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diary on
format compact
%Johnny Li
%EEL3135      Fall 2018
%Lab 0 Part 2

%2.2
type magicsquare

function [square] = magicsquare(n)
%MAGICSQUARE: Generate magic square of size n using Siamese method.
%n must be greater or equal to 3. n must be odd.

if(n<3)
    disp('Input is less than 3.');
```

%Check if n is less than 3, the function must raise an error.

```
    return
end
if abs(n-floor(n))>0
    disp('The input was not a integer.');
```

%Check if the input is a integer, if not return error.

```
    return
end
if mod(n,2)==0
    disp('Input is even integer.');
```

%Check if the input is odd, if not return error.

```
    return
end

square=zeros(n);
%Create a nxn zero matrix, intial setup.

x=1;                %Rows
y=(n-1)/2 + 1;      %Columns
%Starting position as given.

for t=1:1:n^2
    %Loop for all values.
    square(x,y)=t;
    %Insert value into square matrix

    x=x-1;
    y=y+1;
    %Reposition.

    if (x>=1 && y>n)
        y=1;
        %If n hits max columns, more back to the first columns.
    elseif(x<1 && y<=n)
        x=n;
        %If n hits zero row, more back to the bottom last row.
    elseif ((x<1 && y>n) || square(x,y)~=0)
        x=x+2;
        y=y-1;
        %If the position is already filled, move down one.
    end
end
end

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        end
    end
end

magicsquare(1)
Input is less than 3.
magicsquare(2)
Input is less than 3.
magicsquare(4)
Input is even integer.
magicsquare(6)
Input is even integer.
magicsquare(3.5)
The input was not a integer.
magicsquare(7.9)
The input was not a integer.
magicsquare(3)
ans =
     8     1     6
     3     5     7
     4     9     2
magicsquare(5)
ans =
    17    24     1     8    15
    23     5     7    14    16
     4     6    13    20    22
    10    12    19    21     3
    11    18    25     2     9
diary off

```