```
//Bisection Method
#include<bits/stdc++.h>
using namespace std;
#define f(x) (cos(x))-((1.3)*x)
double arr[100000];
double mid[100000];
double f[100000];
double error,ans,eqn,posx1,negx2;
int main()
{
    double err;
    double x1,x2;
    cout<<"Enter Initial Value\n";
    cin>>x1>>x2;
    cout<<"Enter Error Value\n";
    cin>>err;
    double f1=f(x1);
    double f2=f(x2);
    double val=f1*f2;
    if(val<0)
    {
        mid[0]=x1;
        mid[1]=x2;
        f[0]=f1;
        f[1]=f2;
        for(int i=2; ;i++)
        {
            mid[i]=(mid[i-1]+mid[i-2])/2;
            f[i]=f(mid[i]);
            if(f[i]>0)
            {
                if(f[i-1]<0)
                {
                    mid[i]=mid[i];
                    mid[i-1]=mid[i-1];
                }
                else
                {
                    mid[i]=mid[i];
                    mid[i-1]=mid[i-2];
                }
            }
```

```
            else
            {
               if(f[i-1]>0)
                {
                    mid[i]=mid[i];
                    mid[i-1]=mid[i-1];
                }
                else
                {
                    mid[i]=mid[i];
                    mid[i-1]=mid[i-2];
                }
            }
            error=abs(((mid[i]-mid[i-1])/mid[i])*10
0);
            ans=mid[i];

            if(error<=err)
                break;
            printf("# %d:   ",i-1);
            printf("X:%.4lf    ",f[i]);
            printf("[ %.3lf , %.3lf ]\n",mid[i],mid
[i-1]);
        }
        printf("Final Root==>%.4lf\n",ans);
    }
    else
    {
        cout<<"Solution Not possible\n";
    }
}
```