

Decision Control Statements

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

Ans:-

```
#include<stdio.h>
#include<conio.h>
int main()
{
    int x;
    printf("Input a number: ");
    scanf("%d",&x);
    if(x>0)
        printf("Positive");
    else
        printf("Non-positive");
    getch();
    return 0;
}
```

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

Ans:-

```
#include<stdio.h>
#include<conio.h>
int main()
{
    int x;
    printf("Input a number: ");
    scanf("%d",&x);
    if(x%5)
        printf("Not divisible");
    else
        printf("Divisible");
    getch();
    return 0;
}
```

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

Ans:-

```
#include<stdio.h>
#include<conio.h>
int main()
{
    int x;
    printf("Input a number: ");
    scanf("%d",&x);
    if(x%2==0)
        printf("Even");
    else
        printf("Odd");
    getch();
    return 0;
}
```

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

Ans:-

```
#include<stdio.h>
#include<conio.h>
int main()
{
    int x;
    printf("Input a number: ");
    scanf("%d",&x);
    if(x/2*2==x)
        printf("Even");
    else
        printf("Odd");
    getch();
    return 0;
}
```

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

Ans:-

```
#include<stdio.h>
#include<conio.h>
int main()
{
    int x,i=0;
    printf("Input a number: ");
    scanf("%d",&x);
    int k=x;
    while(x!=0)
    {
        x=x/10;
        i++;
        if(x==0&&i==3)
        {
            printf("%d is a %d digit number",k,i);
            break;
        }
    }
    if(i!=3)
        printf("Not three digit");

    getch();
    return 0;
}
```

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

Ans:-

```
#include<stdio.h>
#include<conio.h>
int main()
{
    int n1,n2;
    printf("Input two numbers: ");
    scanf("%d%d",&n1,&n2);
    if(n1>n2)
        printf("%d is greater",n1);
    else if(n2>n1)
```

```
printf("%d is greater",n2);  
else  
printf("%d , Both is equal",n1);  
getch();  
return 0;  
}
```

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

Ans:-

```
#include<stdio.h>  
#include<conio.h>  
int main()  
{  
  
    int a,b,c,D;  
    printf("Input coefficient of x^2: ");  
    scanf("%d",&a);  
    printf("Input coefficient of x: ");  
    scanf("%d",&b);  
    printf("Input constant term: ");  
    scanf("%d",&c);  
    D=b*b-4*a*c;  
    if(D>0)  
        printf("D = %d\nroots are real and distinct ",D);  
    else  
        if(D<0)  
            printf("D = %d\nroots are imaginary ",D);  
        else  
            printf("D = %d\nroots are real and equal ",D);  
    getch();  
    return 0;  
}
```

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

Ans:-

```
#include<stdio.h>
#include<conio.h>
int main()
{
    int year;
    printf("Input year: ");
    scanf("%d",&year);
    if(year%4)
        printf("Not leap year");
    else
        printf("leap year");

    getch();
    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.

Ans:-

```
#include<stdio.h>
#include<conio.h>
int main()
{
    int n1,n2,n3;
    printf("Input three numbers: ");
    scanf("%d%d%d",&n1,&n2,&n3);
    if(n1>=n2&& n1>=n3)
        printf("%d is greater",n1);
    else if(n2>n1&& n2>n3)
        printf("%d is greater",n2);
    else
        printf("%d is greater",n3);
    getch();
    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.

Ans:-

```
#include<stdio.h>
#include<conio.h>
int main()
{
    int n1,n2;
    float loss,profit;
    printf("Input cost price: ");
    scanf("%d",&n1);
    printf("Input selling price: ");
    scanf("%d",&n2);
    if(n1>n2)
    {
        loss=((n1-n2)*100.0)/n1;
        printf("Loss = %.2f%% ",loss);
    }
    else if(n1<n2)
    {
        profit=((n2-n1)*100.0)/n1;
        printf("Profit = %.2f%% ",profit);
    }
    getch();
    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.

Ans:-

```
#include<stdio.h>
#include<conio.h>
int main()
{
    int n1,n2,n3,n4,n5,sum;

    printf("Input 1st subject marks: ");
    scanf("%d",&n1);
    printf("Input 2nd subject marks: ");
    scanf("%d",&n2);
    printf("Input 3rd subject marks: ");
    scanf("%d",&n3);
    printf("Input 4th subject marks: ");
```

```
scanf("%d",&n4);
printf("Input 5th subject marks: ");
scanf("%d",&n5);
sum=n1+n2+n3+n4+n5;
printf("\n\nPassing marks is 231\n");
if(sum>=231)
printf("Your total marks is %d\nPass",sum);

else
printf("Your total marks is %d\nFail",sum);
getch();
return 0;
}
```

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

Ans:-

```
#include<stdio.h>
#include<conio.h>
int main()
{
    char n1;
    printf("Input a character: ");
    scanf("%c",&n1);
    if(n1>='A'&&n1<='Z')
    printf("Uppercase");
    else if(n1>='a'&&n1<='z')
    printf("Lowercase");
    else
    printf("invalid input");

    getch();
    return 0;
}
```

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

Ans:-

```
#include<stdio.h>
#include<conio.h>
int main()
{
    int n1;
    printf("Input a numbers: ");
    scanf("%d",&n1);
    if(n1%2&& n1%3)
        printf("not divisible",n1);
    else
        printf("divisible");

    getch();
    return 0;
}
```

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

Ans:-

```
#include<stdio.h>
#include<conio.h>
int main()
{
    int n1;
    printf("Input a numbers: ");
    scanf("%d",&n1);
    if(n1%7==0 || n1%3==0)
        printf("divisible",n1);
    else
        printf("not divisible");

    getch();
    return 0;
}
```


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

Ans:-

```
#include<stdio.h>
#include<conio.h>
int main()
{
    int x;
    printf("Input a number: ");
    scanf("%d",&x);
    if(x>0)
        printf("Positive");
    else if(x<0)
        printf("Negative");
    else
        printf("Zero");
    getch();
    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.

Ans:-

```
#include<stdio.h>
#include<conio.h>
int main()
{
    char n1;
    printf("Input a character: ");
    scanf("%c",&n1);
    if(n1>='A'&&n1<='Z')
        printf("Uppercase");
    else if(n1>='a'&&n1<='z')
        printf("Lowercase");
    else if(n1>='0'&&n1<='9')
        printf("Digit");
    else
        printf("Special Character");

    getch();
    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.

Ans:-

```
#include<stdio.h>
#include<conio.h>
int main()
{
    int n1,n2,n3;
    printf("Enter sides of triangle: ");
    scanf("%d%d%d",&n1,&n2,&n3);
    if(n1>=n2&& n1>=n3)
    {
        if(n2+n3>n1)
            printf("valid");
        else
            printf("invalid");
    }

    if(n2>n1&& n3<n2)
    {
        if(n1+n3>n2)
            printf("valid");
        else
            printf("invalid");
    }

    if(n3>n1&& n2<n3)
    {
        if(n2+n1>n3)
            printf("valid");
        else
            printf("invalid");
    }

    getch();
    return 0;
}
```

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

Ans:-

```
#include<stdio.h>
#include<conio.h>
int main()
{
    int n;
    printf("Enter month number: ");
    scanf("%d",&n);
    switch (n)
    {
        case 1:
            printf("January");
            break;
        case 2:
            printf("February");
            break;
        case 3:
            printf("March");
            break;
        case 4:
            printf("April");
            break;
        case 5:
            printf("May");
            break;
        case 6:
            printf("June");
            break;
        case 7:
            printf("July");
            break;
        case 8:
            printf("August");
            break;
        case 9:
            printf("September");
            break;
        case 10:
            printf("October");
            break;
        case 11:
            printf("November");
            break;
```

```
        case 12:
            printf("December");
            break;

        default:
            printf("Invalid Input");
            break;
    }
    getch();
    return 0;
}
```