1. Harshad number

#include<iostream>

using namespace std;

int main(){

int n,sum=0;

cout<<"enter a number:";

cin>>n;

int a=n;

while(a!=0){

int b=a%10;

sum+=b;

a/=10;

}

if(n%sum==0){

cout<<"harshad number";

}else{

cout<<"not harshad number";

}

return 0;

}

1. Happy number

#include<iostream>

using namespace std;

int main(){

int a,sum=0;

cout<<"enter a number:";

cin>>a;

int temp=a;

while(sum!=1 && sum!=4){

sum=0;

while(temp!=0){

int b=temp%10;

sum+=b\*b;

temp/=10;

}

temp=sum;

}

if(sum==1){

cout<<"happy number";

}else{

cout<<"not happy number";

}

return 0;

}

1. strong number

#include<iostream>

using namespace std;

int fact(int b){

int fact=1;

for(int i=1;i<=b;i++){

fact\*=i;

}

return fact;

}

int main(){

int a,sum=0;

cout<<"enter a number:";

cin>>a;

int temp=a;

while(temp!=0){

sum+=fact(temp%10);

temp/=10;

}

if(sum==a){

cout<<"strong number:";

}else{

cout<<"not strong number:";

}

return 0;

}

1. buzz number

#include<iostream>

using namespace std;

int main(){

int a;

cout<<"enter a number:";

cin>>a;

if(a%7==0||a%10==7){

cout<<"buzz number";

}else{

cout<<"not buzz number";

}

return 0;

}

1. neon number

#include<iostream>

using namespace std;

int main(){

int a,sum=0;

cout<<"enter a number:";

cin>>a;

int square=a\*a;

cout<<"square="<<square<<endl;

while(square!=0){

int b=square%10;

sum+=b;

square/=10;

}

if(sum==a){

cout<<"neon number"<<endl;

}else{

cout<<"not neon number"<<endl;

}

return 0;

}

1. abundant number

#include<iostream>

using namespace std;

int main(){

int a,sum=0;

cout<<"enter a number:";

cin>>a;

for(int i=1;i<a;i++){

if(a%i==0){

sum+=i;

}

}

if(sum>a){

cout<<"abundant number";

}else{

cout<<"not abundant number";

}

return 0;

}

1. narcissistic number

#include<iostream>

using namespace std;

int main(){

int a,b,sum=0;

cout<<"enter a number:";

cin>>a;

int temp=a;

while(temp!=0){

b=temp%10;

sum+=b\*b\*b;

temp/=10;

}

if(sum==a){

cout<<"armstrong";

}else{

cout<<"not armstrong";

}

return 0;

}

1. print the pattern 1 22 333 4444 55555

#include<iostream>

using namespace std;

int main(){

int n=5;

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

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

cout<<i;

}

cout<<endl;

}

return 0;

}

1. print the pattern \* \*\* \*\*\* \*\*\*\* \*\*\*\*\*

#include<iostream>

using namespace std;

int main(){

int n=5;

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

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

cout<<"\*";

}

cout<<endl;

}

return 0;

}

1. Print pascal triangle pattern nested for loop

#include<iostream>

using namespace std;

int fact(int a){

int fact=1;

for(int i=1;i<=a;i++){

fact\*=i;

}

return fact;

}

int main(){

int n=5;

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

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

cout<<" ";

}

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

cout<<fact(i)/(fact(j)\*fact(i-j))<<" ";

}

cout<<endl;

}

return 0;

}

1. Print diamond pattern with \* using nested for loop

#include<iostream>

using namespace std;

int main(){

int n=5;

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

for(int j=1;j<=n-i;j++){

cout<<" ";

}

for(int j=1;j<=2\*i-1;j++){

cout<<"\*";

}

cout<<endl;

}

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

for(int j=1;j<=n-i;j++){

cout<<" ";

}

for(int j=1;j<=2\*i-1;j++){

cout<<"\*";

}

cout<<endl;

}

return 0;

}

1. Program to reverse the elements in an array

#include<iostream>

using namespace std;

int main(){

int arr[10],i,n;

cout<<"enter a elements:";

cin>>n;

cout<<"enter array elements:";

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

cin>>arr[i];

}

cout<<" elements:";

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

cout<<arr[i]<<endl;

}

cout<<"reverse elements:";

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

cout<<arr[i]<<endl;

}

return 0;

}

1. Program to insert an element in an array at a specific position

#include<iostream>

using namespace std;

void insertelement(int arr[],int &n,int e,int p){

if(p>n||p<0){

cout<<"invalid";

return;

}

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

arr[i]=arr[i-1];

}

arr[p]=e;

n++;

}

int main(){

int arr[10],n,e,p;

cout<<"enter a number:";

cin>>n;

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

cin>>arr[i];

}

cout<<"enter the element:";

cin>>e;

cout<<"enter the position:";

cin>>p;

insertelement(arr,n,e,p);

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

cout<<arr[i];

}

return 0;

}

1. Program to Delete an element in an array at a specific position

#include<iostream>

using namespace std;

void insertelement(int arr[],int &n,int p){

if(p>n||p<0){

cout<<"invalid";

return;

}

for(int i=p;i<n-1;i++){

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

}

n--;

}

int main(){

int arr[10],n,e,p;

cout<<"enter a number:";

cin>>n;

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

cin>>arr[i];

}

cout<<"enter the position:";

cin>>p;

insertelement(arr,n,p);

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

cout<<arr[i];

}

return 0;

}

1. Find the sum of all elements in an array

#include<iostream>

using namespace std;

int main(){

int arr[10],i,n,sum=0;

cout<<"enter a number:";

cin>>n;

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

cin>>arr[i];

}

cout<<"print array elements:";

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

cout<<arr[i]<<endl;

}

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

sum+=arr[i];

}

cout<<"sum of elements="<<sum;

}

1. Find the average of all elements in an array

#include<iostream>

using namespace std;

int main(){

int arr[10],i,n,sum=0;

cout<<"enter a number:";

cin>>n;

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

cin>>arr[i];

}

cout<<"print array elements:";

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

cout<<arr[i]<<endl;

}

int max=arr[0];

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

if(arr[i]>max){

max=arr[i];

}

}

cout<<"maximum element="<<max;

}

1. Find the second largest element in an array

#include<iostream>

using namespace std;

int main(){

int arr[10],i,n,sum=0;

cout<<"enter a number:";

cin>>n;

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

cin>>arr[i];

}

cout<<"print array elements:";

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

cout<<arr[i]<<endl;

}

int max=arr[0],max2=arr[0];

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

if(arr[i]>max){

max2=max;

max=arr[i];

}else if(arr[i]>max2&&arr[i]!=max){

max2=arr[i];

}

}

cout<<"maximum element="<<max;

cout<<"second number="<<max2;

}

1. Find the number of occurrences of a value in an array

#include<iostream>

using namespace std;

int main(){

int arr[10],i,n,c=0;

cout<<"enter a number:";

cin>>n;

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

cin>>arr[i];

}

int value;

cout<<"enter a value to count:";

cin>>value;

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

if(arr[i]==value){

c++;

}

}

cout<<c;

}

1. Merge two array

#include<iostream>

using namespace std;

int main(){

int arr[10],i,n,c=0,res[20],a,arr2[10];

cout<<"enter a number:";

cin>>n;

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

cin>>arr[i];

}

cout<<"enter other number:";

cin>>a;

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

cin>>arr2[i];

}

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

res[i]=arr[i];

}

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

res[n+i]=arr2[i];

}

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

cout<<res[i]<<" ";

}

}

1. Create a dynamic array using pointers and display the values

#include <iostream>

using namespace std;

int main() {

int n;

cout << "Enter the number of elements: ";

cin >> n;

// Dynamically allocate memory for the array

int\* arr = new int[n];

cout << "Enter the elements: ";

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

cin >> arr[i];

}

cout << "Array elements are: ";

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

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

}

cout << endl;

// Deallocate the memory

delete[] arr;

return 0;

}

1. Create a dynamic 2D (Two dimensional) array using pointers and display the values

Add 2 matrices

#include<iostream>

using namespace std;

int main(){

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

cout<<"enter the rows and columns:";

cin>>r>>c;

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

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

cin>>a[i][j];

}

}

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

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

cin>>b[i][j];

}

}

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

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

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

}

}

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

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

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

}

cout<<endl;

}

}

1. Multiply 2 matrices

#include<iostream>

using namespace std;

int main(){

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

cout<<"enter the rows and columns:";

cin>>r>>c;

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

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

cin>>a[i][j];

}

}

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

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

cin>>b[i][j];

}

}

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

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

mul[i][j]=0;

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

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

}

}

}

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

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

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

}

cout<<endl;

}

return 0;

}

1. Find the sum of diagonals of a matrix

#include<iostream>

using namespace std;

int main(){

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

cout<<"enter the rows and columns:";

cin>>r>>c;

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

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

cin>>a[i][j];

}

}

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

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

if(i==j){

res+=a[i][j];

}

}

}

cout<<res;

}