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