Bisection Method

```
#include<bits/stdc++.h>
using namespace std;
#define err 0.000001

float func(float x)
{
	return cos(x)-x*exp(x);
}
int main()
{
	float a,b;
	ifstream inp;
	inp.open("Bisection_input.txt");
	inp>>a;
	inp>>b;
	inp.close();
	float mid;
	if(func(a)*func(b)<0)
	{
		ofstream out;
		out.open("Bisection_output.txt");
		out<<"--a--"<<"\t\t"<<"--b--"<<"\t\t"<<"--mid--"<<"\t\t"<<"--f(mid)--\n";
		while((b-a)>=err)
```

```
		{
			mid=(a+b)/2;
			out<<fixed<<a<<"\t"<<b<<"\t"<<mid<<"\t"<<func(mid)<<"\n";
			if(func(a)*func(mid)<0)
				b=mid;
			else
				a=mid;
		}
		out<<"\nRoot: "<<mid;
	}
	else
	{
		cout<<"\nIncorrect interval to start with, enter new values:";
		main();
	}
	return 0;
}
```