CHPTER NO:5 (Array and strings)

[exercise]

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**Q.No(4):- Declare an array to hold the high temperature (to the nearest tenth of a degree) for each day of a year. Assign a value of 0 to each day.**

**OUTPUT:**

Enter Hight Temperature of day 1 : 23

Enter Hight Temperature of day 2 : 65

Enter Hight Temperature of day 3 : 45

Enter Hight Temperature of day 4 : 23

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

. .

. .

. .

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

Enter Hight Temperature of day 365 : 34

Enter Hight Temperature of day 364 :20

**Ans:-**

#include<iostream>

using namespace std;

int main() {

double temp[365]= {0,0};

int c;

for(c=0; c<=365; c++) {

cout<<"Enter High Temperature of day "<<c+1<<" : *"; //for day first : 0+1=1st day,*

cin>>temp[c];

}

return 0;

}

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**Q.No(5):- Write down a C++ program to find the number of elements in array using sizeof() operator.**

**Ans:-**

#include<iostream>

using namespace std;

int main()

{

int a[]={0,1,2,3,4,5};

*// 1 int=4 bytes, so 6x4 bytes= 24 bytes*

cout<<"Size of Array = "<<sizeof(a)<<" Bytes";

int total\_elements;

**OUTPUT:**

Size of Array = 24 Bytes

Total number of elements in the array A are : 6

total\_elements=sizeof(a)/sizeof(a[0]);

*/\*As size of array a[] are 24 bytes,and size of element a[0] is 4,*

*so 24/4 = 6 bytes. \*/*

cout<<"\nTotal number of elements in the array A are : "<<total\_elements;

return 0;

}

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**Q.No(6):-Write down a C++ program to find the multiplication of two matrices A[3][2] and B[2][3].**

**Ans:-**

#include<iostream>

using namespace std;

int main() {

int i,j,k;

int a[3][2], b[2][3];

int mult[3][3]={0}; *//Initialize Output Matrics to 0.*

// Storing elements of first matrix.

cout << endl << "Enter elements of matrix 1st(3 by 2):" << endl;

for(i = 0; i < 3; ++i) //0,1,2; for columns of 1nd matrics.

for(j = 0; j < 2; ++j) { //0,1 for rows of 1st matrics.

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

cin >> a[i][j];

}

*// Storing elements of second matrix.*

cout << endl << "Enter elements of matrix 2nd(2 rows, 3 columns):" << endl;

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

for(j = 0; j < 3; ++j) {

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

cin >> b[i][j];

} **Hint:**

*// Multiplying matrix a[3 by 2] and b[2 by 3] and storing in array mult[3][3].* /\*

for(i = 0; i < 3; ++i) As i=..3,j=..3 & k=.2, so

for(j = 0; j < 3; ++j) Output Matrics= 3 by 3,

for(k = 0; k < 2; ++k) { Matrics 1st = 3 by 2. a[i or j][k].

mult[i][j] += a[i][k] \* b[k][j]; Matrics 2nd = 2 by 3. b[j or i][k]. } \*/

*// Displaying the multiplication of two matrix.*

cout << endl << "Multiplication of A[3][2] & b[2][3] are : " << endl;

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

for(j = 0; j < 3; ++j) {

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

if(j == 3-1) //3 index - 1 index = 2 index.

cout << endl;

}

return 0;

}

**OUTPUT:**

**Enter elements of matrix 1st(3 by 2): Enter elements of matrix 1st(3 by 2):**

Enter element a11 : 1 Enter element b11 : 2

Enter element a12 : 2 Enter element b12 : 1

Enter element a21 : 1 Enter element b21 : 2

Enter element a22 : 2 Enter element b22 : 1

Enter element a31 : 1 Enter element b31 : 2

Enter element a32 : 2 Enter element b32 : 1

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**Multiplication of A[3][2] & b[2][3] are :**

4 5 4

4 5 4

4 5 4

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**Q.No(7):- Write a C++ program to copying string using strcpy() function.**

**Ans:-**

#include<iostream>

**OUTPUT:**

ss = This is a string.

cc = This is a string

using namespace std;

int main()

{

string ss;

char cc[20];

ss="This is a string.";

strcpy(cc,"This is a string"); *//copy “This is a string” and paste into cc.*

cout<<"ss = "<<ss<<endl;

cout<<"cc = "<<cc<<<<endl;

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**( OR )**

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**OUTPUT:**

String s1 : deyan

String s2 becomes : deyan

char s1[10],s2[10];

cout<<"String s1 : ";

cin>>s1;

strcpy(s2,s1);  *//copy s1 string and paste into s2*.

cout<<"String s2 becomes : "<<s2<<endl;

return 0;

}

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**Qs.No.8:-Write down a C++ program to find the subtraction and addition of two matrices A[3][3] and B[3][3].**

**Ans:-**

**OUTPUT:**

**|Addition of 3 by 3 Matrics|**

**Enter elements of 1st matrix: Enter elements of 2nd matrix:**

Enter element a11 : 2 Enter element b11 : 3

Enter element a12 : 2 Enter element b12 : 3

Enter element a13 : 2 Enter element b13 : 3

Enter element a21 : 2 Enter element b21 : 3

Enter element a22 : 2 Enter element b22 : 3

Enter element a23 : 2 Enter element b23 : 3

Enter element a31 : 2 Enter element b31 : 3

Enter element a32 : 2 Enter element b32 : 3

Enter element a33 : 2 Enter element b33 : 3

**Addition of two matrix is:**

5 5 5

5 5 5

5 5 5

**--> Addition of Two Matrics (3 by 3).**

#include <iostream>

using namespace std;

int main()

{

int a[3][3], b[3][3], sum[100][100], i, j;

cout << "\t |Addition of 3 by 3 Matrics|"<<endl;

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

*// Storing elements of first matrix entered by user.*

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

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

{

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

cin >> a[i][j];

}

*// Storing elements of second matrix entered by user.*

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

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

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

{

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

cin >> b[i][j];

}

*// Adding Two matrices*

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

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

sum[i][j] = a[i][j] + b[i][j]; //a11+b11 ...... a33+b33.

*// Displaying the resultant sum matrix.*

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

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

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

{

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

if(j == 3 - 1)

cout << endl;

}

return 0;

}

**--> Subtraction of Two Matrics (3 by 3).**

#include <iostream>

using namespace std;

int main()

**OUTPUT:**

**|Addition of 3 by 3 Matrics|**

**Enter elements of 1st matrix: Enter elements of 2nd matrix:**

Enter element a11 : 2 Enter element b11 : 3

Enter element a12 : 2 Enter element b12 : 3

Enter element a13 : 2 Enter element b13 : 3

Enter element a21 : 2 Enter element b21 : 3

Enter element a22 : 2 Enter element b22 : 3

Enter element a23 : 2 Enter element b23 : 3

Enter element a31 : 2 Enter element b31 : 3

Enter element a32 : 2 Enter element b32 : 3

Enter element a33 : 2 Enter element b33 : 3

**Addition of two matrix is:**

-1 -1 -1

-1 -1 -1

-1 -1 -1

{

int a[3][3], b[3][3], sum[100][100], i, j;

cout << "\t |Subtraction of 3 by 3 Matrics|"<<endl;

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

*// Storing elements of first matrix entered by user.*

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

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

{

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

cin >> a[i][j];

}

*// Storing elements of second matrix entered by user.*

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

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

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

{

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

cin >> b[i][j];

}

// Subtraction of Two matrices

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

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

sum[i][j] = a[i][j] - b[i][j]; //a11-b11 ...... a33-b33.

*// Displaying the resultant sum matrix.*

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

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

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

{

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

if(j == 3 - 1)

cout << endl;

}

return 0;

}

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**Ans:-**

#include<iostream>

using namespace std;

int main()

{

int rows=3;

int col=3;

int m[rows][col]={ {1,2,3},{3,4,5},{5,6,7} };

int t[col][rows];

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

{

for(int j=0; j<col; j++)

{

t[j][i]=m[i][j];

}

}

**OUTPUT:**

**Matrics is :**

1 2 3

3 4 5

5 6 7

**Transpose of Matrics is :**

1 3 5

2 4 6

3 5 7

cout<<"Matrics is : "<<endl;

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

{

for(int j=0; j<col; j++)

{

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

}

cout<<endl;

}

cout<<"Transpose of Matrics is : "<<endl;

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

{

for(int j=0; j<rows; j++)

{

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

}

cout<<endl;

}

return 0;

}

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**Qs.No.10:- Write a C++ program to read the temperature of the whole week in an array and then find the hottest day of the week.**

**Ans:-**

#include<iostream>

using namespace std;

int main() {

int temp[7];

int max=0,hot=0;

cout<<"Enter 7 days Temperature: "<<endl;

for(int c=0; c<7; c++){ //this loop help to get 7 days temperature.

cout<<"Day "<<c+1<<" Temperature = ";

cin>>temp[c];

}

**// to find hottest day,so;**

for(int c=0; c<7; c++) { *//this loop help to find hottest day of the week.*

**OUTPUT:**

Enter 7 days Temperature:

Day 1 Temperature = 30

Day 2 Temperature = 35

Day 3 Temperature = 36

Day 4 Temperature = 38

Day 5 Temperature = 39

Day 6 Temperature = 40

Day 7 Temperature = 43

Hottest day of the Week is day 7

if(temp[c]>max) {

max=temp[c];

hot=c+1;

}

}

cout<<"Hottest day of the Week is day "<<hot;

return 0;

}

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**Qs.No.11:- Write a C++ program to read ten(10) alphabets of English from the keyboard into a character type array and then sort them in descending order.**

**Ans:-**

#include<iostream>

using namespace std;

int main() {

string str[10],temp;

cout<<"Enter 10 characters : "<<endl;

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

getline(cin,str[i]);

**OUTPUT:**

**Enter 10 characters :**

**a b c d e f g h i j**

**In Alphabetic Order :**

**j i h g f e d c b a**

}

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

for(int j=i+1; j<10; ++j) {

if(str[i]<str[j]) {

temp=str[i];

str[i]=str[j];

str[j]=temp;

}

}

cout<<"In Alphabetic Order : "<<endl;

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

cout<<str[i]<<endl;

}

return 0;

}

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**Qs.No.12:- Write a C++ program to find sum of the values of a two dimensional array int Test[2][3] and display the result on the screen.**

Ans:-

#include<iostream>

using namespace std;

int main()

{

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

int sum=0;

for(int i=0; i<2; i++ ) //0,1 for 2 rows.

{

for(int j=0; j<3; j++) //0,1,2 for 3 columns.

{

**sum=sum+test[i][j];**

*/\* sum=0+test[0][0] => sum=0+1 => sum=1,*

*then*

*sum=1+test[0][1] => sum=1+2 => sum=3,*

*then*

*sum=3+test[0][2] => sum=3+3 => sum=6,*

*. . .*

*sum=11+test[1][3] => sum=11+4 => sum=15. \*/*

**OUTPUT:**

Sum of Given Array is : 15

}

}

cout<<"Sum of Given Array is : "<<sum<<endl;

return 0;

}

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**END OF CHPTER NO : 05**