Islamic University of Technology (IUT)

Organization of Islamic Cooperation (OIC)

Department of Electrical and Electronic Engineering (EEE)

EEE 4416: Simulation Lab

Lab – 02 Assignment

Exercise - 01

Problem statement: Whole number

Check whether the given number is a whole number or not. A whole is a number without fractions, an integer.

Take the numbers given in the following test cases as input (using prompt) individually and return ***logical 0 or 1 as output.***

Test Case - 01

- Input: 15
- Output: true

Test case – 02

- Input: 15.0004
- Output: false

Test case – 03

- Input: pi
- Output: false

Test case – 04

- Input: [10, 2.7, -0.44, -5]
- Output: [1, 0, 0, 1]

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Exercise – 02*

Problem statement: Number to Vector

Given a number, convert it into a row vector (1D array).

Take the numbers given in the following test cases as input (using prompt) individually and return ***an array as output.***

Test Case - 01

- Input: 15
- Output: [1, 5]

Test case – 02

- Input: 15.0004
- Output: [1, 5, 0, 0, 0, 4]

Test case – 03

- Input: -2
- Output: 2

Test case – 04

- Input: 1234
- Output: [1, 2, 3, 4]

Test case – 05

- Input: -1234
- Output: [1, 2, 3, 4]

Test case – 06

- Input: -12.34
- Output: [1, 2, 3, 4]

***Hint:** try the following statement. How does it work? Will be discussed in the class.

num2str(123) - '0'

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Exercise – 03

Problem statement: Matrix to Vector

Given a matrix or cell array, convert it into a row vector (1D array). Elements should be considered column-wise.

Take the matrices given in the following test cases as input (directly in a variable – no need to use a user prompt) and return ***an array as output.***

Test Case - 01

- Input: [10, 20; 30, 40]
- Output: [10, 30, 20, 40]

Test case – 02

- Input: magic(3)
- Output: [8 3 4 1 5 9 6 7 2]

Test case – 03

- Input: num2cell(magic(3))
- Output: [8 3 4 1 5 9 6 7 2]

Test case – 04

- Input: {4, 6, 7, 1}
- Output: [4, 6, 7, 1]

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Exercise - 04

Problem statement:

Given an array, extract only the positive elements from that array.

Take the arrays given in the following test cases as input (directly in a variable – no need to use a user prompt) and return ***an array as output.***

Test Case - 01

- Input: [10, 20, -30, -40]
- Output: [10, 20]

Test case – 02

- Input: [2, -5, -8; 3, -4, 10]
- Output: [2 3 10]

Test case – 03

- Input: zeros(7)
- Output: [ ]

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Exercise - 05

Problem Statement: Phrase to Acronym

Given a string containing multiple words separated by spaces, convert it into an acronym by taking the first letter of each word and forming a new lowercase string.

Take the string as input from the user. The acronym should be returned as a string.

Test Case - 01

- Input: "laughing out loud"
- Output: “lol”

Test Case - 02

- Input: "World Wide Web"
- Output: “www”

Test Case - 03

- Input: "As Soon As Possible"
- Output: “asap”

Hint:

Use the find function to locate the positions of spaces in the string.

Then extract the first character after each space, along with the first character of the string, to build the acronym.

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Exercise - 06

Problem Statement: Remove the comma

Given a character array, remove all the commas from the array.

Test Case - 01

- Input: ‘Hello, dear, old friend’.
- Output: ‘Hello dear old friend’.

Test case – 02

- Input: ‘rose, lily, iris, orchid’
- Output: ‘rose lily iris orchid’

Test case – 03

- Input: ‘Logan you still have time’
- Output: ‘Logan you still have time’

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