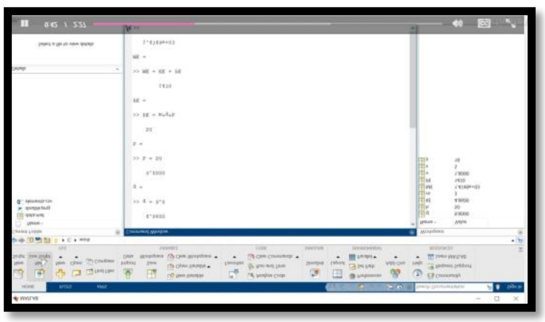
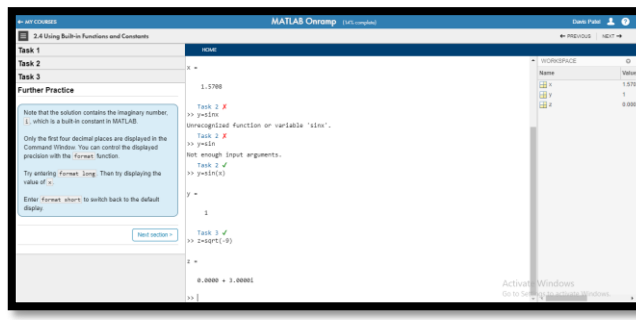
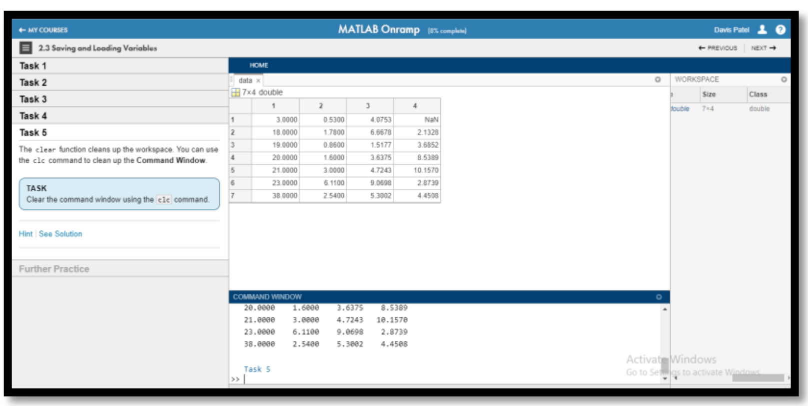
DAILY ASSESSMENT

Date:	**06/07/2020**	**Name:**	**Davis S. Patel**
Course:	**Matlab Onramp**	**USN:**	**4AL16EC045**
Topic:	**Course Overview Commands MATLAB Desktop and Editor Vectors and Matrices**	**Semester & Section:**	**8th - A**
GitHub Repository:	**Davis**		

FORENOON SESSION DETAILS
Image of session







REPORT –

MATLAB (matrix laboratory) is a multi-paradigm numerical computing environment and proprietary programming language developed by MathWorks. MATLAB allows matrix manipulations, plotting of functions and data, implementation of algorithms, creation of user interfaces, and interfacing with programs written in other languages.

Although MATLAB is intended primarily for numerical computing, an optional toolbox uses the MuPAD symbolic engine allowing access to symbolic computing abilities. An additional package, Simulink, adds graphical multi-domain simulation and model-based design for dynamic and embedded systems.

MATLAB is an interactive program for numerical computation and data visualization. We can enter a command by typing it at the MATLAB prompt '>>' on the **Command Window**.

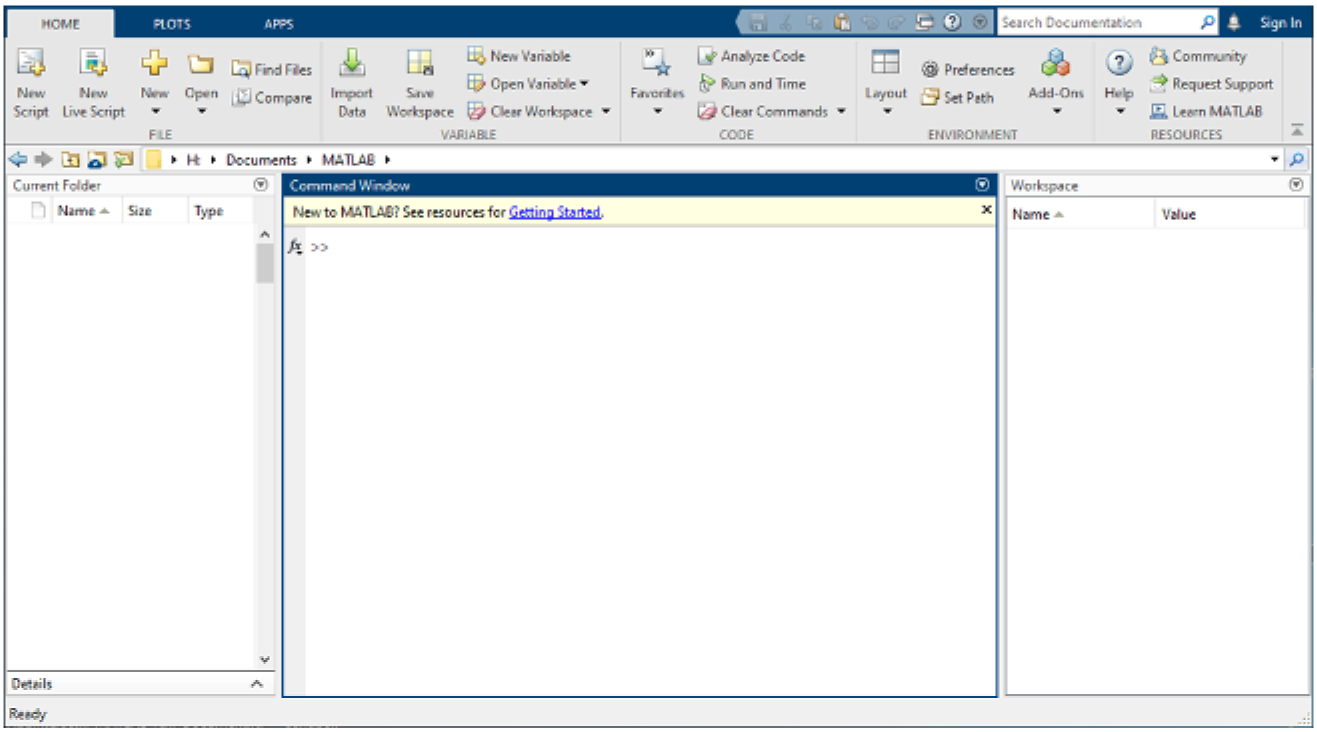
Lists of commonly used general MATLAB commands.

MATLAB provides various commands for managing a session. The following table provides all such commands −

Command	Purpose
clc	Clears command window.
clear	Removes variables from memory.
exist	Checks for existence of file or variable.
global	Declares variables to be global.
help	Searches for a help topic.
lookfor	Searches help entries for a keyword.

quit	Stops MATLAB.
who	Lists current variables.
whos	Lists current variables (long display).

When you start MATLAB®, the desktop appears in its default layout.



The desktop includes these panels:

- **Current Folder** — Access your files.
- **Command Window** — Enter commands at the command line, indicated by the prompt (>>).
- **Workspace** — Explore data that you create or import from files.

Vectors and matrices combine separate scalar data into a single, multidimensional signal. Modify individual elements or perform arithmetic on entire vectors and matrices.

Define Vector and Matrix Data

- Add a data object to your chart, as described in Add Stateflow Data.
- Set the Size property for the data object as the dimensions of the vector or matrix. For example:
    - To specify a 4-by-1 column vector, enter 4.
    - To specify a 1-by-4 row vector, enter [1 4].
    - To specify a 3-by-3 matrix, enter [3 3].
- Set the Initial value property for the data object. See Initial Value.
    - To specify a value of zero for all elements of the vector or matrix, leave the Initial value empty. If you do not specify an initial value, all elements are initialized to 0.
    - To specify the same value for all elements of the vector or matrix, enter a scalar value. All elements are initialized to the scalar value you specify.
    - To specify a different value for each element of the vector or matrix, enter an array of real values. For example:
        - To initialize a 4-by-1 column vector, you can enter [1; 2; 3; 4].
        - To initialize a 1-by-4 row vector, you can enter [1 2 3 4].
        - To initialize a 3-by-3 matrix, you can enter [1 2 3; 4 5 6; 7 8 9].
- Set the name, scope, base type, and other properties for the data object, as described in Set Data Properties.

DAILY ASSESSMENT

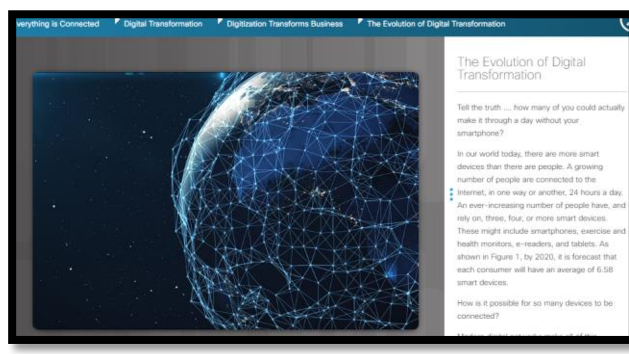
Date:	**06/07/2020**	**Name:**	**Davis S. Patel**
Course:	**Cisco Certification Course: Introduction to Internet of Things**	**USN:**	**4AL16EC045**
Topic:	**Everything is Connected**	**Semester & Section:**	**8th - A**
GitHub Repository:	**Davis**		

AFTERNOON SESSION DETAILS

Image of Session

	Attempt	Time	Score
LATEST	Attempt 1	32 minutes	30 out of 30

Submitted Jul 6 at 7:49am



REPORT –

The Internet of Things (IoT) is a system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction. An internet connection is a wonderful thing, it give us all sorts of benefits that just weren't possible before. If you're old enough, think of your cell phone before it was a smartphone. You could call and you could text, sure, but now you can read any book, watch any movie, or listen to any song all in the palm of your hand.

The point is that connecting things to the internet yields many amazing benefits. We've all seen these benefits with our smartphones, laptops, and tablets, but this is true for everything else too. And yes, we do mean everything.

The Internet of Things is actually a pretty simple concept, it means taking all the physical places and things in the world and connecting them to the internet.

Confusion arises not because the concept is so narrow and tightly defined, but rather because it's so broad and loosely defined. It can be hard to nail down the concept in your head when there are so many examples and possibilities in IoT.

The Internet of Things may be a hot topic in the industry but it's not a new concept. In the early 2000's, Kevin Ashton was laying the groundwork for what would become the Internet of Things (IoT) at MIT's AutoID lab. Ashton was one of the pioneers who conceived this notion as he searched for ways that Proctor & Gamble could improve its business by linking RFID information to the Internet. The concept was simple but powerful. If all objects in daily life were equipped with identifiers and wireless connectivity, these objects could be communicate with each other and be managed by computers. In a 1999 article for the RFID Journal Ashton wrote: "If we had computers that knew everything there was to know about things—using data they gathered without any help from us -- we would be able to track and count everything, and greatly reduce waste, loss and cost. We would know when things needed replacing, repairing or recalling, and whether they were fresh or past their best. We need to empower computers with their own means of gathering information, so they can see, hear and smell the world for themselves, in all its random glory. RFID and sensor technology enable computers to observe, identify and understand the world—without the limitations of human-entered data.”1 At the time, this vision required major technology improvements. After all, how would we connect everything on the planet? What type of wireless communications could be built into devices? What changes would need to be made to the existing Internet infrastructure to support billions of new devices communicating? What would power these devices? What must be developed to make the solutions cost effective? There were more questions than answers to the IoT concepts in 1999. Today, many of these obstacles have been solved. The size and cost of wireless radios has dropped tremendously. IPv6 allows us to assign a communications address to billions of devices. Electronics companies are building Wi-Fi and cellular wireless connectivity into a wide range of devices. ABI Research estimates over five billion wireless chips will ship in 2013.2 Mobile data coverage has improved significantly with many networks offering broadband speeds. While not perfect, battery technology has improved and solar recharging has been built into numerous devices. There will be billions of objects connecting to the network with the next several years.

IoT describes a system where items in the physical world, and sensors within or attached to these items, are connected to the Internet via wireless and wired Internet connections. These sensors can use various types of local area connections such as RFID, NFC, Wi-Fi, Bluetooth, and Zigbee. Sensors can also have wide area connectivity such as GSM, GPRS, 3G, and LTE. The Internet of Things will:

• **Connect both inanimate and living things**.

Early trials and deployments of Internet of Things networks began with connecting industrial equipment. Today, the vision of IoT has expanded to connect everything from industrial equipment to everyday objects. The types of items range from gas turbines to automobiles to utility meters. It can also include living organisms such as plants, farm animals and people. For example, the Cow Tracking Project in Essex uses data collected from radio positioning tags to monitor cows for illness and track behavior in the herd. Wearable computing and digital health devices, such as Nike+ Fuel band and Fitbit, are examples of how people are connecting in the Internet of Things landscape. Cisco has expanded the definition of IoT to the Internet of Everything (IoE), which includes people, places, objects and things. Basically anything you can attach a sensor and connectivity to can participate in the new connected ecosystems.

• Use sensors for data collection.

The physical objects that are being connected will possess one or more sensors. Each sensor will monitor a specific condition such as location, vibration, motion and temperature. In IoT, these sensors will connect to each other and to systems that can understand or present information from the sensor's data feeds. These sensors will provide new information to a company's systems and to people.

• Change what types of item communicate over an IP Network.

In the past, people communicated with people and with machines. Imagine if all of your equipment had the ability to communicate. What would it tell you? IoT-enabled objects will share information about their condition and the surrounding environment with people, software systems and other machines. This information can be shared in real time or collected and shared at defined intervals. Going forward, everything will have a digital identity and connectivity, which means you can identify, track and communicate with objects.