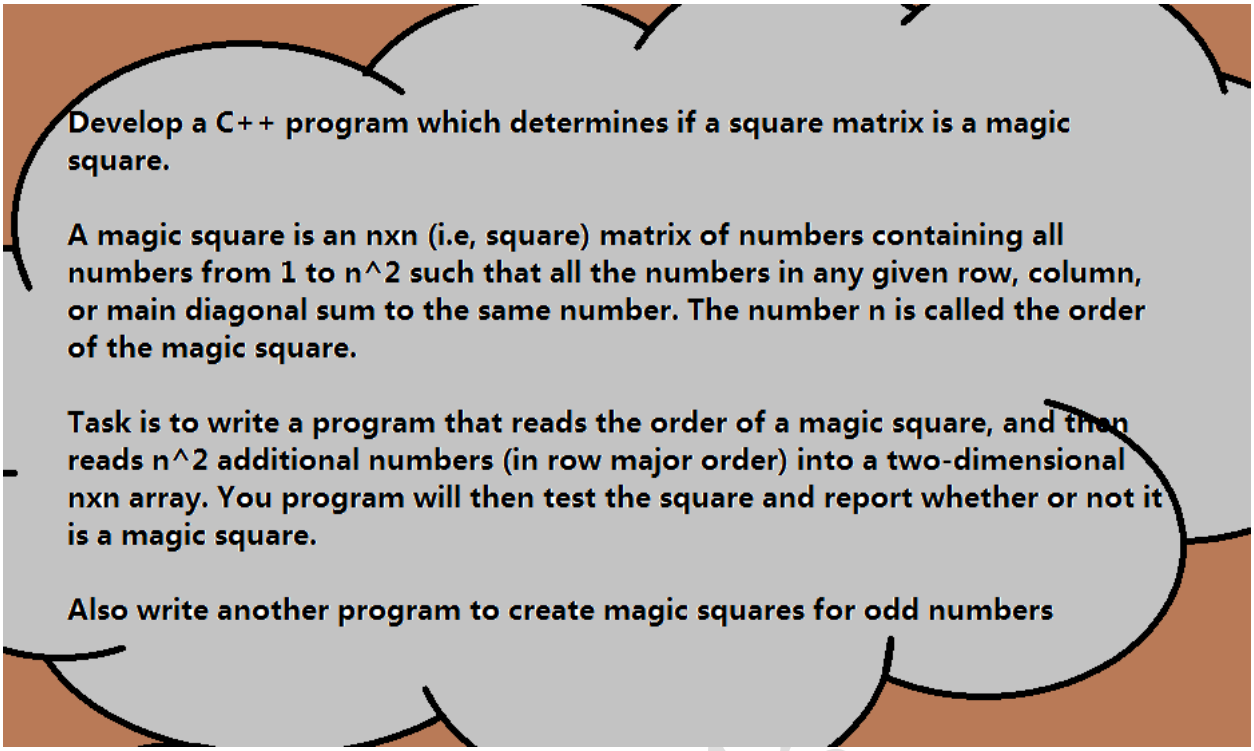
MAGIC SQUARE

Check if the entered matrix is magic square of not..

And generate magic squares

By DJVprogrammers



Code for checking if the entered square matrix is magic square or not

```
#include<iostream>

#include<conio.h>

using namespace std;

int main()

{

        int size;

        cout<<"\n\t=============================================\n\n";

        cout<<"\t\t\tMAGIC SQUARE\n";

        cout<<"\t=============================================\n\n";

        cout<<"\tEnter size of Magic Square : \t";
```

```
    cin>>size;
    int arr[size][size];
    int i,j,c1,c2;
    int check[2*size];
    for(i=0;i<2*size;i++)
  check[i]=0;


    cout<<"\n\t\tNo element should repeat\n\n";
    for(i=0;i<size;i++)
    {
            for(j=0;j<size;j++)
            {
                    xyz:
                    cout<<"\tEnter Element ["<<i<<"]["<<j<<"] : ";
                    cin>>arr[i][j];
                    for(c1=0;c1<i;c1++)
                    for(c2=0;c2<size;c2++)
                    if(arr[i][j]==arr[c1][c2])
                    goto xyz;
                    for(c1=0;c1<j;c1++)
                    if(arr[i][c1]==arr[i][j])
```

```
                goto xyz;
        }
}

for(c1=0,i=0;i<size;i++,c1++)
{
        for(j=0;j<size;j++)
        {
                check[c1]+=arr[i][j];
                check[c1+size]+=arr[j][i];
        }
}
c2=check[0];

for(c1=1;c1<(2*size)-1;c1++)
{
        if(c2!=check[c1])
        {
        cout<<"\n\tSquare  is not magic  square \n\n";
                cout<<"\n\tYOU  ENTERED  FOLLOWING SQUARE \n\n";
for(i=0;i<size;i++)
```

```
{
cout<<"\t\n\t";
for(j=0;j<size;j++)
{
        cout<<arr[i][j]<<"    ";
}
}
getch();
cout<<endl;
        return 0;
        }
}
cout<<"\n\tYeah...  you won... You entered a perfect Magic Square \n\n";
        cout<<"\n\tYOU  ENTERED  FOLLOWING SQUARE \n\n";
for(i=0;i<size;i++)
{
cout<<"\t\n\t";
for(j=0;j<size;j++)
{
        cout<<arr[i][j]<<"    ";
}
```

```
    }

    cout<<"\n\n\tSum of its each row and column is same = "<<check[0];

    getch();

    return 0;

}
```

```
==========================================

                MAGIC SQUARE
==========================================

Enter size of Magic Square( Must be ODD ) :     3

        No element should repeat

Enter Element [0][0] :  1
Enter Element [0][1] :  2
Enter Element [0][2] :  3
Enter Element [1][0] :  4
Enter Element [1][1] :  5
Enter Element [1][2] :  6
Enter Element [2][0] :  9
Enter Element [2][1] :  8
Enter Element [2][2] :  7

Square is not magic square


YOU ENTERED FOLLOWING SQUARE


1   2   3
4   5   6
9   8   7
```

```
================================================

                MAGIC SQUARE
================================================

Enter size of Magic Square( Must be ODD ) :     3

        No element should repeat

Enter Element [0][0] :  3
Enter Element [0][1] :  5
Enter Element [0][2] :  7
Enter Element [1][0] :  8
Enter Element [1][1] :  1
Enter Element [1][2] :  6
Enter Element [2][0] :  4
Enter Element [2][1] :  4
Enter Element [2][1] :  9
Enter Element [2][2] :  2

Yeah... you won... You entered a perfect Magic Square


YOU ENTERED FOLLOWING SQUARE


3   5   7
8   1   6
4   9   2

Sum of its each row and column is same = 15
```

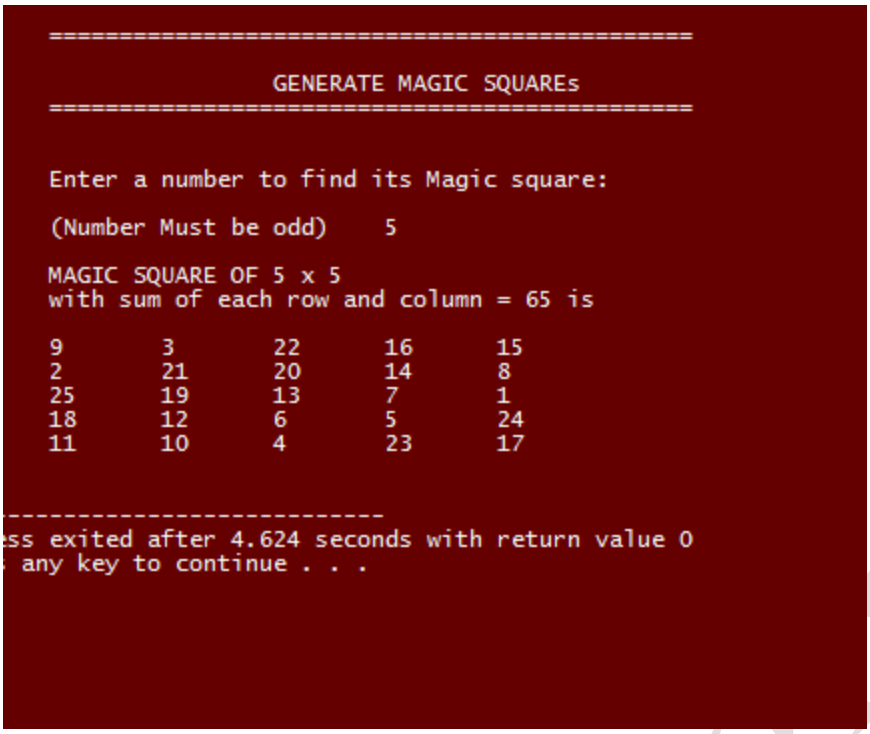
Code for generating magic squares

```
#include<iostream>

#include<conio.h>

using namespace std;

int main()

{

        cout<<"\n\t=============================================\n\n";

        cout<<"\t\t\tGENERATE MAGIC SQUAREs\n";

        cout<<"\t=============================================\n\n";

   int n;

        do
```

```
        {
        cout<<"\n\tEnter  a number  to find  its  Magic square:\n";
        cout<<"\n\t(Number  Must be odd) \t";
        cin>>n;
        }
        while(n%2==0);
        int  m[n][n];
        int  i,j;
        for(i=0;i<n;i++)
        for(j=0;j<n;j++)
        m[i][j]=0;
  i = n/2;
  j = n-1;
  //assign  values
  for (int  num=1;  num <= n*n;  )
  {
     if (i==-1 && j==n)
     {
        j = n-2;
        i = 0;
     }
```

```
    else
    {
       if (j == n)
          j = 0;
       if (i < 0)
          i=n-1;
    }
    if (m[i][j]!=0)
    {
       j -= 2;
       i++;
       continue;
    }
    else
       m[i][j]  = num++;

    j++; i--;
}

// Print magic square
```

```
    cout<<"\n\tMAGIC  SQUARE OF "<<n<<"  x "<<n <<"\n\twith  sum of each row and column
= "<<n*(n*n+1)/2<<"  is  \n\n";

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

    {

    cout<<"\t";

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

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

      cout<<endl;

    }

    cout<<endl;

  getch();

    return  0;

}
```



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