Array

**1. Write a program in C to store elements in an array and print it.**

#include <stdio.h>

main()

{

int arr[10];

int i;

printf("\n\nRead and Print elements of an array:\n");

printf("-----------------------------------------\n");

printf("Input 10 elements in the array :\n");

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

{

printf("element - %d : ",i);

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

}

printf("\nElements in array are: ");

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

{

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

}

printf("\n");

}

**2.Write a program in C to read n number of values in an array and display it in reverse order.**

#include <stdio.h>

main()

{

int i,n,a[100];

printf("\n\nRead n number of values in an array and display it in reverse order:\n");

printf("------------------------------------------------------------------------\n");

printf("Input the number of elements to store in the array :");

scanf("%d",&n);

printf("Input %d number of elements in the array :\n",n);

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

{

printf("element - %d : ",i);

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

}

printf("\nThe values store into the array are : \n");

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

printf("% 5d",a[i]);

printf("\n\nThe values store into the array in reverse are :\n");

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

printf("% 5d",a[i]);

printf("\n\n");

}

**3. Write a program in C to find the sum of all elements of an array.**

#include <stdio.h>

void main()

{

int a[100];

int i, n, sum=0;

printf("\n\nFind sum of all elements of array:\n");

printf("--------------------------------------\n");

printf("Input the number of elements to be stored in the array :");

scanf("%d",&n);

printf("Input %d elements in the array :\n",n);

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

{

printf("element - %d : ",i);

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

}

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

{

sum += a[i];

}

printf("Sum of all elements stored in the array is : %d\n\n", sum);

}

**4. Write a program in C to copy the elements of one array into another array.**

#include <stdio.h>

main()

{

int arr1[100], arr2[100];

int i, n;

printf("\n\nCopy the elements one array into another array :\n");

printf("----------------------------------------------------\n");

printf("Input the number of elements to be stored in the array :");

scanf("%d",&n);

printf("Input %d elements in the array :\n",n);

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

{

printf("element - %d : ",i);

scanf("%d",&arr1[i]);

}

/\* Copy elements of first array into second array.\*/

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

{

arr2[i] = arr1[i];

}

/\* Prints the elements of first array \*/

printf("\nThe elements stored in the first array are :\n");

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

{

printf("% 5d", arr1[i]);

}

/\* Prints the elements copied into the second array. \*/

printf("\n\nThe elements copied into the second array are :\n");

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

{

printf("% 5d", arr2[i]);

}

printf("\n\n");

}

Output:

Copy the elements one array into another array :

----------------------------------------------------

Input the number of elements to be stored in the array :3

Input 3 elements in the array :

element - 0 : 15

element - 1 : 10

element - 2 : 12

The elements stored in the first array are :

15 10 12

The elements copied into the second array are :

15 10 12

**5. Write a program in C to count a total number of duplicate elements in an array.**

#include <stdio.h>

main()

{

int arr1[100];

int arr2[100];

int arr3[100];

int n,mm=1,ctr=0;

int i, j;

printf("\n\nCount total number of duplicate elements in an array:\n");

printf("---------------------------------------------------------\n");

printf("Input the number of elements to be stored in the array :");

scanf("%d",&n);

printf("Input %d elements in the array :\n",n);

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

{

printf("element - %d : ",i);

scanf("%d",&arr1[i]);

}

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

{

arr2[i]=arr1[i];

arr3[i]=0;

}

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

{

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

{

if(arr1[i]==arr2[j])

{

arr3[j]=mm;

mm++;

}

}

mm=1;

}

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

{

if(arr3[i]==2){ctr++;}

}

printf("The total number of duplicate elements found in the array is: %d \n", ctr);

printf("\n\n");

}

Output:

Count total number of duplicate elements in an array:

---------------------------------------------------------

Input the number of elements to be stored in the array :3

Input 3 elements in the array :

element - 0 : 5

element - 1 : 1

element - 2 : 1

Total number of duplicate elements found in the array is : 1

**6. Write a program in C to find the maximum and minimum element in an array.**

#include <stdio.h>

main()

{

int arr1[100];

int i, mx, mn, n;

printf("\n\nFind maximum and minimum element in an array :\n");

printf("--------------------------------------------------\n");

printf("Input the number of elements to be stored in the array :");

scanf("%d",&n);

printf("Input %d elements in the array :\n",n);

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

{

printf("element - %d : ",i);

scanf("%d",&arr1[i]);

}

mx = arr1[0];

mn = arr1[0];

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

{

if(arr1[i]>mx)

{

mx = arr1[i];

}

if(arr1[i]<mn)

{

mn = arr1[i];

}

}

printf("Maximum element is : %d\n", mx);

printf("Minimum element is : %d\n\n", mn);

}

Sample Output:

Find maximum and minimum element in an array :

--------------------------------------------------

Input the number of elements to be stored in the array :3

Input 3 elements in the array :

element - 0 : 45

element - 1 : 25

element - 2 : 21

Maximum element is : 45

Minimum element is : 21

**7. Write a program in C to separate odd and even integers in separate arrays.**

**#include <stdio.h>**

**main()**

**{**

**int arr1[10], arr2[10], arr3[10];**

**int i,j=0,k=0,n;**

**printf("\n\nSeparate odd and even integers in separate arrays:\n");**

**printf("------------------------------------------------------\n");**

**printf("Input the number of elements to be stored in the array :");**

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

**printf("Input %d elements in the array :\n",n);**

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

**{**

**printf("element - %d : ",i);**

**scanf("%d",&arr1[i]);**

**}**

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

**{**

**if (arr1[i]%2 == 0)**

**{**

**arr2[j] = arr1[i];**

**j++;**

**}**

**else**

**{**

**arr3[k] = arr1[i];**

**k++;**

**}**

**}**

**printf("\nThe Even elements are : \n");**

**for(i=0;i<j;i++)**

**{**

**printf("%d ",arr2[i]);**

**}**

**printf("\nThe Odd elements are :\n");**

**for(i=0;i<k;i++)**

**{**

**printf("%d ", arr3[i]);**

**}**

**printf("\n\n");**

**}**

Output:

Separate odd and even integers in separate arrays:

------------------------------------------------------

Input the number of elements to be stored in the array :5

Input 5 elements in the array :

element - 0 : 25

element - 1 : 47

element - 2 : 42

element - 3 : 56

element - 4 : 32

The Even elements are :

42 56 32

The Odd elements are :

25 47

**8.Write a program in C to sort elements of array in ascending order.**

#include <stdio.h>

main()

{

int arr1[100];

int n, i, j, tmp;

printf("\n\nsort elements of array in ascending order :\n ");

printf("----------------------------------------------\n");

printf("Input the size of array : ");

scanf("%d", &n);

printf("Input %d elements in the array :\n",n);

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

{

printf("element - %d : ",i);

scanf("%d",&arr1[i]);

}

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

{

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

{

if(arr1[j] <arr1[i])

{

tmp = arr1[i];

arr1[i] = arr1[j];

arr1[j] = tmp;

}

}

}

printf("\nElements of array in sorted ascending order:\n");

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

{

printf("%d ", arr1[i]);

}

printf("\n\n");

}

sort elements of array in ascending order :

----------------------------------------------

Input the size of array : 5

Input 5 elements in the array :

element - 0 : 2

element - 1 : 7

element - 2 : 4

element - 3 : 5

element - 4 : 9

Elements of array in sorted ascending order:

2 4 5 7 9

**9. Write a program in C to insert New value in the array**

#include <stdio.h>

main()

{

int arr1[100],i,n,p,x;

printf("\n\nInsert New value in the unsorted array : \n ");

printf("-----------------------------------------\n");

printf("Input the size of array : ");

scanf("%d", &n);

printf("Input %d elements in the array in ascending order:\n",n);

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

{

printf("element - %d : ",i);

scanf("%d",&arr1[i]);

}

printf("Input the value to be inserted : ");

scanf("%d",&x);

printf("Input the Position, where the value to be inserted :");

scanf("%d",&p);

printf("The current list of the array :\n");

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

printf("% 5d",arr1[i]);

/\* Move all data at right side of the array \*/

for(i=n;i>=p;i--)

arr1[i]= arr1[i-1];

/\* insert value at given position \*/

arr1[p-1]=x;

printf("\n\nAfter Insert the element the new list is :\n");

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

printf("% 5d",arr1[i]);

printf("\n\n");

}

Sample Output:

Insert New value in the unsorted array :

-----------------------------------------

Input the size of array : 4

Input 4 elements in the array in ascending order:

element - 0 : 1

element - 1 : 8

element - 2 : 7

element - 3 : 10

Input the value to be inserted : 5

Input the Position, where the value to be inserted :2

The current list of the array :

1 8 7 10

After Insert the element the new list is :

1 5 8 7 10

**10. Write a program in C to delete an element at desired position from an array.**

#include <stdio.h>

main()

{

int arr1[50],i,pos,n;

printf("\n\nDelete an element at desired position from an array :\n");

printf("---------------------------------------------------------\n");

printf("Input the size of array : ");

scanf("%d", &n);

printf("Input %d elements in the array in ascending order:\n",n);

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

{

printf("element - %d : ",i);

scanf("%d",&arr1[i]);

}

printf("\nInput the position where to delete: ");

scanf("%d",&pos);

i=0;

while(i!=pos-1)

i++;

while(i<n)

{

arr1[i]=arr1[i+1];

i++;

}

n--;

printf("\nThe new list is : ");

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

{

printf(" %d",arr1[i]);

}

printf("\n\n");

}

Sample Output:

Delete an element at desired position from an array :

---------------------------------------------------------

Input the size of array : 5

Input 5 elements in the array in ascending order:

element - 0 : 1

element - 1 : 2

element - 2 : 3

element - 3 : 4

element - 4 : 5

Input the position where to delete: 3

The new list is : 1 2 4 5

**String Array**

**11 Write a program in C to print a string in reverse order.**

#include <stdio.h>

#include <string.h>

main()

{

char str1[100], tmp;

int l, lind, rind,i;

printf("\n\nPrint a string in reverse order:\n ");

printf("-------------------------------------\n");

printf("Input a string to reverse : ");

scanf("%s", str1);

l = strlen(str1);

lind = 0;

rind = l-1;

for(i=lind;i<rind;i++)

{

tmp = str1[i];

str1[i] = str1[rind];

str1[rind] = tmp;

rind--;

}

printf("Reversed string is: %s\n\n", str1);

}

Sample Output:

Print a string in reverse order:

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Input a string to reverse : Welcome

Reversed string is: emocleW

**12. Write a C program to find the length of a string without using the library function.**

#include <stdio.h>

#include <string.h>

void main()

{

char str1[50];

int i, l = 0;

printf("\n\nFind the length of a string:\n ");

printf("-------------------------------------\n");

printf("Input a string : ");

scanf("%s", str1);

for (i = 0; str1[i] != '\0'; i++)

l++;

printf("The string contains %d number of characters. \n",l);

printf("So, the length of the string %s is : %d\n\n", str1, l);

}

Sample Output:

Find the length of a string:

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Input a string : welcome

The string contains 7 number of characters.

So, the length of the string welcome is : 7