

```
//Program for implementation of Bisection Method
```

```
#include<stdio.h>
```

```
#include<math.h>
```

```
#define eps 0.0005 //eps stands for epsilon
```

```
#define N 20
```

```
float func(float x)
```

```
{
```

```
    return ((x*x*x)-(x)-1);
```

```
}
```

```
int main(void)
```

```
{
```

```
    int i;
```

```
    float a,b,mid;
```

```
    FILE *input, *out1, *out2;
```

```
    input=fopen("input/data.txt","r");
```

```
    out1=fopen("iterations/iteration.txt","w");
```

```
    out2=fopen("mid values/mid.txt","w");
```

```
    printf("Enter the brackets: ");
```

```
    fscanf(input,"%f %f",&a,&b);
```

```
    if(func(a)*func(b)<0)
```

```
{
```

```
        printf("The required roots are\n");
```

```
        printf("*****");
```

```
        for (i=0;i<N;i++)
```

```
{
```

```
            mid=(a+b)/2.0;
```

```
//            printf("%f\n",mid);
```

```
//            printf("func %f\n",fabs(func(mid)));
```

```
            if(fabs(func(mid))<eps)
```

```
{
```

```
                printf("The required root is : %f",mid);
```

```
                break;
```

```
}
```

```
            else
```

```

        {
            if(func(mid)*func(a)<0)
            {
                b=mid;
            }
            else if(func(mid)*func(b)<0)
            {
                a=mid;
            }
            fprintf(out1,"%d\n",i+1);
            fprintf(out2,"%f\n",mid);
        }
    }
    fprintf(out1,"%d\n",i+1);
    fprintf(out2,"%f\n",mid);
}
else
{
    printf("Please enter feasible values of brackets");
}
// float res1,res2;
// res1=func(a);
// res2=func(b);
// printf("%f %f",res1,res2);

return 0;
}

```