```
/*WAP to find solution of Non-Linear equations by Bisection Method.*/
#include <iostream>
#include <cmath>
#include <iomanip>
#include <cstring>
#define pi 3.14159265358979323846264338327950288419716939937510
#define e 2.71828182845904523536028747135266249775724709369995
using namespace std;
double y;
inline void maths_function(double & x)
{
   y = pow(x,7)-sin(x)-cos(x);//Put your function here
   cout<<"\t\t"<<setw(9)<<setprecision(9)<<x;
   cout<<"\t\t"<<setw(9)<<setprecision(9)<<y;
}
int main()
{
   int k,error,counter;
   double x1,x2,x3;
   cout.precision(9);
   while(1)
   {
      counter=0;
      cout<<"\n\t\tBISECTION METHOD\n\n";
      cout<<"Initial guess (a,b) where f(a) < 0 & f(b) > 0\n";
      cout<<"\nEnter your initial guess (a) : ";
      cin>>x1;
      cout<<"\nEnter your second guess (b) : ";
      cin>>x2;
      cout<<"\nEnter tolerance (10^-k)";
      cout<<"\nEnter k: ";
      cin>>k;
      cout<<"Approx. no of steps = "<<abs((k*log(10)-log(abs(x1-
x2)))/log(2))<<endl;

cout<<"\n\n*****************************************************
```

```
**********************************************************************
**********************************************\n\n";
      error=10;
      cout<<" SN\t\t   a"<<"\t\t\t   f(a)"<<"\t\t   b"<<"\t\t\t
f(b)"<<"\t\t\tc=(a+b)/2"<<"\t\t  f(c)\n\n";
      while (error>9)
      {
         x3=(x1+x2)/2;
         cout<<" "<<++counter;
         maths_function(x1);
         maths_function(x2);
         maths_function(x3);
         cout<<endl<<endl;
         if (y<0)
         {
            x1=x3;
         }
         else x2=x3;
         error = (int)trunc(abs(y*pow(10,k)));//error is in order of 10^k
      }

cout<<"\n\n**********************************************************
**********************************************************************
**********************************************\n\n";
   }
   return 0;
}
```