

## Practicle no 2:

### 1) Factorial using Loop(Iterators):

```
#include <iostream>

using namespace std;

//using loop

int main (){

    int fact =0, num ;

    cout<<"Enter the Number to Do Factorial: ";

    cin >>num;

    fact = num;

    int i = 1;

    for ( i =1 ; i<num ; i++){

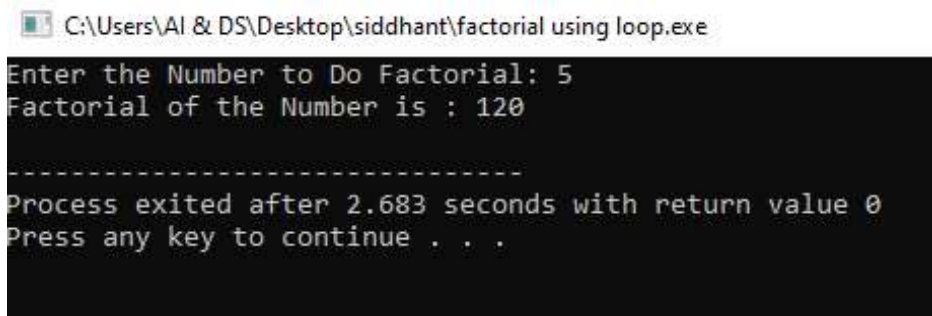
        fact = fact * i;

    }

    cout <<"Factorial of the Number is : "<<fact<<endl;

}
```

output:



```
C:\Users\AI & DS\Desktop\siddhant\factorial using loop.exe
Enter the Number to Do Factorial: 5
Factorial of the Number is : 120
-----
Process exited after 2.683 seconds with return value 0
Press any key to continue . . .
```

### 2) Factorial using Recursion:

```
#include <iostream>

using namespace std;

float returnfact(int n){

    if(n == 0){

        return 1;

    }

}
```

```

else if (n == 1){
    return 1;
}
else{
    return n*returnfact(n - 1);
}
}

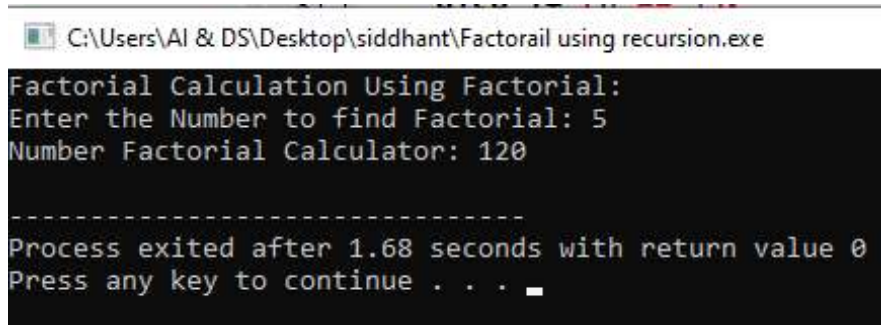
int main(){
    int num;

    cout<<"Enter the Number to find Factorial: ";
    cin >>num;

    float fact = returnfact(num);
    cout<<"Number Factorial Calculator: " <<fact<<endl;
    return 0;
}

```

**Output:**



The screenshot shows a Windows command prompt window with the title bar "C:\Users\AI & DS\Desktop\siddhant\Factorail using recursion.exe". The window contains the following text:

```

Factorial Calculation Using Factorial:
Enter the Number to find Factorial: 5
Number Factorial Calculator: 120

-----
Process exited after 1.68 seconds with return value 0
Press any key to continue . . .

```

3)

```
#include <iostream>

using namespace std;

int binarysearch(int arr[],int key, int Nmin, int Nmax){

    int min, mid, max;

    min = Nmin;

    max = Nmax;

    mid = (min+max)/2;

    if(min > max)

    {

        return 0;

    }

    else if(arr[mid] == key){

        return 1;

    }

    else if (key < arr [mid]){

        max=mid-1;

        return binarysearch(arr, key,min , max );

    }

    else if(key > arr [mid]){

        min=mid+1;

        return binarysearch(arr, key,min , max );

    }

}
```

```

    }

    int main(){

        int arr[5];

        int cnd;

        int key ;

        cout<<"Enter the Elements of the Array: ";

        for(int i =0 ; i< 5; i++){

            cin>>arr[i];

        }

        cout<<"Enter the Key to Search Through Array:";

        cin>>key;


        cnd = binarysearch(arr , key , 0, 4);

        if(cnd == 1){

            cout<<"Key Found"<<endl;

        }

        else{

            cout<<"Key not Found"<<endl;

        }

    }

```

**Output:**

```
C:\Users\AI & DS\Desktop\siddhant\Binary Search Using Recursion.exe
Enter the Elements of the Array: 22
26
29
32
34
Enter the Key to Search Through Array:32
Key Found

-----
Process exited after 16.26 seconds with return value 0
Press any key to continue . . .
```