

Decision Control Statements

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

```
#include<stdio.h>

int main()
{
    int a;

    printf("enter any number: ");

    scanf("%d",&a);

    if(a>0)

        printf("given number is positive");

    else

        printf("given number is non positive");


    return 0;
}
```

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

```
#include<stdio.h>

int main()
{
    int a;

    printf("enter any number: ");

    scanf("%d",&a);

    if(a%5)

        printf("given number is not divisible by 5");

    else

        printf("given number is divisible by 5");


    return 0;
}
```

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

```
#include<stdio.h>

int main()
{
    int a;

    printf("enter any number: ");

    scanf("%d",&a);

    if(a%2)

        printf("given number is odd");

    else

        printf("given number is even");

    return 0;
}
```

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

```
#include<stdio.h>

int main()
{
    int a;

    printf("enter any number: ");

    scanf("%d",&a);

    if(a&1)

        printf("given number is odd");

    else

        printf("given number is even");

    return 0;
}
```

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

```
#include<stdio.h>

int main()
{
    int a;

    printf("enter any number: ");
    scanf("%d",&a);
    if(a>99 && a<1000)
        printf("given number is three digit number");
    else
        printf("given number is not three digit number");

    return 0;
}
```

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

```
#include<stdio.h>

int main()
{
    int a,b;

    printf("enter any number: ");
    scanf("%d %d",&a,&b);
    if(a>b)
        printf("%d is greater than %d",a,b);
    else
        printf("%d is greater than %d",b,a);
    return 0;
}
```

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

```
#include<stdio.h>

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

    printf("enter any quadratic equation in form of \" aX^2+bX+c: \": ");
    scanf("%dX^2+%dX+%d",&a,&b,&c);
    //printf("%d %d %d",a,b,c);
    d=b*b-4*a*c;
    if(d==0)
        printf("\ngiven equation has real and equal roots. ");
    else if(d>0)
        printf("given equation has real and distinct roots. ");
    else
        printf("given equation has imaginary roots. ");
    return 0;
}
```

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

```
#include<stdio.h>

int main(){
    int year;

    printf("enter year: ");
    scanf("%d",&year);
    if(((year%4==0)&&(year%100!=0)) || (year%400==0))
        printf("%d is a leap year",year);
    else
        printf("%d is not a leap year");
    return 0;
}
```

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

```
#include<stdio.h>

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

    printf("enter any three number: ");

    scanf("%d %d %d",&a,&b,&c);

    printf("greatest number is %d",a<b ? b<c ? c:b : a>c? a:c);

    return 0;
}
```

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.

```
#include<stdio.h>

int main()
{
    int cp,sp;

    printf("enter cost price: ");

    scanf("%d",&cp);

    printf("enter selling price: ");

    scanf("%d",&sp);

    cp<sp ? printf("profit is %f %%",100.0*(sp-cp)/cp):printf("loss is %f %%",100.0*(cp-sp)/cp);

    return 0;
}
```

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.

```
#include<stdio.h>

int main()
{
    int english,hindi,maths,science,computer;

    printf("enter marks of subject of english, hindi, maths, science, computer: ");
    scanf("%d %d %d %d %d",&english,&hindi,&maths,&science,&computer);
    if(english>32 && hindi>32 && maths>32 && science>32 && computer>32)
        printf("you has been passed");
    else
        printf("you has been failed");
    return 0;
}
```

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

```
#include<stdio.h>

int main()
{
    char a;

    printf("enter any alphhabet: ");
    scanf("%c",&a);
    if(a>='a'&&a<='z')
        printf("given alphabet is in lower case");
    else if (a>='A'&&a<='Z')
        printf("Given alphabet is in upper case");
    else
        printf("not alphabet");
    return 0;
}
```

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

```
#include<stdio.h>

int main()
{
    int a;

    printf("enter any number: ");

    scanf("%d",&a);

    if(a%3==0 && a%2==0)

        printf("given number is divisible by 2 and 3");

    else

        printf("given number is not divisible by 2 and 3 ");

    return 0;
}
```

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

```
#include<stdio.h>

int main()
{
    int a;

    printf("enter any number: ");

    scanf("%d",&a);

    if(a%7==0 || a%3==0)

        printf("given number is divisible by 7 or 3");

    else

        printf("given number is not divisible by 7 or 3 ");

    return 0;
}
```

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

```
#include<stdio.h>

int main()
{
    int a;

    printf("enter any number: ");
    scanf("%d",&a);

    if(a>0)
        printf("given number is positive");
    else if (a<0)
        printf("given number is non positive");
    else
        printf("given number is zero");

    return 0;
}
```

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

```
#include<stdio.h>
int main()
{
    char a;
    printf("enter any alphabet: ");
    scanf("%c",&a);
    if(a>='a'&&a<='z')
        printf("given character is in lower case");
    else if (a>='A'&&a<='Z')
        printf("Given character is in upper case");
    else if (a<='9' && a>='0')
        printf("given character is digit");
    else
        printf("given character special character");

    return 0;
}
```


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.

```
#include<stdio.h>

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

    printf("enter side of triangle: ");
    scanf("%d %d %d",&a,&b,&c);
    if(a<b+c && b<c+a && c<a+b)
        printf("triangle exist with given side");
    else
        printf("triangle does not exist with given side");

    return 0;
}
```

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

```
#include<stdio.h>

int main()
{
    int a;

    printf("enter month number from 1 to 12: ");
    scanf("%d",&a);
    if(a==2)
        printf("given month has 28 days or 29 if leap year");
    else if((a<8 && a%2)| |(a>7 && a%2==0))
        printf("given month has 31 days ");
    else
        printf("given month has 30 days");

    return 0;
}
```