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Matrix Operations

Matlab Assignment 1

# Problem Statement:

1- Generate the following sequence: V=1 4 9 16 25 ....................................... 16 9 4 1

Where V is a sequence of length of 49 elements.

2- For the previous generated sequence V:

a) Add 2 to the last 3 elements.

b) Reverse the order of the last 10 elements.

c) For the first 48 elements, add the elements in the even places to that in

the odd places and store the output in the odd places.

3-An array M is defined by

Use the appropriate indexing techniques to:

a) Reflect array (M) left-side right,

b) Reflect array (M) upside down,

c) Swap columns 2 and 3 of array (M),

d) Swap rows 1 and 4 of array (M),

e) Shuffle the rows of (M) from [1 2 3 4] to [1 3 4 2]

f) shuffle the columns of (M) from [1 2 3 4] to [3 2 4 1].

# Source Code:

%%%%%%%%%%%%%% Question 1 %%%%%%%%%%%%%%

for i=1:1:25

v(1,i)=i^2;

end

for i=24:-1:1

v(1, 50-i)=i^2;

end

v

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%%%%%%%%%%%%%% Question 2 %%%%%%%%%%%%%%

%% a)

v(end-2)+=2;

v(end-1)+=2;

v(end)+=2;

v

%% b)

v(1, (end-9:end)) = flip(v(1, (end-9:end)))

%% c)

for i=2:2:48

v(1,i-1)+=v(1,i);

end

v

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%%%%%%%%%%%%%% Question 3 %%%%%%%%%%%%%%

M = [1 2 3 4; -1 -2 -3 -4; 1 2 3 4; -1 -2 -3 -4]

%% a)

reflect\_lr = fliplr(M)

%% b)

reflect\_up\_down = M([4 3 2 1], :)

%% c)

swap\_col = M(:, [1 3 2 4])

%% d)

swap\_row = M([4 2 3 1],:)

%% e)

shuffle\_row = M([1 3 4 2], :)

%% f)

shuffle\_col = M(:, [3 2 4 1])

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Results:

>> DSPMatlab1







