1. A quadratic equation **of the form ax² + bx + c = 0 by calculating the roots based on the discriminant**

```
#include <stdio.h>
#include<math.h>
int main()
{
 float a,b,c,x1,x2,d,f,g,part1;
 scanf("%f%f%f",&a,&b,&c);
 if(a!=0)
 {
    d=b*b-4*a*c;
    if(d>0)
    {
       x1=(-b+sqrt(d))/(2*a);
       x2=(-b-sqrt(d))/(2*a);
       printf("\nX1=%f",x1);
       printf("\nX2=%f",x2);
    }
    else if(d==0)
    {
        x1=-b/(2*a);
        printf("\nX1=%f",x1);
        printf("\nX2=%f",x1);
    }
    else
    {
      f=-1*d;
      g=sqrt(f);
      part1=-b/(2*a);
      printf("\n%f+%fi",part1,g/(2*a));
      printf("\n%f-%fi",part1,g/(2*a));
    }
 }
 else
   printf("a can not be zero");
   return 0;
}
```

2.Binary search

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

int main()
{
  int n;
  scanf("%d",&n);
  int arr[n];
  for(int i=1;i<=n;i++)
  {
     //arr[i]=rand()%100;
     //printf("%d ",arr[i]);
     scanf("%d",&arr[i]);
  }
  int key,k;
  printf("\n");
  scanf("%d",&key);
  for(k=1;k<=n;k++)
    if(key==arr[k])
      break;
   if(k>n)
      printf("\nItem not found");
   else
      printf("\nItem found at %d",k);
   return 0;
}
```