Arrays

**Array's Coding Day 1**

Write a program in C to store elements in an array and print them.

Test Data :

Input 10 elements in the array :

element - 0 : 1

element - 1 : 1

element - 2 : 2

.......

Expected Output :

Elements in array are: 1 1 2 3 4 5 6 7 8 9

#include <stdio.h>

int main()

{

//Write your code here....

int a[10],i,j;

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

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

{

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

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

}

printf("expected output :\n elements in array are :");

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

{

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

}

return 0;

}

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

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

Input 3 elements in the array :

element - 0 : 2

element - 1 : 5

element - 2 : 8

Expected Output :

Sum of all elements stored in the array is : 15

#include <stdio.h>

int main()

{

// write your code here

int a[3],i,s=0;

printf("Input 3 elements in the array:\n");

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

{

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

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

s+=a[i];

}

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

return 0;

}

Write a program in C to find the maximum and minimum element in an array. Go to the editor

Test Data :

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

Expected Output :

Maximum element is : 45

Minimum element is : 21

#include <stdio.h>

int main()

{

int a[3],i,max,min;

// write your code here.

printf("Input 3 elements in the array:\n ");

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

{

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

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

}

max=min=a[0];

for(i=1;i<=2;i++)

{

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

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

}

printf("maximun element is:%d \n",max);

printf("minimum element is:%d",min);

return 0;

}

Write a program in C to copy the elements of 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

Expected Output :

The elements stored in the first array are :

15 10 12

The elements copied into the second array are :

15 10 12

#include <stdio.h>

int main()

{

// write your code here.

int a[3],b[3],i;

printf("Input 3 elements in the array:\n");

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

{

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

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

b[i]=a[i];

}

printf("The elements stored in the 1st array are:\n");

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

{

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

}

printf("\nThe elements stored in the 2nd array are:\n");

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

{

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

}

return 0;

}

Write a program in C to sort elements of array in ascending order. Go to the editor

Test Data :

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

Expected Output :

Elements of array in sorted ascending order:

2 4 5 7 9

#include <stdio.h>

int main()

{

int a[100],n,i,j,t;

// write your code here.

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

scanf("%d",&n);

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

if(n>100||n<0)puts("invalid input");

else

{

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

{

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

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

}

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

{

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

{

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

{

t=a[i];

a[i]=a[j];

a[j]=t;

}

}

}

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

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

{

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

}

}

return 0;

}

Write a program in C to sort elements of the array in descending order. Go to the editor

Test Data :

Input the size of array : 3

Input 3 elements in the array :

element - 0 : 5

element - 1 : 9

element - 2 : 1

Expected Output :

Elements of the array in sorted descending order:

9 5 1

#include <stdio.h>

int main()

{

int a[100],n,i,j,t;

// write your code here.

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

scanf("%d",&n);

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

if(n>100||n<0)puts("invalid input");

else

{

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

{

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

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

}

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

{

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

{

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

{

t=a[i];

a[i]=a[j];

a[j]=t;

}

}

}

printf("elements of array in sorted descending order:\n");

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

{

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

}

}

return 0;

}

**Coding Challenge Day-2**

Write a C program to Sort the array in ascending order and print it.

Input as :

Enter array size : 6

Enter 6 element : 4 3 5 6 2 1

Output as :

After sorting in ascending order :

1 2 3 4 5 6

#include<stdio.h>

int main() {

int a[100],i,n,j,t;

printf("enter array size:");

scanf("%d",&n);

printf("enter %d element:",n);

for(i=0;i<n;i++)scanf("%d",&a[i]);

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

{

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

{

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

{

t=a[i];

a[i]=a[j];

a[j]=t;

}

}

}

printf("after sorting in ascending order:\n");

for(i=0;i<n;i++)printf("%d ",a[i]);

return 0;

}

Write a C program to Sort the array in descending order and print it.

Input as :

Enter array size : 6

Enter 6 element : 4 3 5 6 2 1

Output as :

After sorting in ascending order :

6 5 4 3 2 1

#include<stdio.h>

int main() {

int a[100],i,n,j,t;

printf("enter array size:");

scanf("%d",&n);

printf("enter %d element:",n);

for(i=0;i<n;i++)scanf("%d",&a[i]);

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

{

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

{

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

{

t=a[i];

a[i]=a[j];

a[j]=t;

}

}

}

printf("after sorting in decending order:\n");

for(i=0;i<n;i++)printf("%d ",a[i]);

return 0;

}

Write a C program to find the element given by user is present in the

array or not

If the element is present in the array also programmer have to print

index position of that searching element.

If the user pass the element for searching in the array is not present

then also provide a appropriate message to the user that element is not

present inside the array.

Input 1:-

[1,2,3,4,5,6,7]

Enter the number you want to search : 5

Output :-

The element which you have sreached is present inside the 4rth index

Input 2:-

[1,2,3,4,3,6]

Enter the number you want to search : 9

Output :

The element which you have sreached is not present inside the Array.

#include<stdio.h>

int main() {

int a[100],i,n,s,f;

printf("enter array size:");

scanf("%d",&n);

printf("enter %d element:",n);

for(i=0;i<n;i++)scanf(" %d", &a[i]);

printf("enter the number you want to search:\n");

scanf(" %d", &s);

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

{

if(a[i]==s)

{

printf("The element which you have sreached is present inside the %d index",i+1);

f++;

}

}

if(f==0)printf("The element which you have sreached is not present inside the Array.");

return 0;

}

Write a C program to find the min element from an array.

Input as :

Enter array size : 5

Enter 5 elements : 4 5 3 6 2

Min element is : 2

#include<stdio.h>

int main() {

int a[100],i,min,n;

printf("enter array size:");

scanf("%d",&n);

printf("enter %d elements :",n);

for(i=0;i<n;i++)scanf("%d",&a[i]);

min=a[0];

for(i=1;i<n;i++)if(min>a[i])min=a[i];

printf("min element is : %d",min);

return 0;

}

Write a C program to find the max element from an array.

Input as :

Enter array size : 5

Enter 5 elements : 4 5 3 6 2

Man element is : 6

#include<stdio.h>

int main() {

int a[100],i,max,n;

printf("enter array size:");

scanf("%d",&n);

printf("enter %d elements :",n);

for(i=0;i<n;i++)scanf("%d",&a[i]);

max=a[0];

for(i=1;i<n;i++)if(max<a[i])max=a[i];

printf("max element is : %d",max);

return 0;

}

**Coding Challenge Day-3**

Write a program in C to find the second smallest element in an array.

Test Data :

Input the size of array : 5

Input 5 elements in the array (value must be <9999) :

element - 0 : 0

element - 1 : 9

element - 2 : 4

element - 3 : 6

element - 4 : 5

Expected Output :

The Second smallest element in the array is : 4

#include<stdio.h>

int main() {

int a[100],i,j,t,n,c=1,min;

a:

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

scanf("%d",&n);

printf("Input %d elements in the array (value must be <9999):\n",n);

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

{

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

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

if(a[i]>9999){printf("value exceds the limit "); goto a;}

}

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

{

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

{

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

{

t=a[i];

a[i]=a[j];

a[j]=t;

}

}

}

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

{

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

{

if(a[i]<a[j]){c++;min=a[j];}

if(c==2)break;

}

}

printf("The second smallest element in the array is: %d",min);

return 0;

}

Write a C program to sort an array in ascending order.

Input as :

Enter size of array : 5

Enter 5 elements : 5 4 6 3 7

Output :

Before sorting :

5 4 6 3 7

After Sorting in ascending order : 3 4 5 6 7

#include<stdio.h>

int main() {

int a[100],i,j,t,n;

printf("Enter size of array :");

scanf("%d",&n);

printf("Enter %d elements :",n);

for(i=0;i<n;i++)scanf("%d",&a[i]);

puts("Before sorting :");

for(i=0;i<n;i++)printf("%d ",a[i]);

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

{

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

{

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

{

t=a[i];

a[i]=a[j];

a[j]=t;

}

}

}

printf("\n After Sorting in ascending order :");

for(i=0;i<n;i++)printf("%d ",a[i]);

return 0;

}

Write a C program to find the 2nd largest element from a array.

Input as :

Enter array size : 5

Enter 5 elements : 1 2 3 4 5

Output as :

2nd largest element is : 4

#include<stdio.h>

int main() {

int a[100],i,j,t,n,c=1,max;

printf("Enter array size :");

scanf("%d",&n);

printf("Enter %d elements :",n);

for(i=0;i<n;i++)scanf("%d",&a[i]);

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

{

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

{

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

{

t=a[i];

a[i]=a[j];

a[j]=t;

}

}

}

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

{

for(j=n-2;j>=0;j--)

{

if(a[i]>a[j]){c++;max=a[j];}

if(c==2)break;

}

}

printf("2nd largest element is : %d",max);

return 0;

}

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

Test Data :

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

Expected Output :

The Even elements are :

42 56 32

The Odd elements are :

25 47

#include<stdio.h>

int main() {

int a[100],b[100],c[100],i,n,j,k;

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(k=j=i=0;i<n;i++)

{

if(a[i]%2==0){b[j]=a[i]; j++;}

else {c[k]=a[i]; k++;}

}

puts("The Even elements are :");

for(i=0;i<j;i++)printf("%d ",b[i]);

puts("\nThe odd elements are :");

for(i=0;i<k;i++)printf("%d ",c[i]);

return 0;

}

Write a program in C to sort the array in descending order.

Input the number of elements to be stored in the array :6

Input 6 elements in the array :

element - 0 : 5

element - 1 : 1

element - 2 : 1

element - 3 : 6

element - 4 : 3

element - 5 : 5

.....................

Expected Output :

After sorting in descending order : 6 5 5 3 1 1

#include<stdio.h>

int main() {

int a[100],i,j,t,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]);

}

puts("Before sorting :");

for(i=0;i<n;i++)printf("%d ",a[i]);

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

{

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

{

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

{

t=a[i];

a[i]=a[j];

a[j]=t;

}

}

}

printf("\n After Sorting in descending order :");

for(i=0;i<n;i++)printf("%d ",a[i]);

return 0;

}

**Coding Challenge Day-4**

Write a program in C to print all unique elements in an array.

Test Data :

Print all unique elements of an array:

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

Input the number of elements to be stored in the array: 4

Input 4 elements in the array :

element - 0 : 3

element - 1 : 2

element - 2 : 2

element - 3 : 5

Expected Output :

The unique elements found in the array are:

3 5

#include<stdio.h>

int main() {

int a[100],n,i,j,c;

puts("Print all unique elements of an array:");

puts("---------------------------------------------------------");

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

scanf("%d",&n);

puts("Input 4 elements in the array :");

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

{

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

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

}

puts("The unique elements found in the array are:");

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

{

c=0;

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

{

if(i!=j) //not to check itself

{

if(a[i]==a[j])c++; //no has duplicate

}

}

if(c==0)printf("%d ",a[i]); //duplicate not find print no

}

return 0;

}

Write a program in C to count the frequency of each element of an array.

Test Data :

Input the number of elements to be stored in the array :6

Input 6 elements in the array :

element - 0 : 25

element - 1 : 12

element - 2 : 43

element - 3 : 43

element - 4 : 25

element - 5 : 15

Expected Output :

The frequency of all elements of an array :

25 occurs 2 times

12 occurs 1 times

43 occurs 2 times

15 occurs 1 times

#include<stdio.h>

int main() {

int a[100],n,i,j,c;

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]);

}

puts("The frequency of all elements of an array :");

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

{

c=1;

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

{

if(a[i]>=0&&i!=j)

{

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

{

a[j]=-1;

c++;

}

}

}

if(a[i]>=0)printf("%d occurs %d times\n",a[i],c);

}

return 0;

}

Write a program in C to insert New value in the array (sorted array ) at its proper respective position as its accending order.

Test Data :

Input the size of array : 5

Input 5 elements in the array :

element - 0 : 1

element - 1 : 3

element - 2 : 7

element - 3 : 8

element - 4 : 10

Input the value to be inserted : 6

Expected Output :

The current list of the array :

1 3 7 8 10

After Insert the element the new list is :

1 3 6 7 8 10

#include<stdio.h>

int main(){

int a[100],n,v,i,j,t;

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",&a[i]);

}

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

scanf("%d",&v);

a[n]=v;

puts("The current list of the array :");

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

{

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

{

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

{

t=a[i];

a[i]=a[j];

a[j]=t;

}

}

if(a[i]!=v)printf("%d ",a[i]);

}

if(a[n]!=v)printf("%d",a[n]);

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

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

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

return 0;

}

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

Test Data :

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 which to delete: 3

Expected Output :

The new list is : 1 2 4 5

#include<stdio.h>

int main() {

int a[100],n,i,d;

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",&a[i]);

}

printf("Input the position which to delete: ");

scanf("%d",&d);

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

{

if(i==d-1||i>d-1)a[i]=a[i+1];

}

n=n-1;

printf("The new list is : ");

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

{

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

}

return 0;

}

Write a C program to remove all occurrences of a specific element from a given array of integers. The program should display the resulting array after removing the element.

Test Data :

Input the size of array : 10

Input 10 elements in the array :

3 2 5 6 2 7 9 2 2 1

Input the element that you want to delete: 2

Expected Output :

The new list is : 3 5 6 7 9 1

#include<stdio.h>

int main() {

int a[100],n,e,i,j;

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

scanf("%d",&n);

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

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

{

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

}

printf("Input the element that you want to delete:");

scanf("%d",&e);

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

{

if(a[i]==e)

{

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

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

n=n-1;

}

}

printf("The new list is : ");

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

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

return 0;

}

**Coding Challenge Day-5**

Write a C program that finds pairs in an array whose sum is 15.

Test Data :

Input the size of array : 12

Input 8 elements in the array :

2 4 6 7 8 9 10 11 12 13 14 16

Expected output :

(2, 13)

(4, 11)

(6, 9)

(7, 8)

#include<stdio.h>

int main(){

//write Your code here

int a[100],n,s=15,i,j;

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

scanf("%d",&n);

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

for(i=0;i<n;i++)scanf("%d",&a[i]);

printf("pairs\n");

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

{

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

{

if(a[i]+a[j]==s)printf("(%d,%d)\n",a[i],a[j]);

}

}

return 0;

}

Write a C program that prints the elements of a given array in a specific format. The program should take an array as input and display the array elements in pairs, with each pair consisting of the first and last elements, followed by the second and second-to-last elements, and so on. If the array has an odd number of elements, the middle element should be printed alone.

For example, given the array: [2, 5, 1, 6, 7, 9, 8, 3], the expected output should be:

2 3

5 8

1 9

6 7

#include<stdio.h>

int main(){

//write Your code here

int a[100],n,i,j;

printf("input array size:");

scanf("%d",&n);

printf("enter %d elements:\n",n);

for(i=0;i<n;i++)scanf("%d",&a[i]);

printf("output should be:\n");

for(j=n-1,i=0;i<n/2;i++)

{

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

j--;

}

printf("%d",(n/2)+1);

return 0;

}

Write a C program that rearranges the elements of a given array by moving all the zeros to the front. The program should take an array as input and swap the positions of non-zero elements with zeros, such that all the zeros appear at the beginning of the array, while maintaining the relative order of non-zero elements.

For example:

given the input array: [1, 0, 2, 0, 4, 5, 0, 3, 0]

Expected output:

1 2 4 5 3 0 0 0 0

#include<stdio.h>

int main(){

int a[100],n,i,j;

printf("input array size:");

scanf("%d",&n);

printf("enter %d elements:\n",n);

for(i=0;i<n;i++)scanf("%d",&a[i]);

puts("Expected output:");

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

{

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

{

if(a[i]==0&&a[j]!=0)

{

a[i]=a[j];

a[j]=0;

}

}

}

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

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

return 0;

}

Write a C program to find and print all the missing elements that are not present in a given array. Given an array of integers, your task is to identify and print all the numbers that are missing within a specified range.

For example:

given the input array arr = [1, 4, 7, 12, 17]

Expected output as : 2 3 5 6 8 9 10 11 13 14 15 16

#include<stdio.h>

int main(){

int a[100],n,b,i,j;

printf("enter array size: ");

scanf("%d",&n);

printf("enter %d elements:\n",n);

for(i=0;i<n;i++)scanf("%d",&a[i]);

puts("missing elements");

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

{

b=a[i]+1;

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

{

if(a[j]>b)

{

while(b<a[j])

printf("%2d ",b++);

break;

}

}

}

return 0;

}

Write a C program that modifies a given array in a wave pattern and prints the resulting array. The wave pattern requires that the previous element in the array must be greater than the next element, and the next element must be greater than the previous element.

For example, consider the input array arr = {1, 2, 3, 4, 5}

resulting in the array 2 1 4 3 5.

#include<stdio.h>

int main(){

int a[100],n,i,t;

printf("input array size: ");

scanf("%d",&n);

printf("input %d elements:\n",n);

for(i=0;i<n;i++)scanf("%d",&a[i]);

printf("resulting array: ");

for(i=0;i<n;i+=2)

{

if(a[i]<a[i+1])

{

t=a[i];

a[i]=a[i+1];

a[i+1]=t;

}

}

for(i=0;i<n;i++)printf("%d ",a[i]);

return 0;

}

**Coding Challenge Day-6**

Write a program in C for a 2D array of size 3x3 and print the matrix. Test Data : Input elements in the matrix :

element - [0],[0] : 1

element - [0],[1] : 2

element - [0],[2] : 3

element - [1],[0] : 4

element - [1],[1] : 5

element - [1],[2] : 6

element - [2],[0] : 7

element - [2],[1] : 8

element - [2],[2] : 9

Expected Output :

The matrix is : 1 2 3 4 5 6 7 8 9

#include<stdio.h>

int main() {

int a[100][100],i,j,s=3;

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

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

{

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

{

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

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

}

}

printf("The matrix is : \n");

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

{

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

{

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

}

}

return 0;

}

Write a program in C for addition of two Matrices of same size. Test Data :

Input the size of the square matrix (less than 5): 2

Input elements in the first matrix :

element - [0],[0] : 1

element - [0],[1] : 2

element - [1],[0] : 3

element - [1],[1] : 4

Input elements in the second matrix :

element - [0],[0] : 5

element - [0],[1] : 6

element - [1],[0] : 7

element - [1],[1] : 8

Expected Output :

The First matrix is :

1 2

3 4

The Second matrix is :

5 6

7 8

The Addition of two matrix is :

6 8

10 12

#include<stdio.h>

int main() {

int a[100][100],b[100][100],i,j,s;

printf("Input the size of the square matrix (less than 5):");

scanf("%d",&s);

printf("Input elements in the first matrix :\n");

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

{

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

{

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

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

}

}

printf("Input elements in the second matrix :\n");

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

{

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

{

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

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

}

}

printf("The First matrix is : \n");

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

{

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

{

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

}

printf("\n");

}

printf("The second matrix is : \n");

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

{

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

{

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

}

printf("\n");

}

printf(" The Addition of two matrix is : \n");

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

{

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

{

printf("%3d ",a[i][j]+b[i][j]);

}

printf("\n");

}

return 0;

}

Write a program in C for subtraction of two Matrices.

Test Data :

Input the size of the square matrix (less than 5): 2

Input elements in the first matrix :

element - [0],[0] : 5

element - [0],[1] : 6

element - [1],[0] : 7

element - [1],[1] : 8

Input elements in the second matrix :

element - [0],[0] : 1

element - [0],[1] : 2

element - [1],[0] : 3

element - [1],[1] : 4

Expected Output :

The First matrix is :

5 6

7 8

The Second matrix is :

1 2

3 4

The Subtraction of two matrix is :

4 4

4 4

#include<stdio.h>

int main() {

int a[100][100],b[100][100],i,j,s;

printf("Input the size of the square matrix (less than 5):");

scanf("%d",&s);

printf("Input elements in the first matrix :\n");

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

{

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

{

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

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

}

}

printf("Input elements in the second matrix :\n");

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

{

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

{

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

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

}

}

printf("The First matrix is : \n");

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

{

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

{

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

}

printf("\n");

}

printf("The second matrix is : \n");

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

{

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

{

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

}

printf("\n");

}

printf(" The Addition of two matrix is : \n");

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

{

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

{

printf("%3d ",a[i][j]-b[i][j]);

}

printf("\n");

}

return 0;

}

Write a program in C for multiplication of two square Matrices.

Test Data :

Input the rows and columns of first matrix : 2 2

Input the rows and columns of second matrix : 2 2

Input elements in the first matrix :

element - [0],[0] : 1

element - [0],[1] : 2

element - [1],[0] : 3

element - [1],[1] : 4

Input elements in the second matrix :

element - [0],[0] : 5

element - [0],[1] : 6

element - [1],[0] : 7

element - [1],[1] : 8

Expected Output :

The First matrix is :

1 2

3 4

The Second matrix is :

5 6

7 8

The multiplication of two matrix is :

19 22

43 50

#include<stdio.h>

int main() {

int a[100][100],b[100][100],i,j,r,c,r1,c1,s,k;

printf("Input the rows and columns of first matrix :");

scanf("%d%d",&r,&c);

printf("Input the rows and columns of second matrix :");

scanf("%d%d",&r1,&c1);

printf("Input elements in the first matrix :\n");

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

{

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

{

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

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

}

}

printf("Input elements in the second matrix :\n");

for(i=0;i<r1;i++)

{

for(j=0;j<c1;j++)

{

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

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

}

}

printf("The First matrix is : \n");

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

{

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

{

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

}

printf("\n");

}

printf("The second matrix is : \n");

for(i=0;i<r1;i++)

{

for(j=0;j<c1;j++)

{

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

}

printf("\n");

}

printf(" The multiplication of two matrix is : \n");

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

{

for(j=0;j<c1;j++)

{

for(s=k=0;k<c1;k++)

{

s+=a[i][k]\*b[k][j];

}

printf("%d ",s);

}

printf("\n");

}

return 0;

}

**Coding Challenge Day -7**

Write a program in C to find transpose of a given matrix.

Test Data :

Input the rows and columns of the matrix : 2 2

Input elements in the first matrix :

element - [0],[0] : 1

element - [0],[1] : 2

element - [1],[0] : 3

element - [1],[1] : 4

Expected Output :

The matrix is :

1 2

3 4

The transpose of a matrix is :

1 3

2 4

#include<stdio.h>

int main() {

int a[100][100],r,c,i,j;

printf("Input the rows and columns of the matrix :");

scanf("%d%d",&r,&c);

printf("Input elements in the first matrix :\n");

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

{

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

{

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

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

}

}

puts("The matrix is :");

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

{

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

{

printf("%3d",a[i][j]);

}

printf("\n");

}

puts("The transpose of a matrix is : ");

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

{

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

{

printf("%3d",a[i][j]);

}

printf("\n");

}

return 0;

}

Write a program in C to find sum of right diagonals of a matrix.

#include<stdio.h>

int main() {

int a[100][100],r,c,i,j,s=0;

printf("Input the rows and columns of the matrix :");

scanf("%d%d",&r,&c);

printf("Input elements in the first matrix :\n");

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

{

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

{

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

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

}

}

puts("The matrix is :");

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

{

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

{

printf("%3d",a[i][j]);

}

printf("\n");

}

puts("The transpose of a matrix is : ");

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

{

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

{

if(i==j)s+=a[i][j]; //sum of right diagonal

}

}

printf("sum of right diagonal=%d\n",s);

return 0;

}

Write a program in C to find the sum of left diagonals of a matrix. Test Data :

#include<stdio.h>

int main() {

int a[100][100],r,c,i,j,s=0;

printf("Input the rows and columns of the matrix :");

scanf("%d%d",&r,&c);

printf("Input elements in the first matrix :\n");

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

{

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

{

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

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

}

}

puts("The matrix is :");

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

{

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

{

printf("%3d",a[i][j]);

}

printf("\n");

}

puts("The transpose of a matrix is : ");

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

{

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

{

if((i+j)==2)s+=a[i][j]; //sum of left diagonal

}

}

printf("sum of left diagonal=%d\n",s);

return 0;

}

Write a program in C to find sum of rows an columns of a Matrix.

Test Data :

Input the size of the square matrix : 2

Input elements in the first matrix :

element - [0],[0] : 5

element - [0],[1] : 6

element - [1],[0] : 7

element - [1],[1] : 8

Expected Output :

The First matrix is :

The matrix is :

5 6

7 8

The sum or rows and columns of the matrix is :

5 6 11

7 8 15

12 14

#include<stdio.h>

int main() {

int a[50][50],n,i,j,s,m;

printf("Input the size of the square matrix : ");

scanf("%d",&n);

puts("Input elements in the first matrix :");

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

{

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

{

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

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

}

}

puts("The matrix is :");

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

{

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

{

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

}

printf("\n");

}

puts("The sum or rows and columns of the matrix is :");

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

{

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

{

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

s+=a[i][j];

}

printf("\b=%d\n",s);

}

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

{

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

{

m+=a[i][j];

}

printf(" %d ",m);

}

return 0;

}

Write a program in C to print or display the lower triangular of a given matrix.

Test Data :

Input the size of the square matrix : 3

Input elements in the first matrix :

element - [0],[0] : 1

element - [0],[1] : 2

element - [0],[2] : 3

element - [1],[0] : 4

element - [1],[1] : 5

element - [1],[2] : 6

element - [2],[0] : 7

element - [2],[1] : 8

element - [2],[2] : 9

Expected Output :

The matrix is :

1 2 3

4 5 6

7 8 9

Setting zero in lower triangular matrix

1 2 3

0 5 6

0 0 9

#include<stdio.h>

int main() {

int a[50][50],n,i,j;

printf("Input the size of the square matrix : ");

scanf("%d",&n);

puts("Input elements in the first matrix :");

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

{

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

{

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

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

}

}

puts("The matrix is :");

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

{

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

{

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

}

printf("\n");

}

puts("Setting zero in lower triangular matrix ");

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

{

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

{

if (i <= j)

{

printf("% 4d", a[i][j]); // Print the original elements if i <= j (lower triangular)

}

else

{

printf("% 4d", 0); // Print zero if i < j (upper triangular)

}

}

printf("\n");

}

return 0;

}

Write a program in C to print or display upper triangular matrix.

Test Data :

Input the size of the square matrix : 3

Input elements in the first matrix :

element - [0],[0] : 1

element - [0],[1] : 2

element - [0],[2] : 3

element - [1],[0] : 4

element - [1],[1] : 5

element - [1],[2] : 6

element - [2],[0] : 7

element - [2],[1] : 8

element - [2],[2] : 9

Expected Output :

The matrix is :

1 2 3

4 5 6

7 8 9

Setting zero in upper triangular matrix

1 0 0

4 5 0

7 8 9

#include<stdio.h>

int main() {

int a[50][50],n,i,j;

printf("Input the size of the square matrix : ");

scanf("%d",&n);

puts("Input elements in the first matrix :");

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

{

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

{

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

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

}

}

puts("The matrix is :");

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

{

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

{

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

}

printf("\n");

}

puts("Setting zero in lower triangular matrix ");

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

{

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

{

if (j>i)

{

printf("% 4d", 0);

}

else

{

printf("% 4d", a[i][j]);

}

}

printf("\n");

}

return 0;

}

**Coding Challenge Day -8**

There is an array having total odd number of elements (size is odd), every element occurs even number of times but there is one such element that is occurring only odd number of time. find out that odd number of time occurring elements.

Input1. [ 1, 2 , 3 ,1 ,1 ,3 ,3 ,2,2,3,2 ]

Output : 1

Exp: (1 is occurring 3 number of time)

#include<stdio.h>

int main()

{

int a[50],n,i,j,c;

printf("enter size of an array(size should be odd):");

scanf("%d",&n);

printf("enter %d elements(enter one 1 elements that repeats odd times):",n);

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

{

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

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

}

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

{

if(a[i]!=-1)

{

c=1;

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

{

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

{

c++;

a[j]=-1;

}

}

if((c%2)!=0)

{

printf("out put : %d\n",a[i]);

printf("Exp: (%d is occurring %d number of time)",a[i],c);

}

}

}

return 0;

}

Given an unsorted array arr[ ] with both positive and negative elements, the task is to find the smallest positive number missing from the array.

Input: arr[] = {2, 3, 7, 6, 8, -1, -10, 15}

Output: 1

Input: arr[] = { 2, 3, -7, 6, 8, 1, -10, 15 }

Output: 4

Input: arr[] = {1, 1, 0, -1, -2}

Output: 2

#include<stdio.h>

int main(){

int a[50],n,i,j,c,b=1;

printf("enter size of an array :");

scanf("%d",&n);

printf("enter %d elements:\n",n);

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

{

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

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

}

printf("Input: arr[] = {");

for(i=0;i<n;i++)printf("%d,",a[i]);

printf("\b}\nOutput: ");

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

{

if(a[i]>=0)

{

c=0;

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

{

if(a[j]==b)

{

c++;

a[j]=-1;

}

}

if(c>0) b++;

else {

printf("%d",b);

break;

}

}

}

return 0;

}

Given an sored array A[] of n numbers and another number givenSum, the task is to check whether or not there exist two elements in A[] whose sum is exactly equal to givenSum

Arr[]:[-1,2,3,5,4,5,8,9], givenSum=7

Output –-> (-1,8) (2,5) (3,4)

#include<stdio.h>

int main(){

int a[50],n,i,s,j;

printf("enter an array size : ");

scanf("%d",&n);

printf("enter an shorted array A[] of %d numbers:\n",n);

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

{

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

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

}

printf("enter sum value :");

scanf("%d",&s);

printf("Output –->");

i=0;

j=n-1;

while(i<j)

{

if((a[i]+a[j])>s)j--;

else if((a[i]+a[j])<s)i++;

else {

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

i++;

j--;

}

}

return 0;

}