AIM: Implement and analyze algorithms given below 1 Factorial (Iterative and Recursive).

PROGRAM(Iterative):

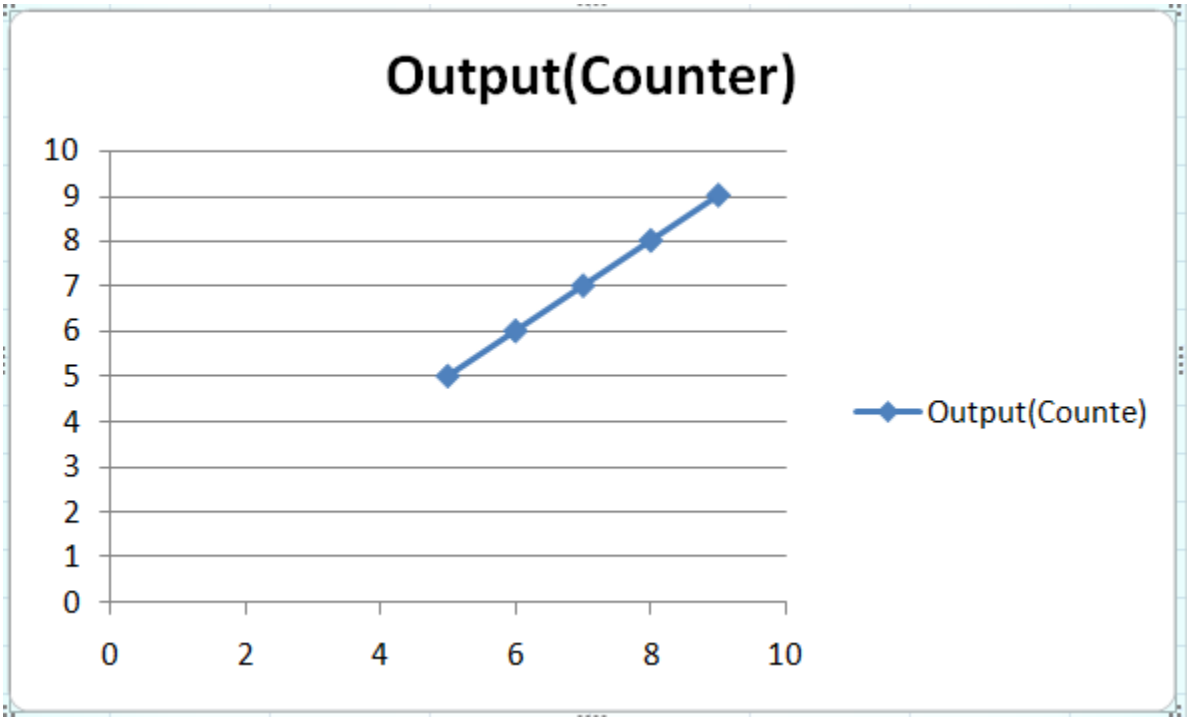
```
#include <iostream>

using namespace std;

int main()
{
   int i,fact=1,number,counter=0;
  cout<<"Enter any Number: ";
 cin>>number;
  for(i=1;i<=number;i++){
      fact=fact*i;
      counter++;
  }
  cout<<"Factorial of " <<number<<" is: "<<fact<<endl;
  cout<<"Counter is:"<<counter;
  return 0;
}
```

OUTPUT:

ANALYSIS TABLE:

Input	Output(Counte
5	5
6	6
7	7
8	8
9	9

GRAPH:



CONCLUSION: I Implemented and analyzed algorithms given below 1 Factorial using iterative method.

PROGRAM(Recursive):

```
#include<iostream>
using namespace std;
 int ctr=0;

int factorial(int n)
   {
      if(n<0)
      return(-1); /*Wrong value*/
      if(n==0)
      return(1);  /*Terminating condition*/
      else
      {
         ctr++;
         return(n*factorial(n-1));
      }
   }

int main()
{
   int fact,number,counter;
   cout<<"Enter the number to find it's factorial: ";
   cin>>number;
   fact=factorial(number);
   cout<<"Factorial of the given number is: "<<fact<<endl;
   cout<<"Counter is: "<<ctr<<endl;
   return 0;
}
```

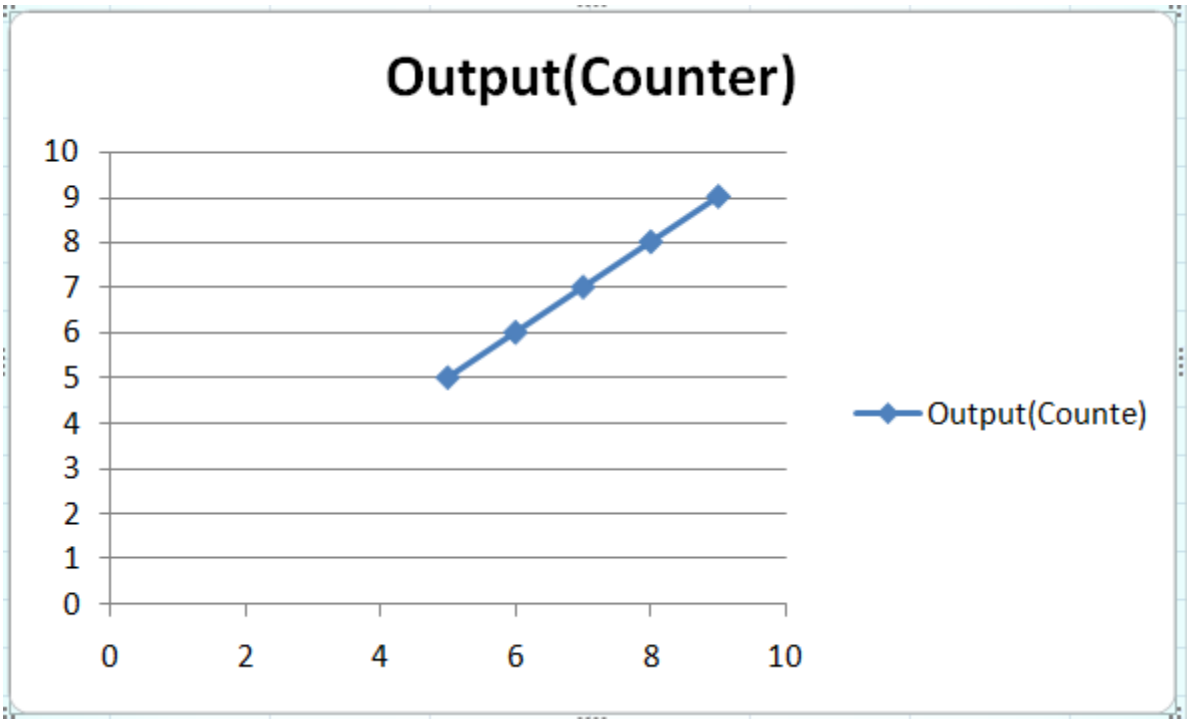
OUTPUT:

```
Enter the number to find it's factorial: 4
Factorial of the given number is: 24
Counter is: 4
```

ANALYSIS TABLE:

Input	Output(Counte
5	5
6	6
7	7
8	8
9	9

GRAPH:



CONCLUSION: I Implemented and analyzed algorithms given below 1 Factorial using Recursive method.