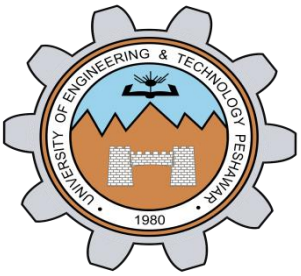
Lab Report No 1



Digital Signal Processing

Submitted By: Ali Asghar

Registration No: 21PWCSE2059

Section: C

"On my honor , as student of University of Engineering and Technology, I have neither given nor received unauthorized assistance on this academic work"

Student Signature:

Department of Computer Systems Engineering

University of Engineering and Technology Peshawar

CSE 402L: Digital Signal Processing

Demonstration of Concepts	**Poor (Does not meet expectation (1))** The student failed to demonstrate a clear understanding of the assignment concepts	**Fair (Meet Expectation (2-3))** The student demonstrated a clear understanding of some of the assignment concepts	**Good (Exceeds Expectation (4-5)** The student demonstrated a clear understanding of the assignment concepts	**Score** **30%**
Accuracy	The student completed (<50%) tasks and provided MATLAB code and/or Simulink models with errors. Outputs shown are not correct in form of graphs (no labels) and/or tables along with incorrect analysis or remarks.	The student completed partial tasks (50% - <90%) with accurate MATLAB code and/or Simulink models. Correct outputs are shown in form of graphs (without labels) and/or tables along with correct analysis or remarks.	The student completed all required tasks (90%-100%) with accurate MATLAB code and/or Simulink models. Correct outputs are shown in form of labeled graphs and/or tables along with correct analysis or remarks.	**30%**
Following Directions	The student clearly failed to follow the verbal and written instructions to successfully complete the lab	The student failed to follow the some of the verbal and written instructions to successfully complete all requirements of the lab	The student followed the verbal and written instructions to successfully complete requirements of the lab	**20%**
Time Utilization	The student failed to complete even part of the lab in the allotted amount of time	The student failed to complete the entire lab in the allotted amount of time	The student completed the lab in its entirety in the allotted amount of time	**20%**

Lab 1: Matlab Training

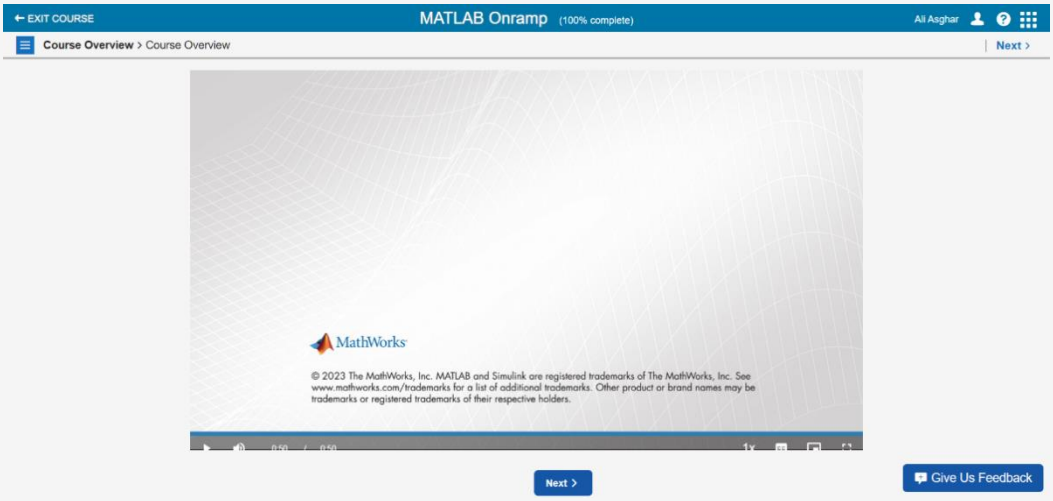
Visit the following website: https://www.mathworks.com/learn/tutorials/matlab-onramp.html

and perform the following tasks and attach the Certificate acquired from MathWorks as part of the lab Report

1. Course Overview

a. Objective: Familiarize yourself with the course.

b. Remarks along with final snapshot

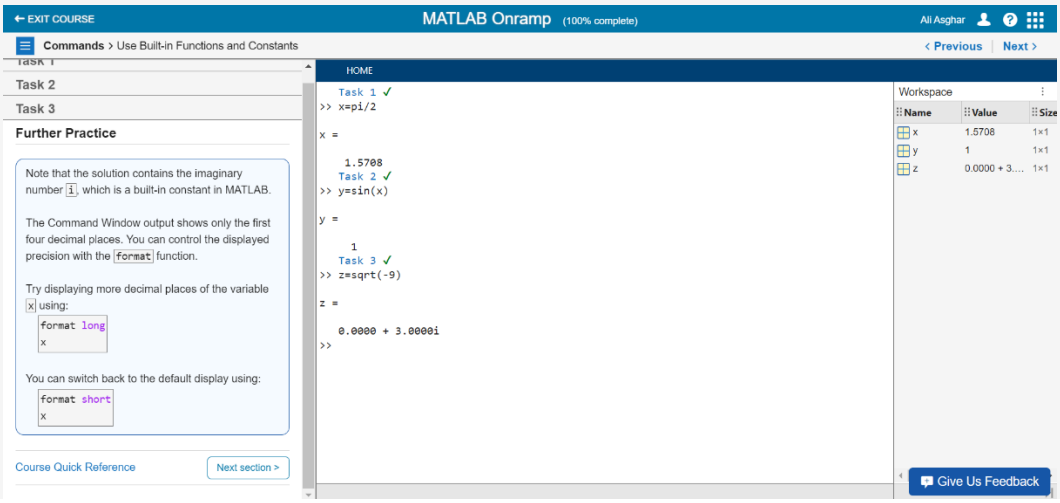


Remarks: I learned about the content of this course.

2. Commands

a. Objective: Enter commands in MATLAB to perform calculations and create variables.

b. Remarks along with final snapshot

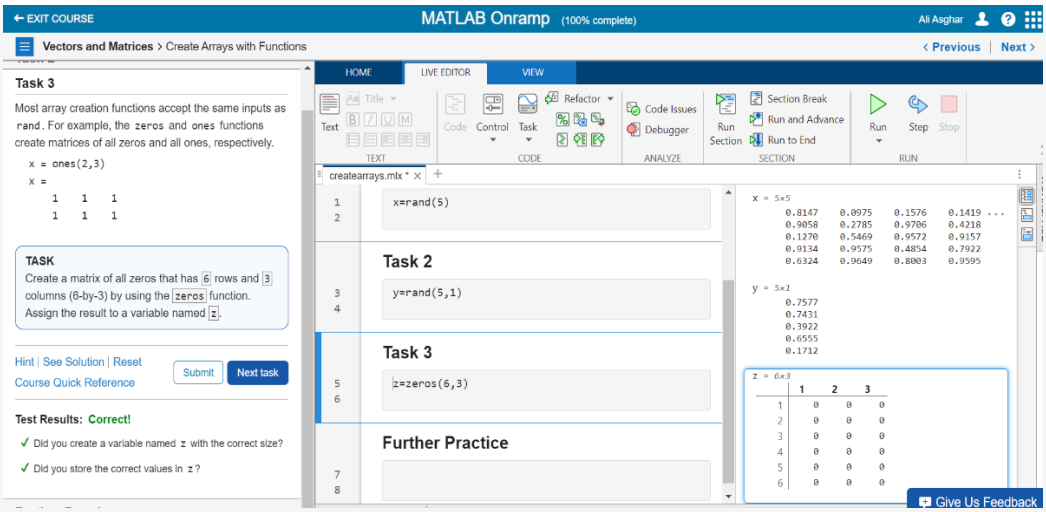


Remarks: I learned about basic commands of MATLAB in this introductory module.

3. Vectors and Matrices

a. Objective: Create MATLAB variables that contain multiple elements.

b. Remarks along with final snapshot

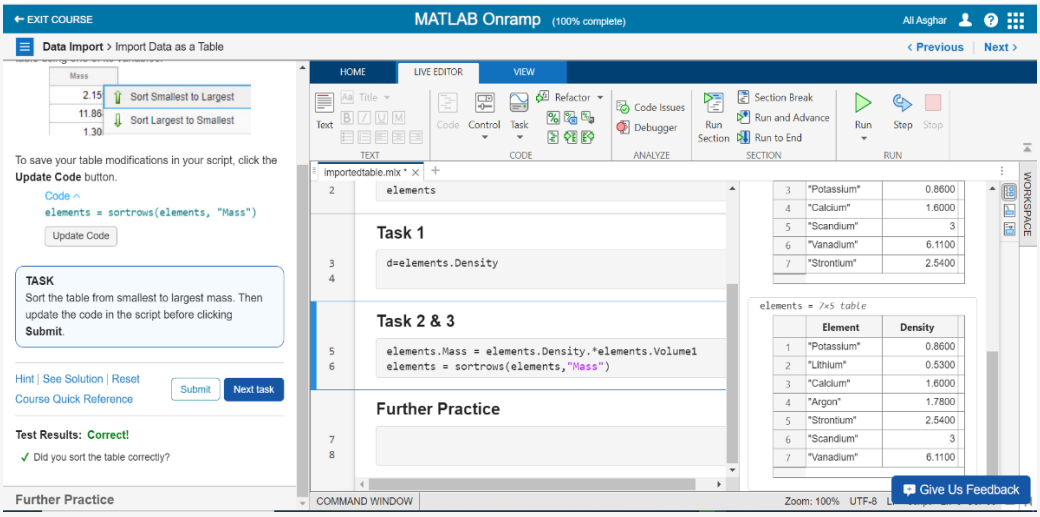


Remarks: In this module, I performed some operations on Vectors and Matrices in MATLAB. I got familiar with Vectors and Matrices manipulation.

4. Importing Data

a. Objective: Bring data from external files into MATLAB.

b. Remarks along with final snapshot

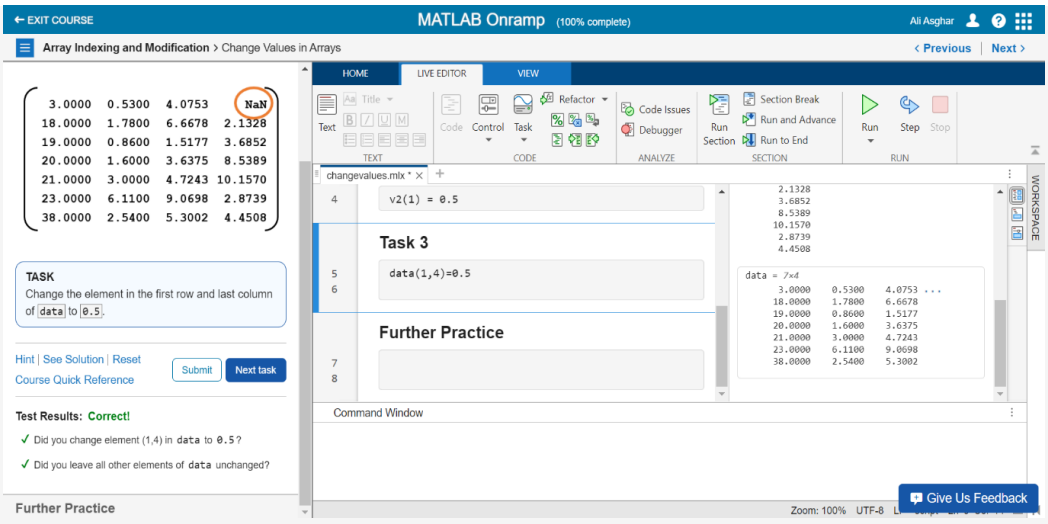


Remarks: I learned about importing data from external files in MATLAB in this module.

5. Indexing into and Modifying Arrays

a. Use indexing to extract and modify rows, columns, and elements of MATLAB arrays.

b. Remarks along with final snapshot

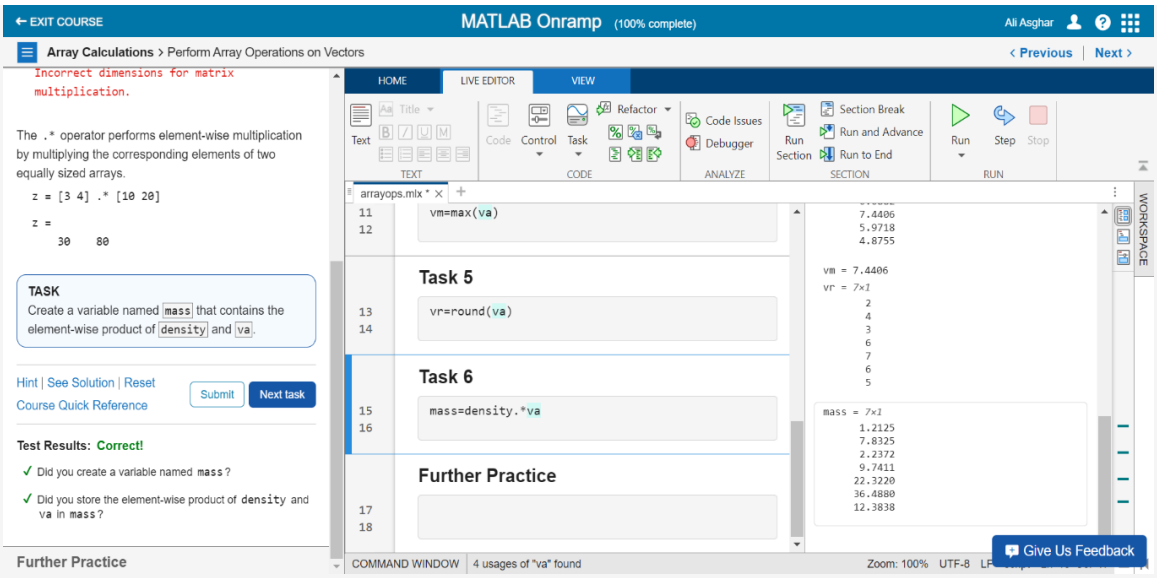


Remarks: I learned the technique of array indexing to extract and modify rows, columns, and elements of MATLAB arrays.

6. Array Calculations

a. Objective: Perform calculations on entire arrays at once.

b. Remarks along with final snapshot

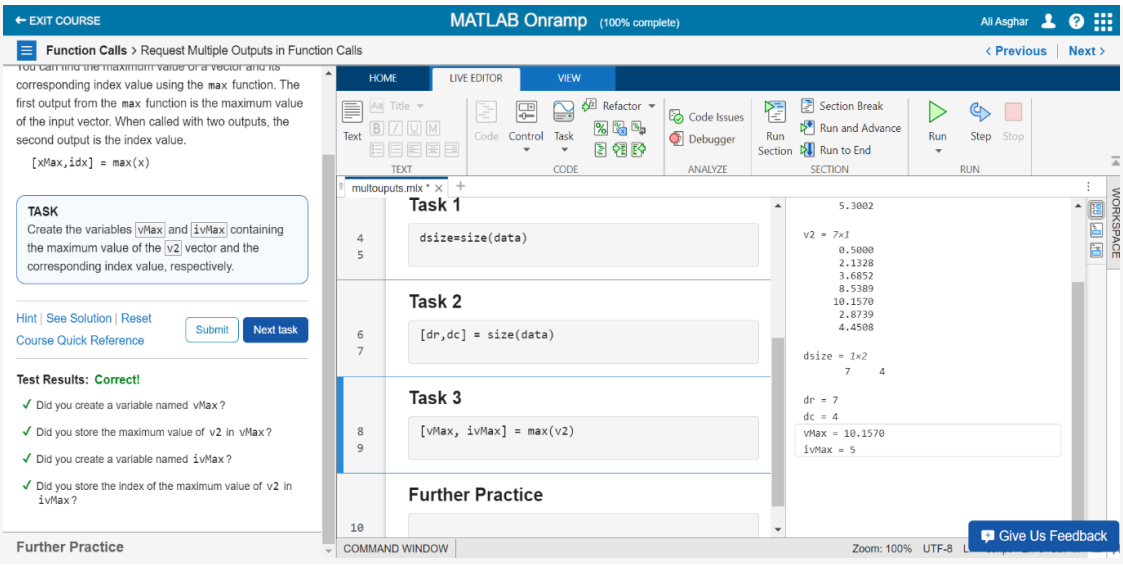


Remarks: I learned some quick matrix operations in MATLAB. Some worth mentioning are scalar and element-wise multiplication.

7. Calling Functions

a. Objective: Call functions to obtain multiple outputs

b. Remarks along with final snapshot

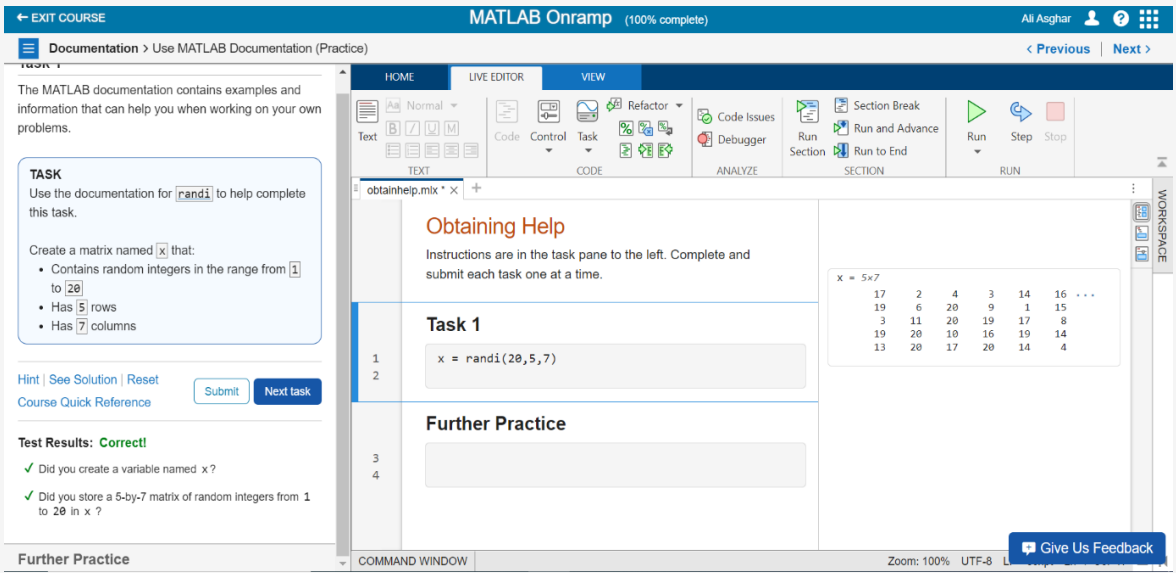


Remarks: I learned how to get multiple return values from built-in functions.

8. Obtaining Help

a. Objective: Use the MATLAB documentation to discover information about MATLAB features.

b. Remarks along with final snapshot

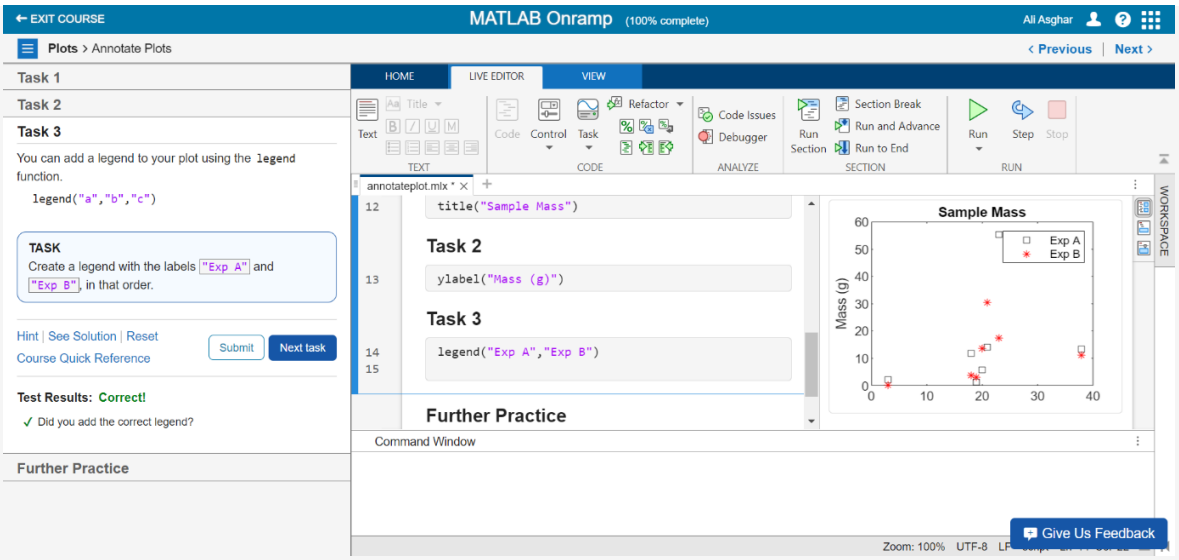


Remarks: I learned how get help from MATLAB's online documentation.

9. Plotting Data

a. Visualize variables using MATLAB's plotting functions.

b. Remarks along with final snapshot

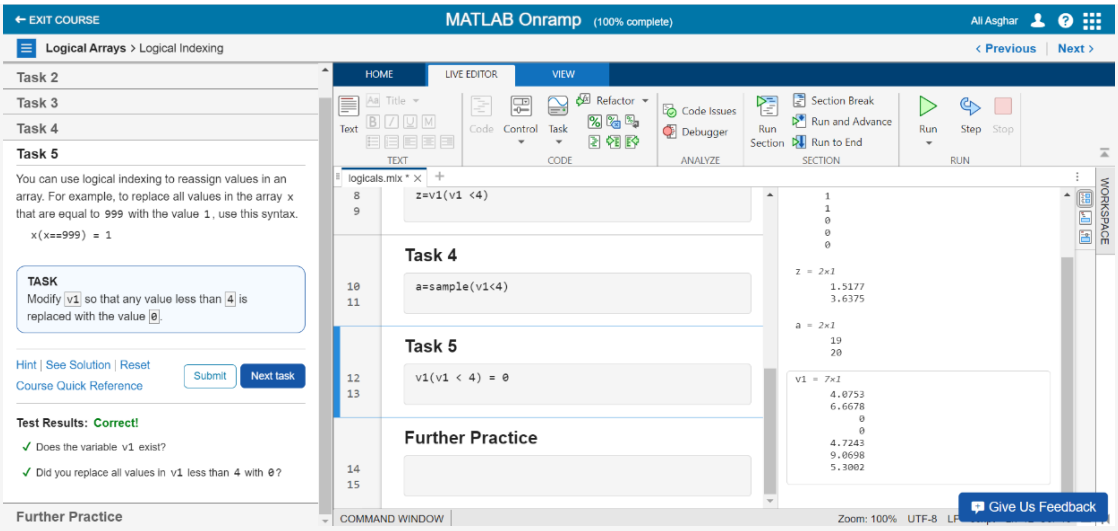


Remarks: I learned how to plot data using different styles.

10. Logical Arrays

a. Objective: Use logical expressions to help you to extract elements of interest from MATLAB arrays.

b. Remarks along with final snapshot

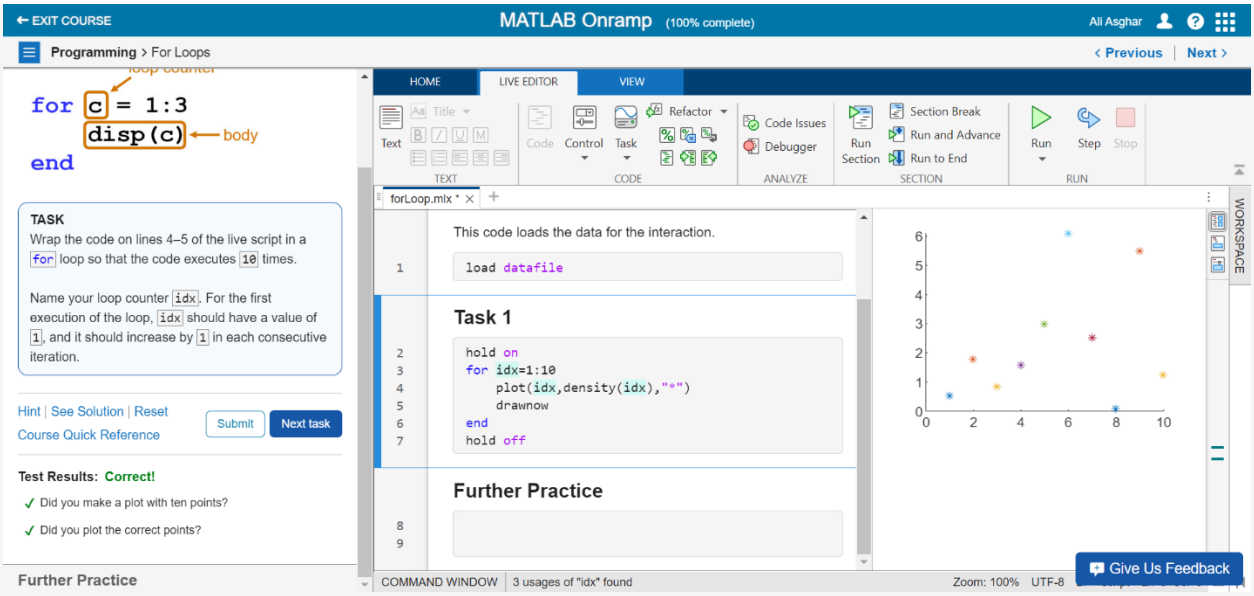


Remarks: I acquired the ability to utilize relational operators and logical indexing in MATLAB arrays to extract specific elements of interest.

11. Programming

a. Objective: Write programs that execute code based upon some condition.

b. Remarks along with final snapshot

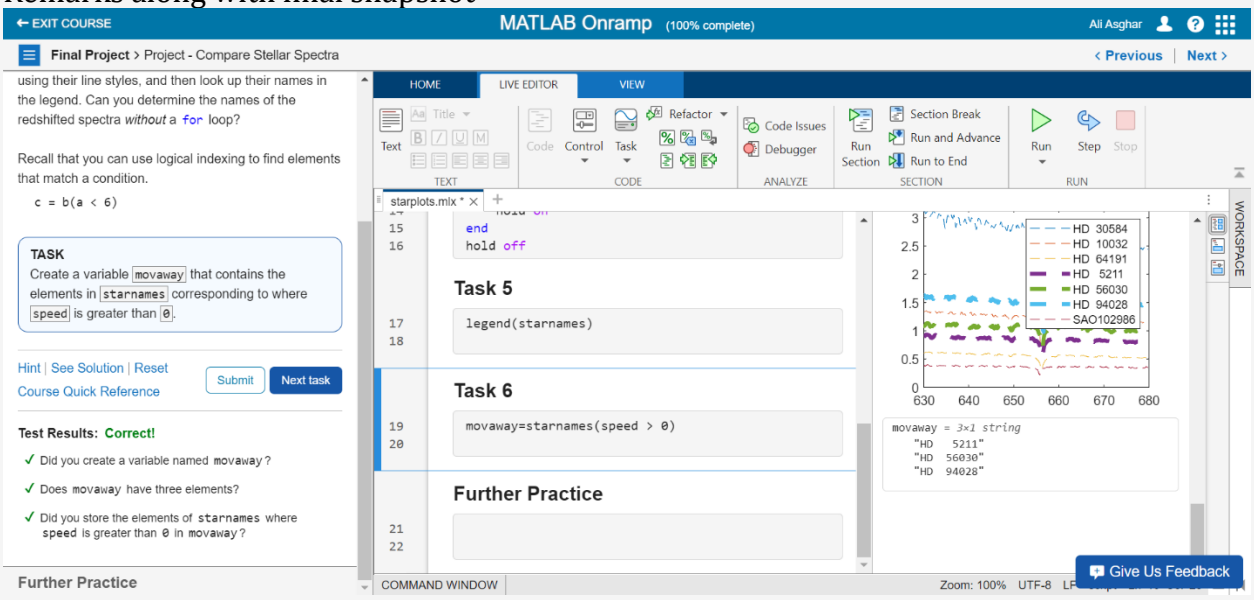


Remarks: I learned how to use branching(if-else) and loops in MATLAB.

12. Final Project

a. Objective: Bring together concepts that you have learned with a project.

b. Remarks along with final snapshot



Remarks: Lastly, I brought all the pieces together and completed the final project.

13. MathWorks Certificate

MathWorks | Training Services

Course Completion Certificate

Ali Asghar

has successfully completed **100%** of the self-paced training course

MATLAB Onramp

DIRECTOR, TRAINING SERVICES

26 September 2023