**Assignment A7**

/\*A magic square is an n \* n matrix of the integers 1 to n2 such that the sum of each row, column, and diagonal is the same. The figure given below is an example of magic square for case n=5. In this example, the common sum is 65. Write C/C++ Program for magic square.\*/

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**#include**<iostream>

**using** **namespace** std;

**class** magic\_square

{

**int** a[10][10];

**int** n;

**public**:

**magic\_square**()

{

cout<<"\nEnter n : ";

cin>>n;

}

**void** **get**()

{

cout<<"\nEnter the elements : ";

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

{

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

{

cin>>a[i][j];

}

}

}

**bool** **row**()

{

**int** sum[10];

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

{

sum[i]=0;

}

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

{

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

{

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

}

}

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

{

**if**(sum[0]!=sum[i])

**return** **false**;

}

**return** **true**;

}

**bool** **column**()

{

**int** sum[10];

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

{

sum[i]=0;

}

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

{

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

{

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

}

}

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

{

**if**(sum[0]!=sum[i])

**return** **false**;

}

**return** **true**;

}

**bool** **diagnol**()

{

**int** d1,d2;

d1=d2=0;

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

{

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

{

**if**(i==j)

d1=d1+a[i][j];

**if**(i+j==n-1)

d2=d2+a[i][j];

}

}

**if**(d1!=d2)

**return** **false**;

**return** **true**;

}

};

**int** **main**()

{

magic\_square m;

m.get();

**if**(m.diagnol() && m.row() && m.column())

cout<<"\nIt is a magic matrix !!";

**else**

cout<<"\nSoory !! It is not a magic matrix";

**return** 0;

}

===========================================================================

Output

Enter n : 5

Enter the elements : 15

8

1

24

17

16

14

7

5

23

22

20

13

6

4

3

21

19

12

10

9

2

25

18

11

It is a magic matrix !!