

## Program 1

```
//1.program to find all possible roots of a quadratic equation.
#include<stdio.h>
#include<math.h>
int main(){
    float a,b,c,d1;
    printf("Enter the coefficients a,b,c : ");
    scanf("%f",&a);
    scanf("%f",&b);
    scanf("%f",&c);
    float d = sqrt(b*b-4*a*c);
    if(d>0)
    {float x1 = (-b + d)/(2*a);
    float x2 = (-b-d)/(2*a);
    printf("\nThe roots are real and distinct\nroot 1 : %.3f\nroot 2 : %.3f\n",x1,x2);}
    else if(d==0){
    float x1 = -b/(2*a);
    printf("\nThe roots are equal\nroot 1 : %.3f\nroot 2 : %.3f\n",x1,x1);
    }
    else{
    d = (b*b-4*a*c);
    printf("The roots are imaginary\n root 1 : %.3f + i%.3f", -b/(2*a), sqrt(-d)/(2*a));
    printf("\n root 2 : %.3f - i%.3f\n", -b/(2*a), sqrt(-d)/(2*a));
    }
}
```

```
[umangs-MacBook-Air-2:desktop umanggoel$ gcc eval_1.c
[umangs-MacBook-Air-2:desktop umanggoel$ ./a.out
Enter the coefficients a,b,c : 2
3
1

The roots are real and distinct
root 1 : -0.500
root 2 : -1.000
[umangs-MacBook-Air-2:desktop umanggoel$ ./a.out
Enter the coefficients a,b,c : 1
2
1

The roots are equal
root 1 : -1.000
root 2 : -1.000
[umangs-MacBook-Air-2:desktop umanggoel$ ./a.out
Enter the coefficients a,b,c : 1
1
1
The roots are imaginary
root 1 : -0.500 + i0.866
root 2 : -0.500 - i0.866
umangs-MacBook-Air-2:desktop umanggoel$
```

## Program 2

```
//2. Illustrate conditional branching statements to find the smallest of three numbers.
#include<stdio.h>
int main(){
    float a,b,c,s;
    printf("Enter the numbers : ");
    scanf("%f",&a);
    scanf("%f",&b);
    scanf("%f",&c);
    if(a<b){
        if(a<c)
            s=a;
        else
            s=c;
    }
    else if(b<c)
        s=b;
    else
        s=c;
    printf("%f\n",s);
}
```

```
[umangs-MacBook-Air-2:desktop umanggoel$ gcc eval_2.c
[umangs-MacBook-Air-2:desktop umanggoel$ ./a.out
Enter the numbers :
54
345
1243
smallest = 54.0
umangs-MacBook-Air-2:desktop umanggoel$
```