TASK NO.-2

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**C++ Program to print the elements of an array**

#include <iostream>

using namespace std;

int main()

{

int numbers[100];

int size;

cout<<"enter the size ";

cin>>size;

cout << "Enter the numbers: " << endl;

for (int i = 0; i < size; ++i) {

cin >> numbers[i];

}

cout << "The numbers are: ";

for (int n = 0; n < size; ++n) {

cout << numbers[n] << " ";

}

return 0;

}

**C++ Program to find the frequency of each element in the array**

#include<iostream>

using namespace std;

int main()

{

int n;

cout<<"Enter the size of array"<<endl;

cin>>n;

int arr[n];

int temp=1,i,j;

cout<<"Enter the element of array"<<endl;

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

{

cin>>arr[i];

}

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

{

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

{

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

temp++;

}

cout<<"element="<<arr[i]<<" <=> frequency="<<temp<<endl;

temp=1;

}

}

**C++ Program to left rotate the elements of an array**

#include <iostream>

using namespace std;

int main()

{

int n,d;

cout<<"Enter the size: "<<endl;

cin>>n;

cout<<"Enter the position to be rotate: "<<endl;

cin>>d;

int a[n];

cout<<"enter the array elements : ";

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

{

cin>>a[i];

}

cout<<"array elements after rotation : ";

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

{

cout<<a[(i+d)%n]<<" ";

}

return 0;

}

**C++ Program to print the duplicate elements of an array**

#include <iostream>

int main()

{

int arr[] = {1, 2, 3, 4, 2, 7, 8, 8, 3};

int length = sizeof(arr)/sizeof(arr[0]);

std::cout<<"Duplicate elements in the given array are: ";

for(int i = 0; i < length; i++)

{

for(int j = i + 1; j < length; j++)

{

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

std::cout<<" "<<arr[j];

}

}

return 0;

}

**C++ Program to print the elements of an array**

#include <iostream>

using namespace std;

int main()

{

int numbers[100];

int size;

cout<<"enter the size ";

cin>>size;

cout << "Enter the numbers: " << endl;

for (int i = 0; i < size; ++i) {

cin >> numbers[i];

}

cout << "The numbers are: ";

for (int n = 0; n < size; ++n) {

cout << numbers[n] << " ";

}

return 0;

}

**C++ Program to print the elements of an array in reverse order**

#include<iostream>

using namespace std;

main()

{

cout<<"input the size of the array ";

int n;

cin>>n;

cout<<"enter the array "<<endl;

int arr[100];

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

{

cin>>arr[i];

}

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

{

cout<<arr[i]<<" ";

}

}

**C++ Program to print the elements of an array present on even position**

#include<iostream>

using namespace std;

main()

{

int n;

cout<<"input the size of the array :";

cin>>n;

int arr[100];

cout << "Enter the numbers: " << endl;

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

{

cin>>arr[i];

}

cout<<"the number of element present on even position "<<endl;

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

{

if(arr[i]%2==0)

{

cout<<arr[i]<<" ";

}

}

}

**C++ Program to print the elements of an array present on odd position**

#include<iostream>

using namespace std;

main()

{

int n;

cout<<"input the size of the array :";

cin>>n;

int arr[100];

cout << "Enter the numbers: " <<endl;

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

{

cin>>arr[i];

}

cout<<"the number of element present at odd position "<<endl;

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

{

if(arr[i]%2!=0)

{

cout<<arr[i]<<" ";

}

}

}

**C++ Program to print the largest element in an array**

**&**

**C++ Program to print the smallest element in an array**

#include<iostream>

#include<climits>

using namespace std;

main()

{

int n;

cout<<"enter the size ";

cin>>n;

int arr[100];

cout << "Enter the numbers: " << endl;

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

{

cin>>arr[i];

}

int largest=INT\_MIN;

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

{

if(largest<=arr[i])

{

largest=arr[i];

}

}

cout<<"largest element is "<<largest<<endl;

int smallest=INT\_MAX;

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

{

if(smallest>=arr[i])

{

smallest=arr[i];

}

}

cout<<"smallest element in array is "<<smallest;

}

**C++ Program to print the number of elements present in an array**

#include<iostream>

using namespace std;

int main()

{

int n;

cout<<"Enter the size of array"<<endl;

cin>>n;

int arr[n];

int new\_arr[n];

cout<<"Enter the element of array"<<endl;

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

{

cin>>arr[i];

}

int temp;

temp=sizeof(arr)/sizeof(arr[0]);

cout<<"The number of element in array are "<<temp<<endl;

}

**C++ Program to print the sum of all the items of the array**

#include<iostream>

using namespace std;

main()

{

int n;

cout<<"enter the size of an array ";

cin>>n;

int arr[100];

cout << "Enter the numbers: " << endl;

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

{

cin>>arr[i];

}

cout<<"the array is ";

int sum=0;

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

{

cout<<arr[i]<<endl;

sum=sum+arr[i];

}

cout<<"sum of all items of the array "<<sum;

}

**C++ Program to right rotate the elements of an array**

#include <iostream>

using namespace std;

void rev(int arr[], int start, int end)

{

while (start < end)

{

swap(arr[start], arr[end]);

start++;

end--;

}

}

void right(int arr[], int d, int n)

{

d=d%n;

rev(arr, 0, n-1);

rev(arr, 0, d-1);

rev(arr, d, n-1);

}

void printArray(int arr[], int size)

{

for (int i = 0; i < size; i++)

cout << arr[i] << " ";

}

int main()

{

int arr[] = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10};

int n = sizeof(arr)/sizeof(arr[0]);

int k = 3;

right(arr, k, n);

printArray(arr, n);

return 0;

}

**C++ Program to sort the elements of an array in ascending order**

#include <iostream>

using namespace std;

int main()

{

int i, j, size, temp;

int arr[25];

cout << "Enter the total no. of elements: ";

cin >> size;

cout << "Enter the elements of the array: " << endl;

for (i = 0; i < size; i++){

cin >> arr[i];

}

for (i = 0; i < size; i++){

for (j = i; j < size; j++){

if (arr[i] > arr[j+1]){

temp = arr[i];

arr[i] = arr[j+1];

arr[j+1] = temp;

}

}

}

cout << "Elements sorted in the ascending order are: " << endl;

for (i = 1; i <= size; i++){

cout << arr[i] << endl;

}

return 0;

}

**C++ Program to sort the elements of an array in descending order**

#include<iostream>

using namespace std;

int main()

{

int n;

cout<<"Enter the size of array"<<endl;

cin>>n;

int arr[n];

int new\_arr[n];

cout<<"Enter the element of array"<<endl;

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

{

cin>>arr[i];

}

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

{

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

{

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

{

int temp=arr[i];

arr[i]=arr[j];

arr[j]=temp;

}

}

}

cout<<"The sorted descending output is "<<endl;

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

{

cout<<arr[i]<<endl;

}

}

**Find 3rd Largest Number in an Array. Write a C++ program to find 3rd largest number in an array.**

**Input: 1,2,5,6,3,2**

**Output: 3**

#include<iostream>

using namespace std;

int main()

{

int n;

cout<<"Enter the size of array"<<endl;

cin>>n;

int arr[n];

int new\_arr[n];

cout<<"Enter the element of array"<<endl;

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

{

cin>>arr[i];

}

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

{

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

{

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

{

int temp=arr[i];

arr[i]=arr[j];

arr[j]=temp;

}

}

}

cout<<"The 3rd largerst number in the array is "<<arr[2]<<endl;

}

**Write a C++ program to find 2nd largest number in an array.**

**Input: 1,2,5,6,3,2**

**Output: 5\*/**

#include<iostream>

using namespace std;

main()

{

int arr[6]={1,2,5,6,3,2};

int largest=INT\_MIN;

for(int i=0;i<=5;i++)

{

if(largest<=arr[i])

{

largest=arr[i-1];

}

}

cout<<"2nd largest element in array is "<<largest;

}

1. Find 2nd Smallest Number in an Array

Write a C++ program to find 2nd smallest number in an array. Input: 1,2,5,6,3,2

Output: 2 #include<iostream> using namespace std; int main()

{

int n;

cout<<"Enter the size of array"<<endl; cin>>n;

int arr[n];

int new\_arr[n];

cout<<"Enter the element of array"<<endl; for(int i=0;i<n;i++)

{

cin>>arr[i];

}

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

{

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

{

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

{

int temp=arr[i]; arr[i]=arr[j]; arr[j]=temp;

}

}

}

cout<<"The 2nd smallest number in the array is "<<arr[1]<<endl;

}

1. Find Smallest Number in an Array

Write a C++ program to find smallest number in an array. Input: 1,2,5,6,3,2

Output: 1 #include<iostream> using namespace std; int main()

{

int n;

cout<<"Enter the size of array"<<endl; cin>>n;

int arr[n];

int new\_arr[n];

cout<<"Enter the element of array"<<endl; for(int i=0;i<n;i++)

{

cin>>arr[i];

}

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

{

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

{

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

{

int temp=arr[i]; arr[i]=arr[j]; arr[j]=temp;

}

}

}

cout<<"The smallest number in the array is "<<arr[0]<<endl;

}

1. Remove Duplicate Element in an Array

Write a C++ program to remove duplicate element in an array. Input: 10,20,20,30,30,40,50,50

Output: 10 20 30 40 50

#include<iostream> using namespace std; int main()

{

int n;

cout<<"Enter the size of array"<<endl; cin>>n;

int arr[n];

int new\_arr[n],temp=0,t=0,i,j; cout<<"Enter the element of array"<<endl; for(i=0;i<n;i++)

{

cin>>arr[i];

}

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

{

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

{

if(arr[i]==new\_arr[j]) temp++;

}

if(temp==0)

{

new\_arr[t]=arr[i];

t++;

}

temp=0;

}

for(i=0;i<t;i++) cout<<new\_arr[i]<<" ";

}

1. Add Two Matrices

Write a C++ program to add two matrices. Input:

First matrix elements: 1 1 1

2 2 2

3 3 3

Second matrix elements: 1 1 1

2 2 2

3 3 3

Output:

Addition of the matrix: 2 2 2

4 4 4

6 6 6

#include<iostream> using namespace std; int main()

{

int m,n,i,j;

cout<<"Enter the rows and columns of array"<<endl; cin>>m>>n;

int arr1[m][n];

int arr2[m][n];

cout<<"Enter the element of 1st array"<<endl; for(i=0;i<m;i++)

{

for(j=0;j<n;j++) cin>>arr1[i][j];

}

cout<<"Enter the element of 2nd array"<<endl; for(i=0;i<m;i++)

{

for(j=0;j<n;j++) cin>>arr2[i][j];

}

cout<<"First matrix elements:"<<endl; for(i=0;i<m;i++)

{

}

cout<<endl;

}

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

{

cout<<arr1[i][j]<<" ";

cout<<"Second matrix elements:"<<endl; for(i=0;i<m;i++)

{

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

{

cout<<arr2[i][j]<<" ";

}

cout<<endl;

}

cout<<"Addition of matrix :"<<endl; for(i=0;i<m;i++)

{

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

{

cout<<arr1[i][j]+arr2[i][j]<<" ";

}

cout<<endl;

}

}

1. Multiply Two Matrices

Write a C++ program to multiply two matrices. Input:

First matrix elements: 1 1 1

2 2 2

3 3 3

Second matrix elements: 1 1 1

2 2 2

3 3 3

Output:

Multiplication of the matrix: 6 6 6

12 12 12

18 18 18

#include<iostream> using namespace std;

int main()

{

int m,n,i,j,k;

cout<<"Enter the rows and columns of array"<<endl; cin>>m>>n;

int arr1[m][n];

int arr2[m][n];

int mul[m][n];

cout<<"Enter the element of 1st array"<<endl; for(i=0;i<m;i++)

{

for(j=0;j<n;j++) cin>>arr1[i][j];

}

cout<<"Enter the element of 2nd array"<<endl; for(i=0;i<m;i++)

{

for(j=0;j<n;j++) cin>>arr2[i][j];

}

cout<<"First matrix elements:"<<endl;

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

{

}

cout<<endl;

}

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

{

cout<<arr1[i][j]<<" ";

cout<<"Second matrix elements:"<<endl; for(i=0;i<m;i++)

{

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

{

cout<<arr2[i][j]<<" ";

}

cout<<endl;

}

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

{

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

{

mul[i][j]=0;

}

}

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

{

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

{

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

{

mul[i][j]=mul[i][j]+(arr1[i][k]\*arr2[k][j]);

}

}

}

cout<<"Multiplication of matrix :"<<endl;

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

{

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

{

cout<<mul[i][j]<<" ";

}

cout<<endl;

}

}

1. Print Odd and Even Number from an Array

Write a C++ program to print odd and even number from an array. Input: 1,2,5,6,3,2

Output:

Odd Numbers:

1

5

3

Even Numbers: 2

6

2

#include<iostream> using namespace std; int main()

{

int n;

cout<<"Enter the size of array"<<endl; cin>>n;

int arr[n];

int new\_arr[n];

cout<<"Enter the element of array"<<endl; for(int i=0;i<n;i++)

{

cin>>arr[i];

}

cout<<"Odd Numbers:"<<endl; for(int i=0;i<n;i++)

{

if(arr[i]%2!=0)

cout<<arr[i]<<endl;

}

cout<<"Even Numbers:"<<endl; for(int i=0;i<n;i++)

{

if(arr[i]%2==0)

cout<<arr[i]<<endl;

}

}

1. Transpose matrix

Write a C++ program to transpose a matrix.

Output:

Printing Matrix without transpose: 1 3 4

2 4 3

3 4 5

Printing Matrix After Transpose: 1 2 3

3 4 4

4 3 5

#include<iostream> using namespace std; int main()

{

int m,n,i,j;

cout<<"Enter the rows and columns of array"<<endl; cin>>m>>n;

int arr1[m][n];

cout<<"Enter the element of the array"<<endl; for(i=0;i<m;i++)

{

for(j=0;j<n;j++) cin>>arr1[i][j];

}

cout<<"Without transpose matrix elements:"<<endl;

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

{

}

cout<<endl;

}

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

{

cout<<arr1[i][j]<<" ";

cout<<"matrix elements after transpose are :"<<endl; for(i=0;i<m;i++)

{

}

cout<<endl;

}

}

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

{

cout<<arr1[j][i]<<" ";

OUTPUT;-

Enter the rows and columns of array 3

3

Enter the element of the array 1

3

4

2

4

3

3

4

5

Without transpose matrix elements: 1 3 4

2 4 3

3 4 5

matrix elements after transpose are : 1 2 3

3 4 4

4 3 5