Question 1.1 Perform the given commands

 Let a=[1 4 3;4 2 6 ;7 8 9]

 Determinant of matrix a. det(a) = ?

 Inverse of matrix a. inv(a) = ?

 Transpose of matrix a. a’ = ?

 A row vector containing the minimum element from each column of a. min(a) = ?

 The smallest element in matrix a. min(min(a)) = ?

 A row vector containing the maximum element from each column of a. max(a) = ?

 The max element from matrix a. max(max(a)) = ?

 Bitwise calculate the square of each element of matrix a. a.^2 = ?

 Treats the columns of ‘a’ as vectors, returning a row vector of the sums of each column. sum (a) = ?

 Sum of all the elements in the matrix. sum(sum(a)) = ?

 Give the number or rows and the number of columns of matrix a. size (a) = ?

 Let a =[ 4 5 6] , find the number of elements in row vector. length(a) = ?

 Explain a(1:2,1:2), a(2:1) and a(3).

% Create the matrix a

a = [1 4 3; 4 2 6; 7 8 9];

% Calculate determinant, inverse, and transpose

determinant\_a = det(a);

inverse\_a = inv(a);

transpose\_a = a';

% Find row vectors of minimum and maximum elements, and smallest and largest elements

min\_elements = min(a);

max\_elements = max(a);

smallest\_element = min(min(a));

largest\_element = max(max(a));

% Calculate element-wise square, sum of each column, and sum of all elements

squared\_a = a.^2;

column\_sums = sum(a);

total\_sum = sum(sum(a));

% Get matrix dimensions

[rows, columns] = size(a);

% Create a row vector

b = [4 5 6];

% Display results

disp('Determinant of a:');

disp(determinant\_a);

disp('Inverse of a:');

disp(inverse\_a);

disp('Transpose of a:');

disp(transpose\_a);

disp('Minimum elements in each column:');

disp(min\_elements);

disp('Smallest element in the matrix:');

disp(smallest\_element);

disp('Maximum elements in each column:');

disp(max\_elements);

disp('Largest element in the matrix:');

disp(largest\_element);

disp('Element-wise square of a:');

disp(squared\_a);

disp('Sum of each column:');

disp(column\_sums);

disp('Sum of all elements:');

disp(total\_sum);

disp('Number of rows:');

disp(rows);

disp('Number of columns:');

disp(columns);

% Explain sub-matrix operations

disp('Explanation of sub-matrix operations:');

a(1:2, 1:2)

disp('- a(1:2, 1:2): Selects elements from rows 1 and 2, and columns 1 and 2.');

a(1:2)

disp('- a(1:2): Select the range of element starting from the 1st coloumn 1st element to the 2nd element .');

a(3)

disp('- a(3): Selects the third element in the row vector b, which is 6.');