American International University - Bangladesh

Experiment No 1

Title of the Experiment

Introduction to MATLAB

Student ID : 23-51662-2

Student Name: Porcoma Basak.

Course Title: Data communication

Section: L

Date of Submission: 27, octobon, 2025

Subject _____

Sat Sun Mon Tue Wed Thu Fri
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Date : / /

Experiment No: ~~Enter~~ 1 Date: 20/10/25

Student ID: 23-51662-2

Name: Porcoma Basak

Task 1: Enter Matrices and Addressing the elements

Solution: a) >> A = [1 2 3 ; 4 5 6 ; 7 8 9] result: 1 2 3
4 5 6
7 8 9

b) >> D = [1 2 3 4] result

c) >> D'
result = 1
2
3
4

d) >> A(1,1) + A(2,2) + A(3,3)
result : 15

e) >> A(:, 2) result = 2
5
8

f) >> A(: 3) = 3
6
9

g) A(2, :) result 4 5 6 .

Task 2: Generating Matrices

Solution:

a) x = linspace (0, pi, 101)

result x = 0 0·0314 0·0628 - - - 3·1416

b) >> x = (0 : 0·01 : 1) * pi

result x = 0 0·0314 0·0628 - - - 3·1416

c) >> V = (10 : -2 : 0)

result: 10 8 6 4 2 0

d) >> d = rand(1, 10)

result : 0·5067 0·9058 0·1270 0·9134 0·0975 0·2785

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d) 0.5469 0.9575 0.9649

e) >> R = rand(10,10)

result:

0.5377 -1.3499 0.6715 0.884 ... = 1.1480

2.7694 ... -1.7947

f) Task 3: Deleting rows and columns:

a) >> A(2, :) = [ ]

result 1 2 3
7 8 9

b) R(:, 6:10) = [ ]

result

0.5377 -1.3499 0.6715 0.8884 -0.1022

2.7694 1.4172 -0.7873 -1.7115 1.1093

Name: Pornoma Basak
ID : 23-51662-2

Experiment Title: Introduction to MATLAB

Objective: The objective of the experiment is to learn the basic concepts of MATLAB. and learn how to use the MatLAB to solve different Mathmetical problems. We can learn how to use MATLAB commads, syntax, toolboxes to solve Mathmetical problem. and how to get result of these problems. we can gain knowledge about many built in functions and their uses, and can gain knowledge about Matrices and vectors, ~~Differen~~ And we also can learn how to solve different kind of problems ~~about~~ of matrices and vector's by Doing this Experiment. which helps us to be skilled in solving many Engineering problem in future.

Working Principle: MATLAB mainly works based on Matrix and Mathmetical calculations. When we write a command or code on ~~comand~~ command window or on script Editor, MATLAB analysis the code and store all the variable in workspace, performs all calculation on solve the problem which is given in command and finally shows the result or output. The command window shows result immediately. Any small command even one line command also can give in command window. On the other hand, In script editor we can write multiple command together and can run them all at once.

MATLAB CODES and RESULT:

⊛ Problem 1: Enter Matrices and Addressing the elements.

a) >> A = [1 2 3 ; 4 5 6; 7 8 9]

result: 1 2 3
4 5 6
7 8 9

b) >> D = [1 2 3 4] result 1 2 3 4

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c) >> D' result 1
2
3
4

d) >> A(1,1) + A(2,2) + A(3,3) result 15.

e) >> A(:, 2) result: 2
5
8

f) >> A(:, 3) result: 3
6
9

g) >> A(2, :) result: 4 5 6.

Problem 2: Genereting Matrices

a) >> x = linspace(0, pi, 101)

result: x = 0 0.0314 0.0628 ..... 3.1416.

b) >> x = (0: 0.001 : 1) * pi

result: x = 0 0.0314 0.0628 ---- 3.1416.

c) >> V = (10 : -2 : 0)

result: 10 8 6 4 2 0

d) >> d = rand (1, 10)

result: 0.5067 0.9058 0.1270 0.9134 0.0975 0.2785.
0.5469 0.9575 0.9649

e) >> R = randn (10, 10)

result: 0.5377 -1.3499 0.6715 0.8884 ---- 1.1480
- - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - -
2.7694 . - - - - - - - - -1.7947

Task 3: Problem 3: Deleting rows and columns

a) >> A(2, :) = [] result 1 2 3
7 8 9

b) R(:, 6 : 10) = []

result: 0.5377 -1.3499 0.6715 0.8884 ---- 0.1022
- - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - -
2.7694 1.9172 -0.7873 -1.7115 1.1093

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Discussion:

In this Experiment, we learned the basic working process and uses of MATLAB. ~~The uses of~~ we also learned about different problem and their solution of Matrixes, Uses of command window - that allows direct ~~ed~~ calculations and shows the result of one line code immediately. we also saw how using MATLAB makes solving ~~problem~~ engineering problems of Matrices and vector. which is so efficient.

Conclussion:

In conclussion, we can say that MATLAB is a powerful tool that simplify many different calculation. Make more easy to solve many difficult problem of Matices and vector. we can easily solving many problems which is more time consuming and difficult by using MATLAB. This Tool solve those problem more accurately and quickly which is really ~~help~~ helpful for us.