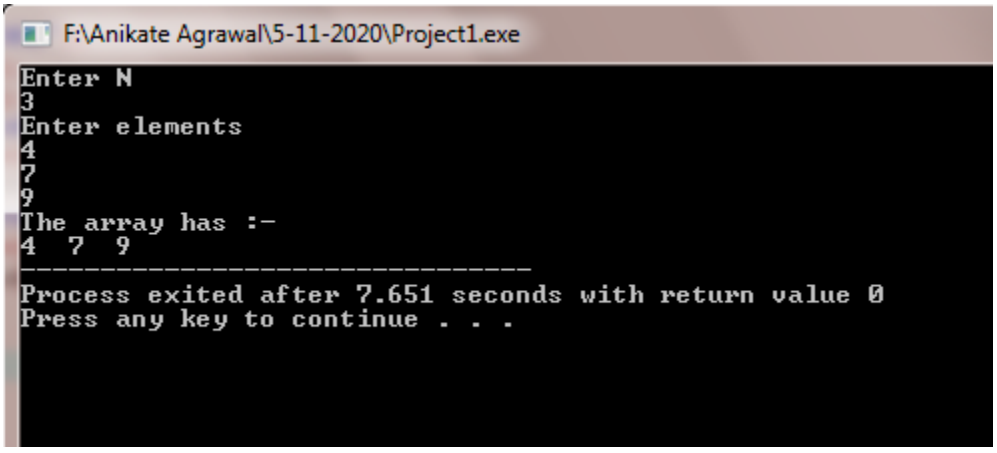
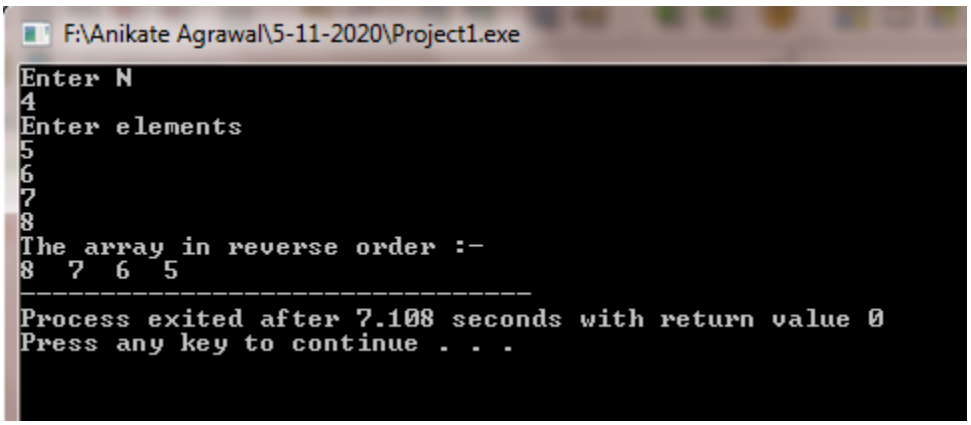
1.INPUT AN ARRAY & DISPLAY.

```
#include <stdio.h>

int main()

{

        int n;

        printf("Enter N\n");

        scanf("%d",&n);

        inti;int a[n];

        printf("Enter elements\n");

        for(i=0;i<n;i++)

        scanf("%d",&a[i]);

        printf("The array has :-\n");

        for(i=0;i<n;i++)

        printf("%d  ",a[i]);

        return 0;

}
```



2. Input an array and display in reverse order.

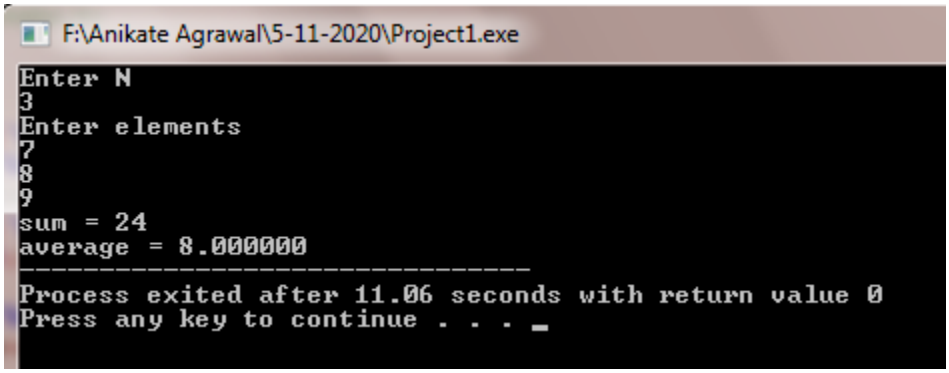
```
#include <stdio.h>

int main()

{

        int n;

        printf("Enter N\n");

        scanf("%d",&n);

        inti;int a[n];

        printf("Enter elements\n");

        for(i=0;i<n;i++)

        scanf("%d",&a[i]);

        printf("The array in reverse order :-\n");

        for(i=n-1;i>=0;i--)

        printf("%d  ",a[i]);

        return 0;

}
```



3. Input an array and print sum and average.

```
#include <stdio.h>

int main()

{
```

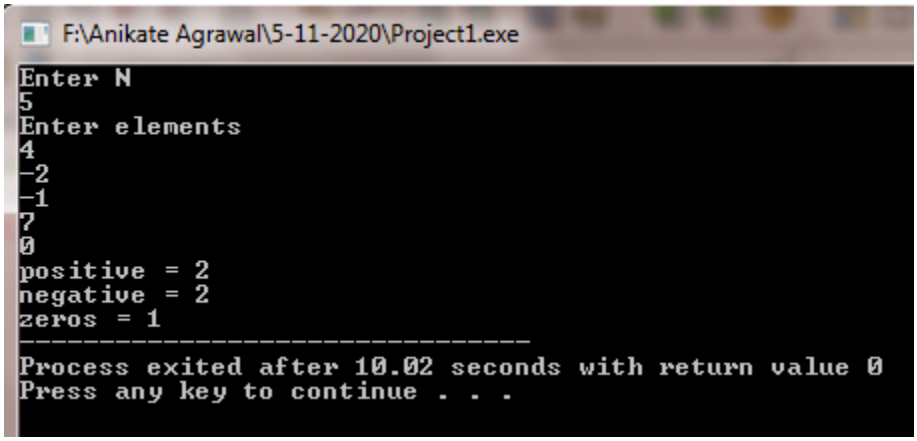
```
	int n;
	printf("Enter N\n");
	scanf("%d",&n);
	inti;int a[n];int sum=0;float avg;
	printf("Enter elements\n");
	for(i=0;i<n;i++)
	{
	scanf("%d",&a[i]);
	sum=sum+a[i];
	}
	avg=(float)sum/n;
	printf("sum = %d\naverage = %f",sum,avg);
	return 0;
}
```



4. Input an array and count total positive, negative and zero.

```
#include <stdio.h>
int main()
{
	int n;
	printf("Enter N\n");
```

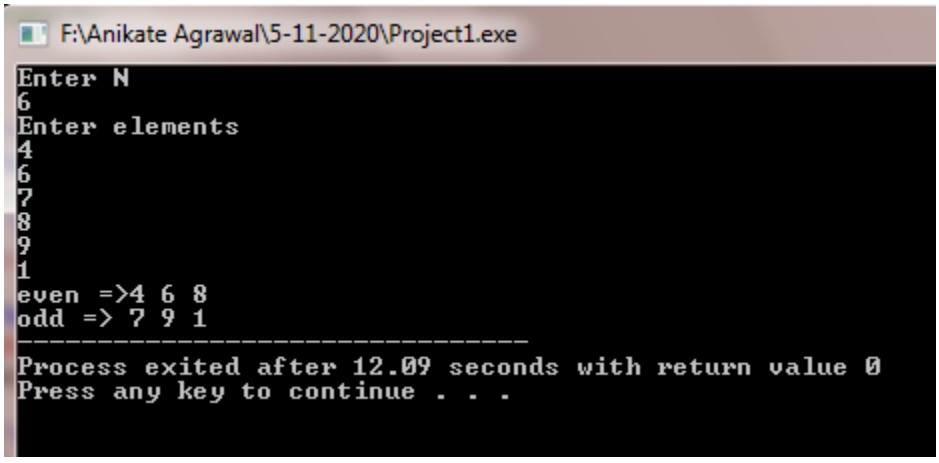
```
        scanf("%d",&n);
        inti;int a[n];int p=0,ne=0,z=0;
        printf("Enter elements\n");
        for(i=0;i<n;i++)
        {
        scanf("%d",&a[i]);
        if(a[i]>0)p++;
        else if(a[i]<0)ne++;
        else z++;
        }
        printf("positive = %d\nnegative = %d\nzeros = %d",p,ne,z);
        return 0;
}
```



5. Input an array and store odd and even numbers in separate arrays.

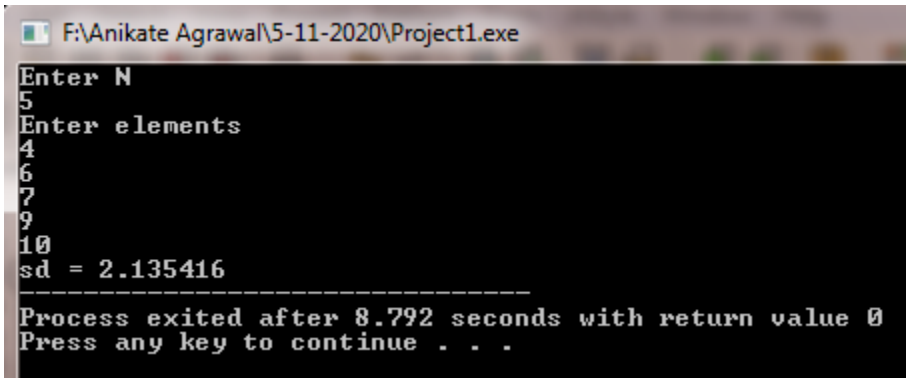
```
#include <stdio.h>
int main()
{
        int n;
        printf("Enter N\n");
```

```
    scanf("%d",&n);
    inti;int a[n];int odd[n],even[n];int e=0,o=0;
    printf("Enter elements\n");
    for(i=0;i<n;i++)
    {
    scanf("%d",&a[i]);
    if(a[i]%2==0)even[e++]=a[i];
    else odd[o++]=a[i];
    }
    printf("even =>");
    for(i=0;i<e;i++)
    printf("%d ",even[i]);
    printf("\nodd => ");
    for(i=0;i<o;i++)
    printf("%d ",odd[i]);
    return 0;
}
```



6. Input an array and print sd.

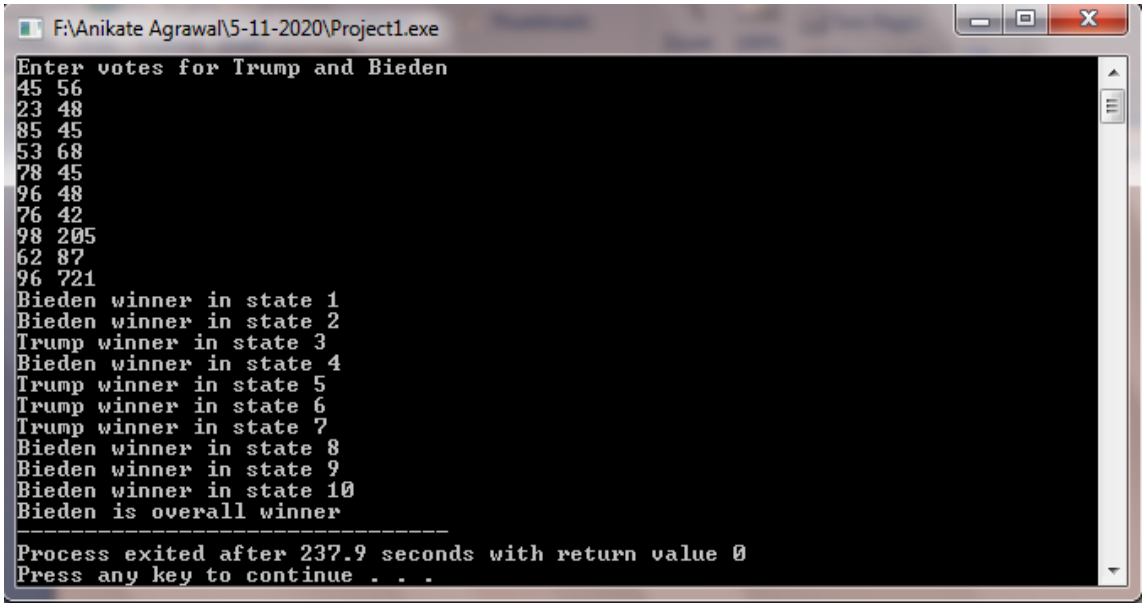
```
#include <stdio.h>
int main()
{
	int n;
	printf("Enter N\n");
	scanf("%d",&n);
	inti;int a[n];int sum=0;
	printf("Enter elements\n");
	for(i=0;i<n;i++)
	{
	scanf("%d",&a[i]);
	sum=sum+a[i];
	}
	float mean=(float)sum/n;
	float d=0;
	for(i=0;i<n;i++)
	{
		d=d+pow(a[i]-mean,2);
	}
	float sd=sqrt(d/n);
	printf("sd = %f",sd);
	return 0;
}
```



7. Input votes of Trump and Bieden in 10 states & print statewise and overall winner.

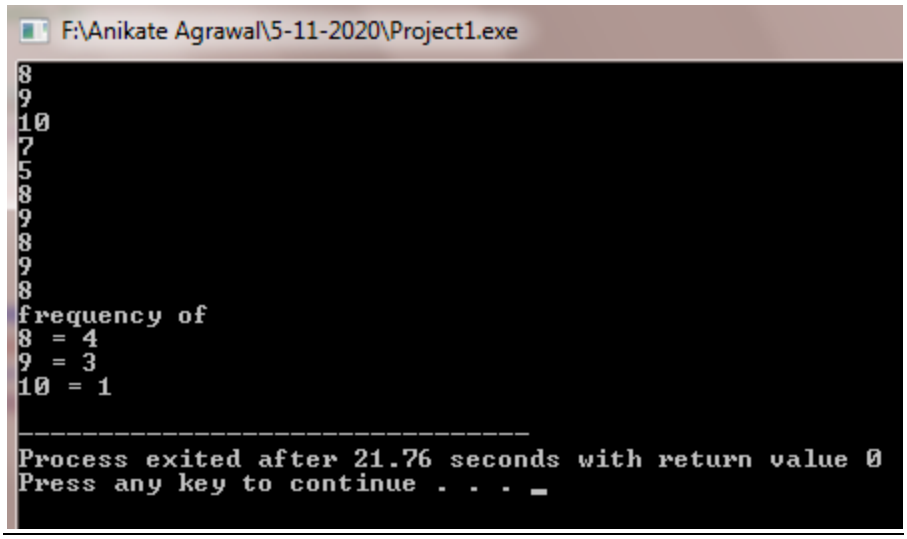
```
#include<stdio.h>

int main()

{

	int a[10],b[10];

	intts=0,bs=0,tv=0,bv=0,i;

	printf("Enter votes for Trump and Bieden\n");

	for(i=0;i<10;i++)

	{

		scanf("%d %d",&a[i],&b[i]);

		tv=tv+a[i];

		bv=bv+b[i];

	}

	for(i=0;i<10;i++)

	{

		if(a[i]>b[i])

		{

			printf("Trump winner in state %d\n",i+1);

			ts++;
```

```
            }
            else if(b[i]>a[i])
            {
                printf("Bieden winner in state %d\n",i+1);
                bs++;
            }
            else printf("Tie in state %d\n",i+i);
        }
        if(ts>bs)
        printf("Trump is overall winner");
        else if(bs>ts)
        printf("Bieden is overall winner");
        else if(tv>bv)
        printf("Trump is winner");
        else if (bv>tv)
        printf("Bieden is winner");
        else printf("Tie");
        return 0;
}
```



8. Input marks of 10 students and print frequency of marks above 7.

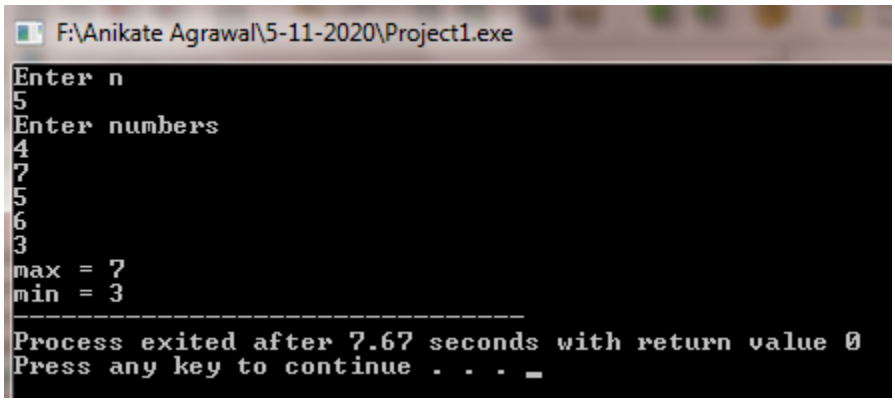
```
#include<stdio.h>

int main()

{

int m[3]={};intn;inti;

for(i =0;i<10;i++)

{

scanf("%d",&n);

if(n>7)

m[n-8]++;

}

printf ("frequency of\n");

for(i=0;i<3;i++)

printf("%d = %d\n",i+8,m[i]);

   return 0;

}
```



9. and 10. Input an array and find max and min element.

```
#include<stdio.h>

int main()

{

intn;inti;

printf ("Enter n\n");

scanf("%d",&n);

int a[n];intmax,min;

printf("Enter numbers\n");

for(i =0;i<n;i++)

scanf("%d",&a[i]);

max=a[0],min=a[0];

for(i=1;i<n;i++)

{

        if(max<a[i])max=a[i];

        if(min>a[i])min=a[i];

}
```

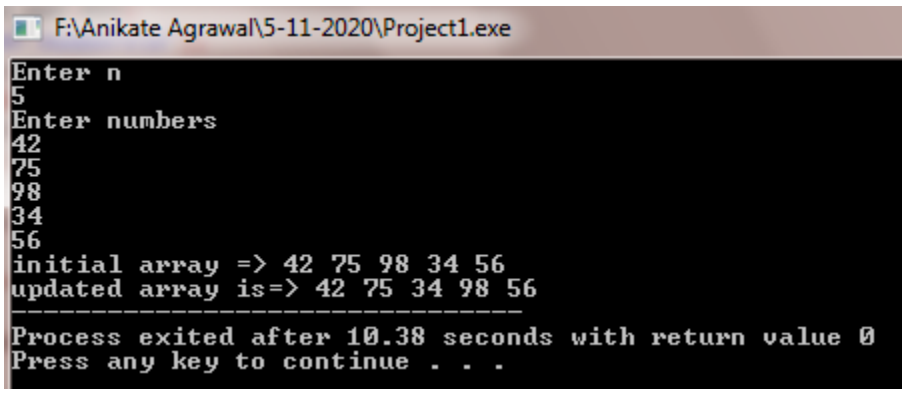
```
printf("max = %d\nmin = %d",max,min);

   return 0;

}
```



11. Input an array find max and min and swap them then print updated array.

```
#include<stdio.h>

int main()

{

intn;inti;

printf ("Enter n\n");

scanf("%d",&n);

int a[n];intmax,min;

printf("Enter numbers\n");

for(i =0;i<n;i++)

scanf("%d",&a[i]);

max=a[0],min=a[0];intpmax=0,pmin=0;

for(i=1;i<n;i++)

{

        if(max<a[i])

        {
```

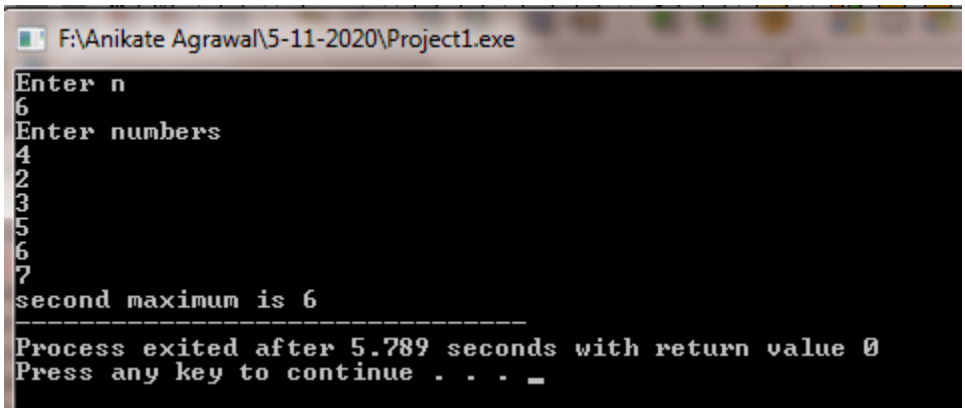
```
                max=a[i];pmax=i;
        }
        if(min>a[i])
        {
                min=a[i];pmin =i;
        }
}
printf("initial array => ");
for(i=0;i<n;i++)printf("%d ",a[i]);
printf("\n");
inttmp=a[pmax];
a[pmax]=a[pmin];
a[pmin]=tmp;
printf("updated array is=> ");
for(i=0;i<n;i++)printf("%d ",a[i]);
   return 0;
}
```



12. Input an array and find second maximum number.

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

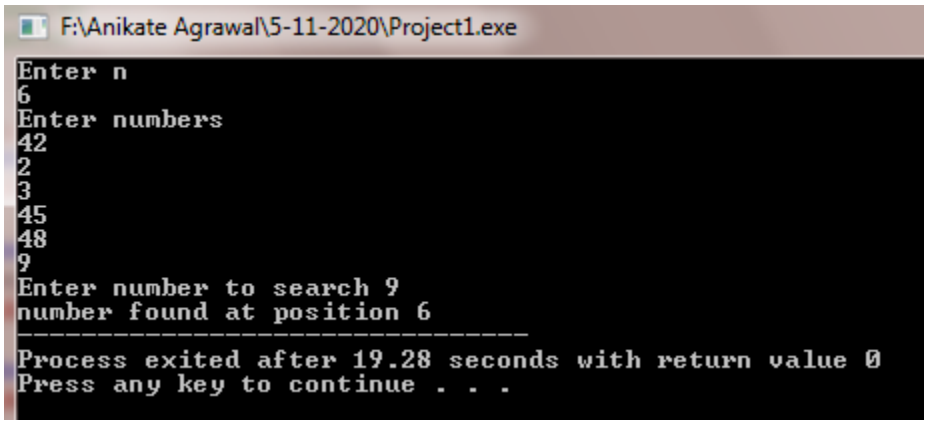
```
#include<math.h>
int main()
{
intn;inti;
printf ("Enter n\n");
scanf("%d",&n);
int a[n];intmax,smax;
printf("Enter numbers\n");
for(i =0;i<n;i++)
scanf("%d",&a[i]);
max=a[0];smax=-pow(2,31);
for(i=1;i<n;i++)
{
        if(max<a[i])
        {       smax=max;
                max=a[i];
        }
        else if(smax<a[i]&&a[i]!=max)
        {
                smax=a[i];
        }
}
printf("second maximum is %d",smax);
   return 0;
}
```



13. and 14. Input an array and search a particular element.

```
#include<stdio.h>

#include<math.h>

int main()

{

intn;inti;

printf ("Enter n\n");

scanf("%d",&n);

int a[n];

printf("Enter numbers\n");

for(i =0;i<n;i++)

scanf("%d",&a[i]);

int m;

printf("Enter number to search ");

scanf("%d",&m);

int f=0;

for(i =0;i<n;i++)

{

        if(m==a[i])
```

```
        {
                printf("number found at position %d",i+1);f=1;
        }
}
if(f==0)printf("Number not found");
   return 0;
}
```



15.WAP to input an array of N number of elements and sort it in ascending order using bubble sort.

```
#include<stdio.h>
int main()
{
int n;int i,j;
printf ("Enter n\n");
scanf("%d",&n);
int a[n];
printf("Enter numbers\n");
for(i =0;i<n;i++)
scanf("%d",&a[i]);
for(i=0;i<n-1;i++)
```

```
{
        for(j=0;j<n-i-1;j++)
        {
                if(a[j]>a[j+1])
                {
                        int tmp=a[j];
                        a[j]=a[j+1];
                        a[j+1]=tmp;
                }
        }
}
printf("Sorted array is \n");
for(i=0;i<n;i++)
{
printf("%d ",a[i]);
}
return 0;
}
```

16. WAP to input an array of N number of elements and sort it in descending order using bubble sort.

```
#include<stdio.h>
int main()
{
int n;int i,j;
printf ("Enter n\n");
scanf("%d",&n);
```

```
int a[n];
printf("Enter numbers\n");
for(i =0;i<n;i++)
scanf("%d",&a[i]);
for(i=0;i<n-1;i++)
{
	for(j=0;j<n-i-1;j++)
	{
		if(a[j]<a[j+1])
		{
			int tmp=a[j];
			a[j]=a[j+1];
			a[j+1]=tmp;
		}
	}
}
printf("Sorted array is \n");
for(i=0;i<n;i++)
{
printf("%d ",a[i]);
}
return 0;
}
```

17. and 18.WAP to input an array of N number of elements. Input E no. of elements you want to insert in that array along with their positions and insert all of them. Print the final array after insertion of all elements.

```
#include<stdio.h>
int main()
{
int n;int i,j;
printf ("Enter n\n");
scanf("%d",&n);
int a[1000];
printf("Enter numbers\n");
for(i =0;i<n;i++)
scanf("%d",&a[i]);int e;
printf("Enter no. of elements to be inserted\n");
scanf("%d",&e);
for(i=0;i<e;i++)
{
        int d,p;
        printf("Enter element and position");
        scanf("%d%d",&d,&p);
        if(p>0&&p<=n)
        {
                for(j=n;j>=p;j--)
                a[j]=a[j-1];
                a[p-1]=d;n++;
        }
        else printf("Wrong position");
}
```

```
printf("updated array is \n");

for(i=0;i<n;i++)

{

printf("%d ",a[i]);

}

return 0;

}
```

19. WAP to input an array of N number of elements. Input the position of element you want to delete. Print the element deleted and updated array after deletion of that element.

```
#include<stdio.h>

int main()

{

int n;int i,j;

printf ("Enter n\n");

scanf("%d",&n);

int a[1000];

printf("Enter numbers\n");

for(i =0;i<n;i++)

scanf("%d",&a[i]);

        int p,d;

        printf("Enter position to delete");

        scanf("%d",&p);

        if(p>0&&p<=n)

        {

                d=a[p-1];

                for(j=p-1;j<n-1;j++)
```

```
                a[j]=a[j+1];
                n--;
                printf("%d deleted\n",d);
        }
        else printf("Wrong position\n");
printf("updated array is \n");
for(i=0;i<n;i++)
{
printf("%d ",a[i]);
}
return 0;
}
```

20. WAP to input an array of N number of elements. Input the element you want to delete and delete the first occurrence of that element from that array. Print the updated array.

```
#include<stdio.h>
int main()
{
int n;int i,j;
printf ("Enter n\n");
scanf("%d",&n);
int a[n];
printf("Enter numbers\n");
for(i =0;i<n;i++)
scanf("%d",&a[i]);
int m;
printf("Enter number to delete ");
```

```
scanf("%d",&m);
int f=0;
for(i =0;i<n;i++)
{
        if(m==a[i])
        {
                for(j=i;j<n-1;j++)
                a[j]=a[j+1];n--;
                f=1;break;
        }
}
if(f==0)printf("Number not found");
else printf("updated array is\n");
for(i =0;i<n;i++)
printf("%d ",a[i]);
   return 0;
}
```

21. WAP to input an array of N number of elements. Input the element you want to delete and delete all occurrence of that element from that array. Print the updated array.

```
#include<stdio.h>
int main()
{
int n;int i,j;
printf ("Enter n\n");
scanf("%d",&n);
int a[n];
```

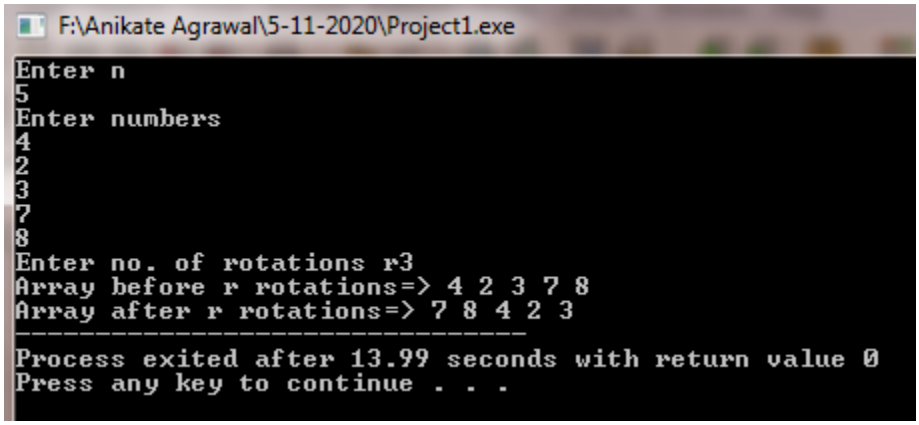
```
printf("Enter numbers\n");
for(i =0;i<n;i++)
scanf("%d",&a[i]);
int m;
printf("Enter number to delete ");
scanf("%d",&m);
int f=0;
for(i =0;i<n;i++)
{
        if(m==a[i])
        {
                for(j=i;j<n-1;j++)
                a[j]=a[j+1];n--;
                f=1;i--;
        }
}
if(f==0)printf("Number not found");
else printf("updated array is\n");
for(i =0;i<n;i++)
printf("%d ",a[i]);
   return 0;
}
```

22. Input an array and perform left rotations by r no. of rotations.

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

```
int main()
{
intn;inti,j;
        printf ("Enter n\n");
        scanf("%d",&n);
        int a[n];
        printf("Enter numbers\n");
        for(i =0;i<n;i++)
        scanf("%d",&a[i]);
        intr;printf("Enter no. of rotations r");
        scanf("%d",&r);
        printf("Array before r rotations=> ");
        for( i=0;i<n;i++)
printf("%d ",a[i]);
                for(i=1;i<=r%n;i++)
    {     int temp=a[0];
       for( j=0;j<n-1;j++)
       {

          a[j]=a[j+1];
       }a[n-1]=temp;
    }
printf("\nArray after r rotations=> ");
    for( i=0;i<n;i++)
printf("%d ",a[i]);
```

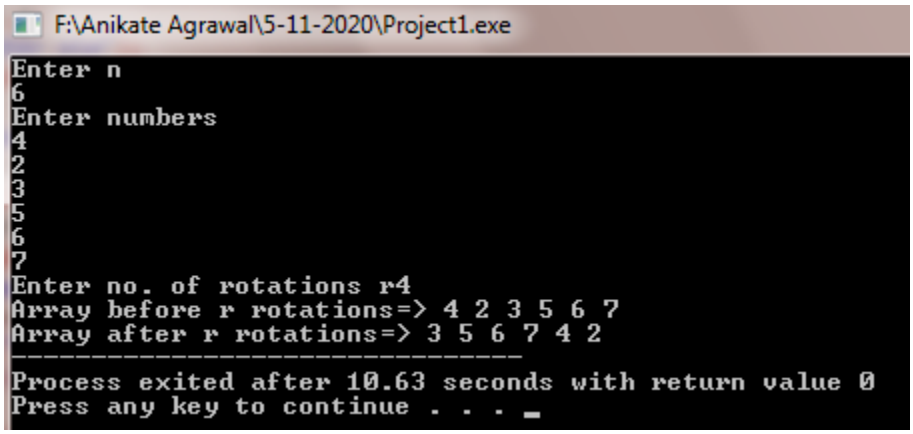
```
   return 0;
}
```



23. Input an array and perform right rotations by r no. of rotations.

```
#include<stdio.h>
int main()
{
intn;inti,j;
        printf ("Enter n\n");
        scanf("%d",&n);
        int a[n];
        printf("Enter numbers\n");
        for(i =0;i<n;i++)
        scanf("%d",&a[i]);
        intr;printf("Enter no. of rotations r");
        scanf("%d",&r);
        printf("Array before r rotations=> ");
        for( i=0;i<n;i++)
printf("%d ",a[i]);
                for(i=1;i<=r%n;i++)
```

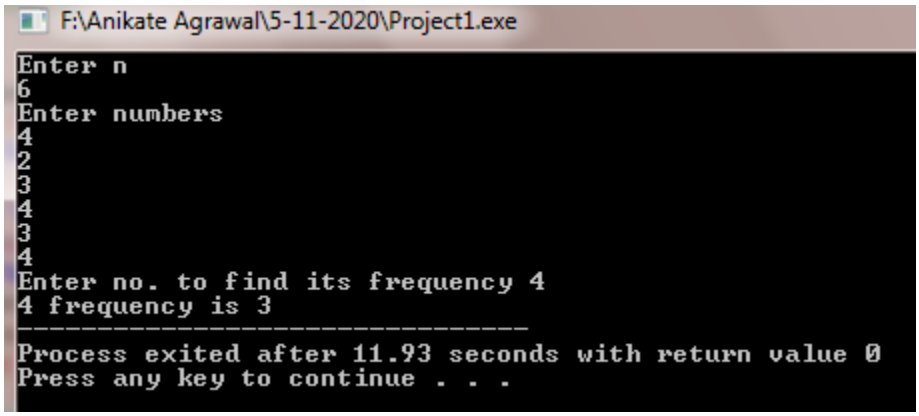
```
    {       int temp=a[n-1];
        for( j=n-1;j>0;j--)
        {
            a[j]=a[j-1];
        }a[0]=temp;
    }
printf("\nArray after r rotations=> ");
    for( i=0;i<n;i++)
printf("%d ",a[i]);
  return 0;
}
```



24. Input an array and find the frequency of particular element in that array.

```
#include<stdio.h>
int main()
{
intn;inti,j;
        printf ("Enter n\n");
        scanf("%d",&n);
        int a[n];
```

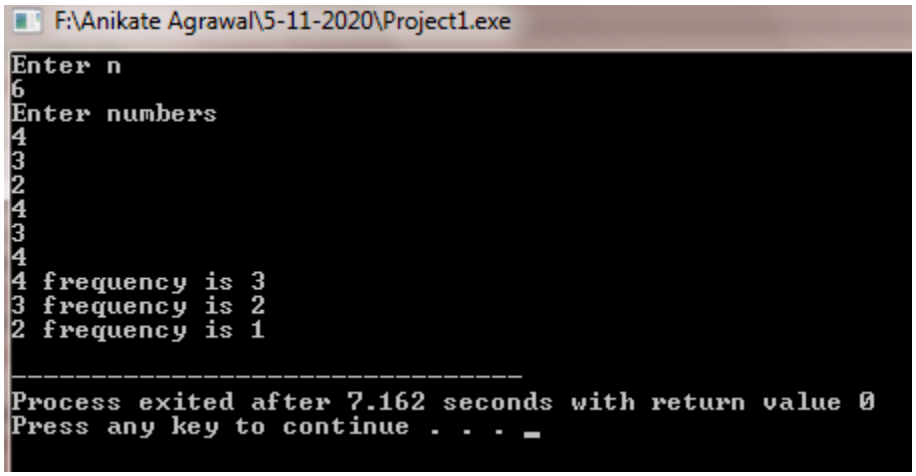
```
        printf("Enter numbers\n");
        for(i =0;i<n;i++)
        scanf("%d",&a[i]);
printf("Enter no. to find its frequency ");
intm;scanf("%d",&m);int c=0;
      for( i=0;i<n;i++)
        if(a[i]==m)c++;
printf("%d frequency is %d ",m,c);
   return 0;
}
```



25. Input an array and find the frequency of each element in that array.

```
#include<stdio.h>
int main()
{
intn;inti,j;
        printf ("Enter n\n");
        scanf("%d",&n);
        int a[n];
        printf("Enter numbers\n");
```

```
            for(i =0;i<n;i++)
            scanf("%d",&a[i]);
int d=0;
           for(i=0;i<n;i++)
if(a[i]==-99999)d++;
if(d!=0)printf("-99999 frequency is %d\n",d);
            for(i=0;i<n;i++)
            {
int c=1;
             if(a[i]!=-99999)
      {
                    for( j=i+1;j<n;j++)
      {
                                if(a[i]==a[j])
                                {
                                        c++;a[j]=-99999;
                                }
      }
                    printf("%d frequency is %d \n",a[i],c);
   }
           }return 0;
}
```

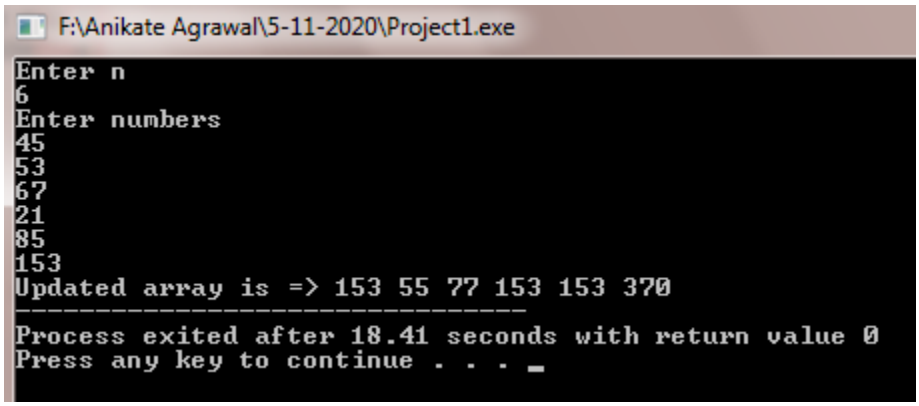


26. Input an array of N elements and convert all prime numbers into next palindrome number and convert all composite numbers into their next Armstrong number. Print the updated array.

```
#include<stdio.h>

#include<math.h>

int main()

{

intn;inti,j;

        printf ("Enter n\n");

        scanf("%d",&n);

        int a[n];

        printf("Enter numbers\n");

        for(i =0;i<n;i++)

        scanf("%d",&a[i]);

        for(i=0;i<n;i++)

        {

                int c=0;

                for(j=1;j<=a[i];j++)

                if(a[i]%j==0)c++;
```

```
if(c==2)
{
	int m=a[i];
	while(++m)
	{
		int d=m,rev=0;
		while(d>0)
		{
			rev=rev*10+d%10;d/=10;
		}
		if(rev==m)
		{
			a[i]=m;break;
		}
	}
}
else
{
	int m=a[i];
	while(++m)
	{
		int d=m,p=m,b=0;
		while(d>0)
		{
			b++;d/=10;
```

```
                                        }
                                        int sum=0;
                                        while(p>0)
                                        {
                                                sum=sum+pow(p%10,b);
                                                p/=10;
                                        }
                                        if(sum==m)
                                        {
                                                a[i]=m;break;
                                        }
                                }
                        }
                }
                printf("Updated array is => ");
                for(i=0;i<n;i++)
                printf("%d ",a[i]);
                return 0;
}
```



27. WAP to input an array of N elements and delete all the elements from that array which are perfect number.

```
#include<stdio.h>

int main()

{

int n;int i,j,t;

printf ("Enter n\n");

scanf("%d",&n);

int a[n];

printf("Enter numbers\n");

for(i =0;i<n;i++)

scanf("%d",&a[i]);

int f=0;int m;

for(i =0;i<n;i++)

{

        m=a[i];int s=0;

        for(t=1;t<m;t++)

                if(m%t==0)s=s+t;

        if(s==m)

        {

                for(j=i;j<n-1;j++)

                a[j]=a[j+1];n--;

                f=1;i--;

        }

}

if(f==0)printf("no perfect number found");
```

```
else printf("updated array is\n");

for(i =0;i<n;i++)

printf("%d ",a[i]);

   return 0;

}
```

28. WAP to input an array of N number of elements and delete all the duplicate elements from that array.

```
#include<stdio.h>

int main()

{

int n;int i,j,t;

printf ("Enter n\n");

scanf("%d",&n);

int a[n];

printf("Enter numbers\n");

for(i =0;i<n;i++)

scanf("%d",&a[i]);

int f=0;

for(i =0;i<n;i++)

{

        for(t=i+1;t<n;t++)

        {

         if(a[i]==a[t])

                {

                for(j=t;j<n-1;j++)

                a[j]=a[j+1];n--;
```

```
                f=1;t--;
                }
        }
}
if(f==0)printf("no duplicate number found");
else printf("updated array is\n");
for(i =0;i<n;i++)
printf("%d ",a[i]);
   return 0;
}
```

29.Consider a scenario where there are two classes A and B having 30 students each. A test was conducted for both the classes in a single room and student having same class roll number but from different classes was made to sit together and as a result they copied from each other and scored equal marks. Wap in 'C' to compute the marks of class B students based on the marks of class A students (using Arrays).

```
#include<stdio.h>
int main()
{
Int n;int i,j;
        printf ("Enter no of students in section A\n");
        scanf("%d",&n);
        int a[n],b[n];
        printf("Enter marks of students of section A\n");
        for(i =0;i<n;i++)
        {
        scanf("%d",&a[i]);
        b[i]=a[i];
```

```
}

printf("Marks of students in section B => ");

      for( i=0;i<n;i++)

printf("%d ",b[i]);

   return 0;

}
```

```
Enter no of students in section A
5
Enter marks of students of section A
85
95
86
95
42
Marks of students in section B => 85 95 86 95 42
--------------------------------
Process exited after 11.33 seconds with return value 0
Press any key to continue . . .
```

30. Write a program in ‘C’ to store (in an array) and print the roll numbers of students beginning from m to n.

```
#include<stdio.h>

int main()

{

int n,m;int i,j,t;

printf ("Enter m and n\n");

scanf("%d%d",&m,&n);

int a[n-m+1];

printf("Enter roll numbers\n");

for(i =0;i<n-m+1;i++)

scanf("%d",&a[i]);

 printf("roll numbers are\n");

for(i =0;i<n-m+1;i++)
```

```
printf("%d ",a[i]);
   return 0;
}
```

31. Find the output of following .

a.) 5 2 -10 5

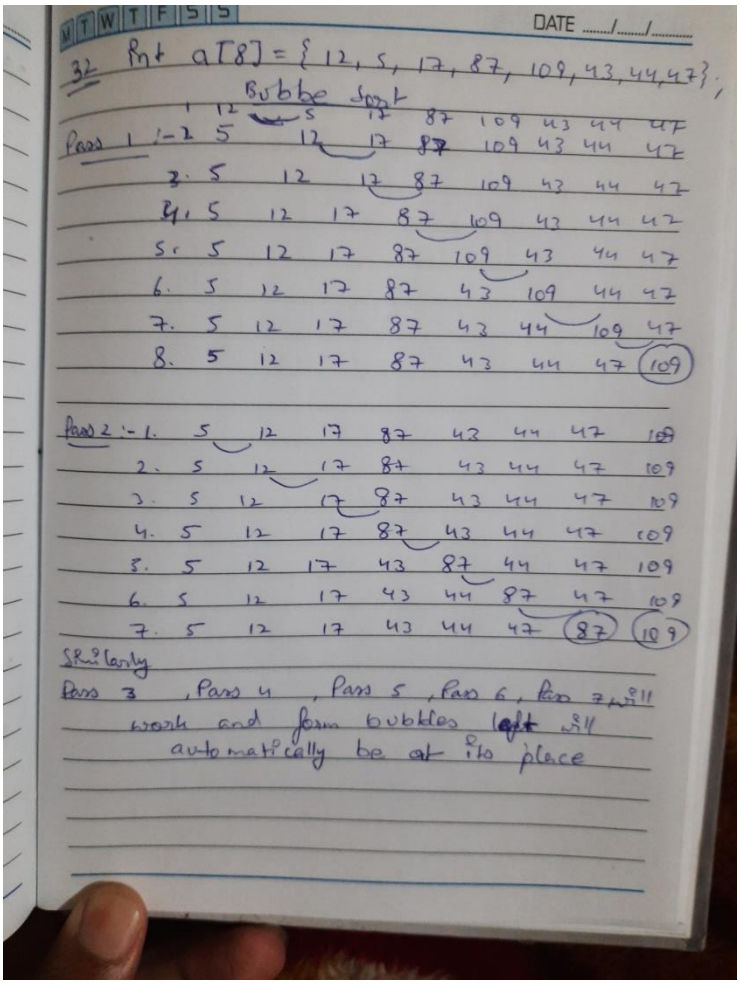
b.) 10 20 1 0 0

c.) 1 3 0 0

32. Consider an array [8] containing following elements-

12, 5, 17, 87, 109, 43, 44, 47

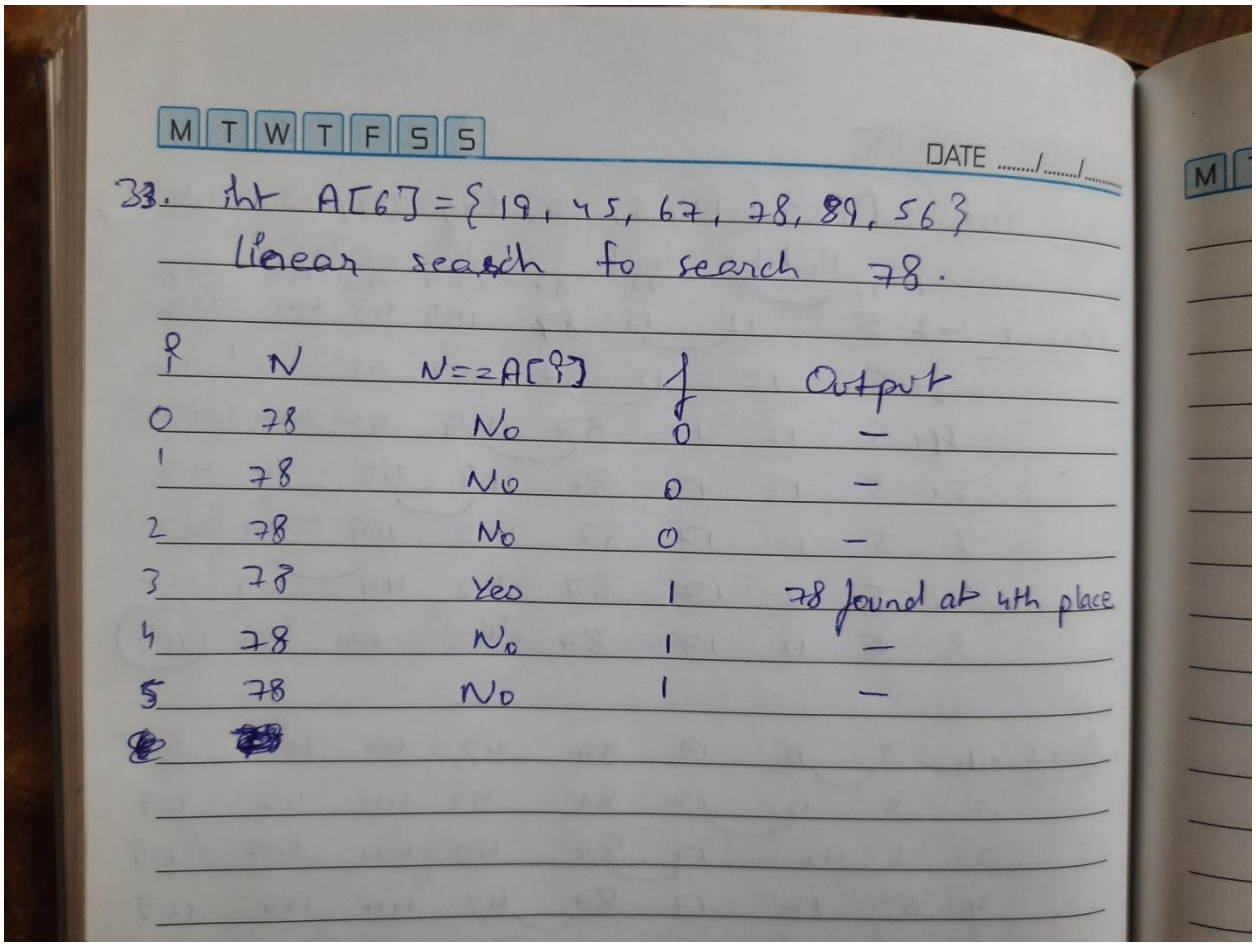
Show the process of bubble sort on this array.



33. Assume an array consists of following elements-

19 45 67 78 89 56

Apply linear search algorithm to search the element 78 on this array.



34. Consider an array ar[7] -

12 67 45 34 87 90 23

What will be the contents of this array after execution of following code?

```
for(i=2; i<=5;i++)
ar[i]=ar[i+1];
```

Ans. 12 67 34 87 90 23 23

35. Consider an array ar[7] -

12 67 45 34 87 90 23

What will be the contents of this array after execution of following code?

```
for(i=7; i>=3;i--)
ar[i-1]=ar[i];
```

Ans. 12 67 garbage garbage garbage garbage garbage

36. 1 1 2 3 4

37. 1 2 3 1 2