ASSIGNMENT---4

2. WAP to find the max and min in an array

#include <bits/stdc++.h>

using namespace std;

int main()

{

int arr[] = {4,14,24,34,44};

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

cout << "Numbers are \n";

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

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

cout <<"Minimum number is \n"<< \*min\_element(arr, arr + n)<<endl;

cout <<"Maximum number is \n"<< \*max\_element(arr, arr + n)<<endl;

return 0;

}

3. WAP to reverse an array ??

#include <iostream>

using namespace std;

void reverseArray(int arr[],int n){

for (int low = 0,high = n - 1;low<high;low++,high--){

swap(arr[low], arr[high]);

}

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

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

}

}

int main(){

int arrInput[] = {11,12,13,14,15};

cout<<endl<<"Array ";

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

cout << arrInput[i] << " ";

}

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

cout<<endl<<"Reversed ";

reverseArray(arrInput, n);

return 0;

}

4. WAP to display only the even numbers in a an array ??

#include<iostream>

using namespace std;

class Even

{

public: void display(int N)

{

cout << "Even: ";

for (int i = 1; i <= 2 \* N; i++)

{

if (i % 2 == 0)

cout << i << " ";

}

}};

int main()

{

Even e;

e.display(10);

return 0;

}

5. WAP to display only the odd numbers in an array ??

#include<iostream>

using namespace std;

class Even

{

public: void display(int N)

{

cout << "Even: ";

for (int i = 1; i <= 2 \* N; i++)

{

if (i % 2 != 0)

cout << i << " ";

}

}};

int main()

{

Even e;

e.display(10);

return 0;

}

6. WAP to count the no of positive, negative and zero in an array ??

#include<iostream>

using namespace std;

class Number

{

public: void count()

{

int countp=0, countn=0, countz=0, arr[10], i;

cout<<"Enter 10 numbers : ";

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

{

cin>>arr[i];

}

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

{

if(arr[i]<0)

{

countn++;

}

else if(arr[i]==0)

{

countz++;

}

else

{

countp++;

}

}

cout<<"Positive Numbers = "<<countp<<"\n";

cout<<"Negative Numbers = "<<countn<<"\n";

cout<<"Zero = "<<countz<<"\n";

}};

int main()

{

Number n;

n.count();

}

7. WAP to count the no of even and odd in an array ??

#include<iostream>

using namespace std;

class Number

{

public: void count()

{

int countp=0, countn=0, arr[10], i;

cout<<"Enter 10 numbers : ";

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

{

cin>>arr[i];

}

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

{

if(arr[i]<0)

{

countn++;

}

else

{

countp++;

}

}

cout<<"Positive Numbers = "<<countp<<"\n";

cout<<"Negative Numbers = "<<countn<<"\n";

}};

int main()

{

Number n;

n.count();

}

8. WAP to display the max and min in an array ??

#include <bits/stdc++.h>

using namespace std;

class Max\_Min

{

public: void display()

{

int arr[] = {2,3,6,5,4,8};

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

cout << "Array: ";

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

{

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

}

cout << "\nMin Element = "<< \*min\_element(arr, arr + n);

cout << "\nMax Element = "<< \*max\_element(arr, arr + n);

}};

int main()

{

Max\_Min mm;

mm.display();

return 0;

}

9. WAP to display the second highest no in an array

#include <iostream>

using namespace std;

int main()

{

int n, num[2], largest, second;

cout<<"Enter number of elements: ";

cin>>n;

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

cout<<"Enter Array Element"<<(i+1)<<": ";

cin>>num[i];

}

if(num[0]<num[1]){

largest = num[1];

second = num[0];

}

else{

largest = num[0];

second = num[1];

}

for (int i = 2; i< n ; i ++) {

if (num[i] > largest) {

second = largest;

largest = num[i];

}

else if (num[i] > second && num[i] != largest) {

second = num[i];

}}

cout<<"Second Largest Element in array is: "<<second;

return 0;

}

10. WAP to perform sorting in an array.

#include<iostream>

using namespace std;

int main()

{

int i,a[10],temp,j;

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

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

{

cin>>a[i];

}

cout<<"Before sorting:\t"<<endl;

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

{

cout<<a[j];

}

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

{

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

{

if(a[j]>a[j+1])

{

temp=a[j];

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

a[j+1]=temp;

}

}

}

cout<<endl<<"After sorting: ";

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

{

cout<<a[j];

}

}

11. WAP to search an specific element in an array

#include<iostream>

using namespace std;

int main()

{

int arr[10], i, num, n, cnt=0, pos;

cout<<"\n Enter Array Size : ";

cin>>n;

cout<<"\n Enter Array Elements : \n";

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

{

cout<<" ";

cin>>arr[i];

}

cout<<"\n Enter Element to be Searched : ";

cin>>num;

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

{

if(arr[i]==num)

{

cnt=1;

pos=i+1;

break;

}

}

if(cnt==0)

{

cout<<"\n Element Not Found..!!";

}

else

{

cout<<"\n Element "<<num<<" Found At Position "<<pos;

}

return 0;

}

13. WAP to add 2 arrays in 1 D.

#include<iostream>

using namespace std;

int main()

{

int first[20], second[20], sum[20], c, n;

cout << "Enter the number of elements in the array ";

cin >> n;

cout << "Enter elements of first array" << endl;

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

cin >> first[c];

cout << "Enter elements of second array" << endl;

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

cin >> second[c];

cout << "Sum of elements of the arrays:" << endl;

for (c = 0; c < n; c++) {

sum[c] = first[c] + second[c];

cout << sum[c] << endl;

}

}

14. WAP to find the sum of all the elements in an array

#include <iostream>

using namespace std;

class Sum

{

int i,n,sum=0;

public: void find()

{

int arr[]={1,2,3,4,5};

n=5;

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

sum+=arr[i];

}

cout<<sum;

}

};

int main()

{

Sum s;

s.find();

return 0;

}

15. WAP to count the total no of elements in an array

#include <iostream>

using namespace std;

class Count

{

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

int count=0;

public: void totel()

{

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

{

if(arr[i]!='\0')

count++;

}

cout<<"Elements in array are: "<<count;

}};

int main()

{

Count c;

c.totel();

}

17. WAP to perform matrix addition

#include <iostream>

using namespace std;

int main()

{

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

cout << "Enter number of rows (between 1 and 100): ";

cin >> r;

cout << "Enter number of columns (between 1 and 100): ";

cin >> c;

cout << endl << "Enter elements of 1st matrix: " << endl;

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

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

{

cout << "Enter element a" << i + 1 << j + 1 << " : ";

cin >> a[i][j];

}

cout << endl << "Enter elements of 2nd matrix: " << endl;

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

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

{

cout << "Enter element b" << i + 1 << j + 1 << " : ";

cin >> b[i][j];

}

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

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

sum[i][j] = a[i][j] + b[i][j];

cout << endl << "Sum of two matrix is: " << endl;

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

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

{

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

if(j == c - 1)

cout << endl;

}

return 0;

}

18. WAP to perform matrix multiplication

#include <iostream>

using namespace std;

int main()

{

int a[10][10], b[10][10], mult[10][10], r1, c1, r2, c2, i, j, k;

cout << "Enter rows and columns for first matrix: ";

cin >> r1 >> c1;

cout << "Enter rows and columns for second matrix: ";

cin >> r2 >> c2;

while (c1!=r2)

{

cout << "Error! column of first matrix not equal to row of second.";

cout << "Enter rows and columns for first matrix: ";

cin >> r1 >> c1;

cout << "Enter rows and columns for second matrix: ";

cin >> r2 >> c2;

}

cout << endl << "Enter elements of matrix 1:" << endl;

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

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

{

cout << "Enter element a" << i + 1 << j + 1 << " : ";

cin >> a[i][j];

}

cout << endl << "Enter elements of matrix 2:" << endl;

for(i = 0; i < r2; ++i)

for(j = 0; j < c2; ++j)

{

cout << "Enter element b" << i + 1 << j + 1 << " : ";

cin >> b[i][j];

}

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

for(j = 0; j < c2; ++j)

{

mult[i][j]=0;

}

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

for(j = 0; j < c2; ++j)

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

{

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

}

cout << endl << "Output Matrix: " << endl;

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

for(j = 0; j < c2; ++j)

{

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

if(j == c2-1)

cout << endl;

}

return 0;

}

19. WAP to find the transpose of a matrix.

#include <iostream>

using namespace std;

int main() {

int a[10][10], transpose[10][10], row, column, i, j;

cout << "Enter rows and columns of matrix: ";

cin >> row >> column;

cout << "\nEnter elements of matrix: " << endl;

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

for (int j = 0; j < column; ++j) {

cout << "Enter element a" << i + 1 << j + 1 << ": ";

cin >> a[i][j];

}

}

cout << "\nEntered Matrix: " << endl;

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

for (int j = 0; j < column; ++j) {

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

if (j == column - 1)

cout << endl << endl;

}

}

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

for (int j = 0; j < column; ++j) {

transpose[j][i] = a[i][j];

}

cout << "\nTranspose of Matrix: " << endl;

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

for (int j = 0; j < row; ++j) {

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

if (j == row - 1)

cout << endl << endl;

}

return 0;

}

20. WAP to do multiplication of arrays in 1D.

#include<bits/stdc++.h>

using namespace std;

int multiply(int array[], int n)

{

int pro = 1;

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

pro = pro \* array[i];

return pro;

}

int main()

{

int array[] = {5,5,8,9};

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

cout << multiply(array, n);

return 0;

}