%d is a three-digit number!",num);
    else
        printf("%d is not a three-digit number!",num);

    return 0;
}
```

Output -

```
Enter a number: 124
124 is a three-digit number!
```

6. Write a program to print greater between two numbers. Print one number if both are the same.

Program -

```
#include <stdio.h>

int main()
{
    int a , b , greater;

    printf("Enter two numbers: ");
    scanf("%d%d",&a,&b);

    greater = a >= b ? a : b;

    printf("Greater = %d",greater);

    return 0;
}
```

Output -

```
Enter two numbers: 2 7
Greater = 7
```

7. Write a program to check whether roots of a given quadratic equation are real & distinct, real & equal or imaginary roots

Program -

```
#include <stdio.h>

int main()
{
    int a , b , c , D;

    printf("Enter the values of a , b and c : ");
    scanf("%d%d%d",&a,&b,&c);

    D = (b * b) - 4 * a * c;

    if(D > 0)
        printf("Roots are real and distinct!");
    else if(D == 0)
        printf("Roots are real and equal!");
    else
        printf("Roots are imaginary!");
    return 0;
}
```

Output -

```
Enter the values of a , b and c : 2 4 1
Roots are real and distinct!
```

8. Write a program to check whether a given year is a leap year or not.

Program -

```
#include <stdio.h>

int main()
{
    int y;
    printf("Enter a year: ");
    scanf("%d",&y);

    if((y % 4 == 0) && (y % 100 != 0) || (y % 400 == 0))
        printf("%d is a leap year",y);
    else
        printf("%d is not a leap year",y);

    return 0;
}
```

Output -

Enter a year: 2004
2004 is a leap year

9. Write a program to find the greatest among three given numbers. Print number once if the greatest number appears two or three times.

Program -

```
#include <stdio.h>
int main()
{
    int a , b , c;
    printf("Enter three numbers: ");
    scanf("%d%d%d",&a,&b,&c);

    printf("Greatest is ");
    if(a >= b)
    {
        if(b == c)
            printf("%d",a);
        else if(a > c)
            printf("%d",a);
        else
            printf("%d",c);
    }
    else
    {
        if(b >= c)
            printf("%d",b);
        else
            printf("%d",c);
    }

    return 0;
}
```

Output -

Enter three numbers: 3 4 1
Greatest is 4

10. Write a program which takes the cost price and selling price of a product from the user. Now calculate and print profit or loss percentage.

Program -

```
#include <stdio.h>

int main()
{
    int SP , CP;

    printf("Enter Cost Price: ");
    scanf("%d",&CP);
    printf("Enter Selling Price: ");
    scanf("%d",&SP);

    if(SP > CP)
    {
        float profit = SP - CP;
        float profitPercent = (profit / CP) * 100;
        printf("Profit percent is %f",profitPercent);
    }
    else
    {
        float loss = CP - SP;
        float lossPercent = (loss / CP) * 100;
        printf("Loss percent is %f",lossPercent);
    }

    return 0;
}
```

Output -

```
Enter Cost Price: 1800
Enter Selling Price: 2000
Profit percent is 11.111112
```

11. Write a program to take marks of 5 subjects from the user. Assume marks are given out of 100 and passing marks is 33. Now display whether the candidate passed the examination or failed.

Program -

```
#include <stdio.h>

int main()
{
    int sub_marks, marks = 0;

    printf("Enter marks of 5 subjects\n\n");
    for(int i = 1 ; i <= 5 ; i++)
    {
        printf("Enter Marks of subject-%d : ",i);
```

```

        scanf("%d",&sub_marks);
        marks += sub_marks;
    }

    double total = (marks / 500.0) * 100;

    if(total >= 33)
        printf("Passed!");
    else
        printf("Failed!");
    return 0;
}

```

Output -

Enter marks of 5 subjects

Enter Marks of subject-1 : 45
 Enter Marks of subject-2 : 40
 Enter Marks of subject-3 : 78
 Enter Marks of subject-4 : 67
 Enter Marks of subject-5 : 90
 Passed!

12. Write a program to check whether a given alphabet is in uppercase or lowercase.

Program -

```

#include <stdio.h>

int main()
{
    char ch;

    printf("Enter an alphabet: ");
    scanf("%c",&ch);

    if(ch >= 'a' && ch <= 'z')
        printf("Lowercase alphabet!");
    else if(ch >= 'A' && ch <= 'Z')
        printf("Uppercase alphabet!");
    else
        printf("Not an alphabet!");
    return 0;
}

```

Output -

Enter an alphabet: D
 Uppercase alphabet

13. Write a program to check whether a given number is divisible by 3 and divisible by 2.

Program -

```
#include <stdio.h>

int main()
{
    int num;

    printf("Enter a number: ");
    scanf("%d",&num);

    if(num % 6)
        printf("Number is not divisible by 2 and 3");
    else
        printf("Number is divisible by 2 and 3");
    return 0;
}
```

Output -

Enter a number: 18

Number is divisible by 2 and 3

14. Write a program to check whether a given number is divisible by 7 or divisible by 3.

Program -

```
#include<stdio.h>
int main()
{
    int num;

    printf("Enter a number: ");
    scanf("%d",&num);

    if(num % 3 == 0 && num % 7 == 0)
        printf("%d is divisible by both 3 and 7",num);
    else if(num % 3 == 0)
        printf("%d is divisible by 3",num);
    else if(num % 7 == 0)
        printf("%d is divisible by 7",num);
    else
        printf("%d is neither divisible by 3 nor 7",num);

    return 0;
}
```

Output -

Enter a number: 60

60 is divisible by 3

15. Write a program to check whether a given number is positive, negative or zero.

Program -

```
#include<stdio.h>
int main()
{
    int num;

    printf("Enter a number: ");
    scanf("%d",&num);

    if(num >= 0)
    {
        if(num == 0)
            printf("Number is 0");
        else
            printf("Number is positive");
    }
    else
        printf("Number is negative");

    return 0;
}
```

Output -

Enter a number: -5
Number is negative

16. Write a program to check whether a given character is an alphabet (uppercase), an alphabet (lower case), a digit or a special character.

Program -

```
#include<stdio.h>

int main()
{
    char ch;

    printf("Enter a character: ");
    scanf("%c",&ch);

    if(ch >= 'a' && ch <= 'z')
        printf("Lowercase character");
    else if (ch >= 'A' && ch <= 'Z')
        printf("Uppercase character");
    else if(ch >= '0' && ch <= '9')
        printf("Digit");
}
```

```
else
    printf("Special character");
return 0;
}
```

Output -

Enter a character: Q
Uppercase character

17. Write a program which takes the length of the sides of a triangle as an input. Display whether the triangle is valid or not.

Program -

```
#include<stdio.h>
int main()
{
    int a , b , c;

    printf("Enter the lengths of the three sides of triangle: ");
    scanf("%d%d%d",&a,&b,&c);

    if(a + b > c && b + c > a && a + c > b)
        printf("Triangle is valid");
    else
        printf("Triangle is invalid");

    return 0;
}
```

Output -

Enter the lengths of the three sides of triangle: 4 5 2
Triangle is valid

18. Write a program which takes the month number as an input and display number of days in that month

Program -

```
#include<stdio.h>
int main()
{
    int m;

    printf("Enter month number: ");
    scanf("%d",&m);

    if(m == 1 || m == 3 || m == 5 || m == 7 || m == 8 || m == 10 || m == 12)
```

```
        printf("31 days");
else if(m == 2)
    printf("28 days");
else if(m > 12)
    printf("Invalid month number");
else
    printf("30 days");

return 0;
}
```

Output -

Enter month number: 9
30 days