1. Input values into an array and display them

```
#include<stdio.h> void main() {  int arr[100];  int n,
i;  printf("ENTER THE  NO OF ELEMENTS: ");
scanf("%d",&n);

  for(i=0;i<n;i++)  {  printf("Enter The
Element: ");  scanf("%d",&arr[i]);
  }  for(i=0;i<n;i++)  {
    printf("%d ,",arr[i]);
  }

}
```

Output

ENTER THE NO OF ELEMENTS: 4
Enter The Element: 3
Enter The Element: 2
Enter The Element: 1
Enter The Element: 7
3 ,2 ,1 ,7 ,

2. Add all the elements of an array

```
#include<stdio.h> void main() {  int arr[100];  int n,
i,sum=0;  printf("ENTER THE  NO OF ELEMENTS:
");  scanf("%d",&n);

  for(i=0;i<n;i++)  {  printf("Enter The
Element: ");  scanf("%d",&arr[i]);
  }  for(i=0;i<n;i++)
{  sum+=arr[i];
  }
  printf("SUM OF ALL THE ELEMENTS: %d",sum);

}
```

Output

ENTER THE NO OF ELEMENTS: 5
Enter The Element: 4
Enter The Element: 3
Enter The Element: 8
Enter The Element: 3
Enter The Element: 2
SUM OF ALL THE ELEMENTS: 20

3. Count the even and odd numbers in a array

```
#include<stdio.h> void main() {  int arr[100];  int n,
i,even=0,odd=0;  printf("ENTER THE  NO OF
ELEMENTS: ");  scanf("%d",&n);
  for(i=0;i<n;i++)
 {  printf("Enter The Element: ");  scanf("%d",&arr[i]);
if(arr[i]%2==0)  even++;  else  odd++;  }  printf("EVEN
ELEMENTS: %d \n ODD ELEMENTS: %d",even,odd);  }
```

Output

ENTER THE NO OF ELEMENTS: 6
Enter The Element: 4
Enter The Element: 2
Enter The Element: 3
Enter The Element: 8
Enter The Element: 9
Enter The Element: 5
EVEN ELEMENTS: 3
ODD ELEMENTS: 3

4. Copy the elements of an array to another array

```
#include<stdio.h> void main() {  int arr[100];  int
a[100];  int n, i;  printf("ENTER THE  NO OF
ELEMENTS: ");  scanf("%d",&n);

 for(i=0;i<n;i++)  {  printf("Enter The
Element: ");  scanf("%d",&arr[i]);
 }  for(i=0;i<n;i++)
{  a[i]=arr[i];  }
for(i=0;i<n;i++)  {
  printf("%d",a[i]);
 } }
```

Output

ENTER THE NO OF ELEMENTS: 8
Enter The Element: 4
Enter The Element: 5
Enter The Element: 7
Enter The Element: 2
Enter The Element: 3
Enter The Element: 8
Enter The Element: 2
Enter The Element: 3
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5. Find the largest and smallest element in an array

```
#include<stdio.h> void main() {  int arr[100];  int n,
i,max,min;  printf("ENTER THE  NO OF
ELEMENTS: ");  scanf("%d",&n);
  for(i=0;i<n;i++)
  {  printf("Enter The Element: ");
scanf("%d",&arr[i]);
  }  max=min=arr[0];
for(i=1;i<n;i++)
  {  if(arr[i]<min)
min=arr[i];
if(arr[i]>max)
max=arr[i];
  }  printf("Maximum Element: %d \n Minimum Element: %d",max,min);
}
```

Output

ENTER THE NO OF ELEMENTS: 8
Enter The Element: 4
Enter The Element: 5
Enter The Element: 7
Enter The Element: 1
Enter The Element: 34
Enter The Element: 65
Enter The Element: 87
Enter The Element: 34
Maximum Element: 87
Minimum Element: 1

6. Reverse the elements of an array

```
#include<stdio.h> void
main() {  int arr[100];
int n, i,j,temp;
  printf("ENTER THE  NO OF ELEMENTS: ");  scanf("%d",&n);

  for(i=0;i<n;i++)
  {
    printf("Enter The Element: ");
scanf("%d",&arr[i]);
  }  for(i=0;i<n;i++)
{  printf("%d ,",arr[i]);
  }  for(i=0,j=n-1;i<j;i++,j--)
```

```
    {       temp=arr[i];       arr[i]=arr[j];
  arr[j]=temp;    }    for(i=0;i<n;i++)
  {       printf("%d ,",arr[i]);
    }
  }
```

Output

ENTER THE NO OF ELEMENTS: 5
Enter The Element: 1
Enter The Element: 3
Enter The Element: 5
Enter The Element: 7
Enter The Element: 9
1 ,3 ,5 ,7 ,9 ,
Reversed Array
9 ,7 ,5 ,3 ,1 ,

7.Convert a decimal number to binary number using array

```
#include<stdio.h> void
main() {    int arr[100];
int n, i=0,temp;
  printf("ENTER THE NO IN DECIMAL: ");    scanf("%d",&n);

  while (n!=0)
{       arr[i]=n%2;
n/=2;       i++;    }    i--;
for(;i>=0;i--)
  {
    printf("%d",arr[i]);
  }

}
```

Output

ENTER THE NO IN DECIMAL: 8

1000

8.Search an element in an array using linear search

```
#include<stdio.h> void main() {    int arr[100];    int n,
i=0,temp,c=0;    printf("ENTER THE NO OF ELEMENTS: ");
scanf("%d",&n);    printf("ENTER THE ELEMENT TO BE
SEARCHED: ");    scanf("%d",&temp);    for(i=0;i<n;i++)
```

```
   {       printf("Enter The Element: ");
scanf("%d",&arr[i]);
   }
   for(i=0;i<n;i++)
   {
      if(arr[i]==temp)
      {          printf("NUMBER IS FOUND AT POSTION : %d",i+1);
c=1;          break;
      }    }    if(c==0)    printf("ELEMENT IS
NOT FOUND");

}
```

Output

ENTER THE NO OF ELEMENTS: 10

ENTER THE ELEMENT TO BE SEARCHED: 23

Enter The Element: 54
Enter The Element: 87 Enter

The Element: 23

Enter The Element: 45 Enter

The Element: 67 Enter The

Element: 22 Enter The

Element: 98 Enter The

Element: 79

Enter The Element: 77

Enter The Element: 45

NUMBER IS FOUND AT POSTION : 3

9.Search an element in an array using binary search

```
#include <stdio.h> int main() {    int i, arr[100], search, first, last,
middle;    for (i = 0; i < 10; i++)
   {       printf("Enter 10 elements (in ascending order):");       scanf("%d",
&arr[i]);
   }
```

```
   printf("\nEnter element to be searched");     scanf("%d",
&search);     first = 0;     last = 9;     middle = (first + last) / 2;
    while (first <= last)
   {
      if (arr[middle] < search)            first = middle +
1;       else if (arr[middle] == search)
      {
         printf("\nThe number,%d found at Position %d", search, middle +
1);
         break;        }
else
         last = middle - 1;        middle = (first +
last) / 2;
   }      if (first > last)           printf("\nThe number, %d found at Position %d", search, middle + 1);
return 0;
}
```

Output

Enter 10 elements (in ascending order):5 Enter

10 elements (in ascending order):8

Enter 10 elements (in ascending order):11

Enter 10 elements (in ascending order):15 Enter

10 elements (in ascending order):19

Enter 10 elements (in ascending order):21

Enter 10 elements (in ascending order):55 Enter

10 elements (in ascending order):66 Enter 10

elements (in ascending order):77 Enter 10

elements (in ascending order):88

Enter element to be searched55

The number,55 found at Position 7

10.Sort the elements of an array (use selection sort)

```
//Sort the elements of an array (use selection sort)
```

```
#define SIZE 10 #include<stdio.h> int main(){     int
arr[SIZE];     int i,j,temp;     printf("Enter elements of the
array: \n");     for(i=0;i<SIZE;i++){         scanf("%d",&arr[i]);
   }     for(i=0;i<SIZE-
1;i++){         for(j=i+1;j<SIZE;j++){

if(arr[i]>arr[j]){                temp=arr[i];
arr[i]=arr[j];                arr[j]=temp;
          }
      }     }     printf("The Sorted Array is:\n");
for(i=0;i<SIZE;i++){         printf("%d\t", arr[i]);
   }
   printf("\n");

}
```

Output

Enter elements of the array:

6

32 45

22 44

78

43

12 68

45

The Sorted Array is:

6 12 22 32 43 44 45 45 68 78

11.Insert an element to an array at a position. Position will be given by the user.

```
#include<stdio.h> void main()
{
```

```
   int arr[100];     int n, i,p,val;     printf("ENTER THE
NO OF ELEMENTS: ");     scanf("%d",&n);

   for(i=0;i<n;i++)     {        printf("Enter The
Element: ");        scanf("%d",&arr[i]);
   }     printf("ENTER THE POSITION OF NEW ELEMENTS: ");
scanf("%d",&p);     printf("ENTER THE ELEMENTS: ");
scanf("%d",&val);     for(i=n-1;i>=p-1;i--)     arr[i+1]=arr[i];
arr[p-1]= val;     for(i=0;i<n+1;i++)
   {
      printf("%d, ",arr[i]);
   }
}
```

Output

ENTER THE NO OF ELEMENTS: 6

Enter The Element: 45

Enter The Element: 34

Enter The Element: 21 Enter

The Element: 78

Enter The Element: 89

Enter The Element: 34

ENTER THE POSITION OF NEW ELEMENTS: 5

ENTER THE ELEMENTS: 80

45, 34, 21, 78, 80, 89, 34,

12.Delete an element from an array.

```
#include <stdio.h>
  int main ()  {      int arr[100];      int pos, i, num;      printf (" \n Enter the number of
elements in an array: \n ");      scanf (" %d", &num);
        printf (" \n Enter %d elements in array: \n ", num);
    for(i=0;i<num;i++)
   {       printf("Enter The Element: ");
scanf("%d",&arr[i]);
   }      printf( "The position of the array element to be delete: \n ");      scanf (" %d",
&pos);
```

```
   if (pos >= num+1)
   {
      printf (" \n Deletion is not possible in the array.");
   }      else      {                for (i = pos - 1; i < num -1;
i++)
      {             arr[i] = arr[i+1];
      }                   printf (" \n The resultant array is: \n");
                        for (i = 0; i< num - 1; i++)
      {              printf (" %d, ", arr[i]);
      }      }
return 0;
}
```

Output

Enter the number of elements in an array:
6

Enter 6 elements in array:

Enter The Element: 32

Enter The Element: 55 Enter

The Element: 32 Enter The

Element: 34

Enter The Element: 78 Enter

The Element: 90

The position of the array element to be delete:
5

The resultant array is:

32, 55, 32, 34, 90,

13.Merge two sorted arrays into a third array. The output array must be sorted.

```
#include <stdio.h> int main(){    int arr1[5] =
{1, 3, 5, 7, 9};    int arr2[5] = {2, 4, 6, 8, 10};
int merged[10];    int i = 0, j = 0, k = 0;

   while (i < 5 && j < 5) {       if (arr1[i] <=
arr2[j]) {          merged[k++] = arr1[i++];
      }          else {              merged[k++] =
arr2[j++];
      }
   }     while (i < 5) {
      merged[k++] = arr1[i++];
   }
    while (j < 5) {
      merged[k++] = arr2[j++];
   }     printf("Merged array: ");    for (i = 0;
i < k; i++) {       printf("%d ", merged[i]);
   }
   return 0;
}
```

Output

Merged array: 1 2 3 4 5 6 7 8 9 10

14.Let there be an array of n distinct elements, write a program to find all the elements in the array which have at-least two smaller elements than themselves. For example: Input: a[5] = {20, 80, 70, 10, 50};

Output: 80, 70, 50

```
#include <stdio.h> int main() {    int arr[5] = {20, 80, 70, 10, 50};
printf("Elements with at least two smaller elements: ");    for (int i = 0; i < 5; i++)
{       int count = 0;       for (int j = 0; j < 5; j++) {          if (arr[j] < arr[i])
{             count++;
        }       }       if (count >= 2)
{          printf("%d ", arr[i]);
      }    }
return 0;
}
```

Output

Elements with at least two smaller elements:

Enter the number of elements in an array:

6

Enter The Element: 34
Enter The Element: 12 Enter

The Element: 80

Enter The Element: 70 Enter

The Element: 65

Enter The Element: 50

80 70 65 50

15.Perform the union and intersection of two integer arrays. (In union, the common elements must come once)

```
#include <stdio.h>
 int main() {    int arr1[100];    int arr2[100];    int n,m,i;    printf (" \n Enter the number
of elements in an array 1: \n ");      scanf (" %d", &n);      for(i=0;i<n;i++)
   {       printf("Enter The Element: ");
scanf("%d",&arr1[i]);
   }     printf (" \n Enter the number of elements in an array 2: \n ");      scanf (" %d", &m);
for(i=0;i<m;i++)
   {       printf("Enter The Element: ");
scanf("%d",&arr2[i]);
   }
   int union_arr[100];
      int a=0;    for (int i = 0; i < n; i++)
{       int found= 0;
      for (int j = 0; j < m; j++) {          if (arr2[i]
== arr1[j]) {              found = 1;              break;
         }       }       if (!found)
{          union_arr[a++] = arr2[i];       }
   }    // Intersection    int intersect_arr[10];    int b = 0;
for (int i = 0; i < m; i++) {       for (int j = 0; j < n; j++)
{          if (arr1[i] == arr2[j]) {              intersect_arr[b++]
= arr1[i];              break;
         }
      }
   }     printf("Union: ");    for (int i = 0; i<a;
i++) {       printf("%d ", union_arr[i]);
   }    printf("\nIntersection: ");    for (int i = 0; i < b;
i++) {       printf("%d ", intersect_arr[i]);
   }     return 0;
}
```

Output

Enter the number of elements in an array 1:

5

Enter The Element: 35 Enter

The Element: 54

Enter The Element: 22 Enter

The Element: 89

Enter The Element: 67

Enter the number of elements in an array 2:

7

Enter The Element: 78 Enter

The Element: 35

Enter The Element: 11 Enter

The Element: 89 Enter The

Element: 95 Enter The

Element: 99

Enter The Element: 55

Union: 78 11 95

Intersection: 35 89