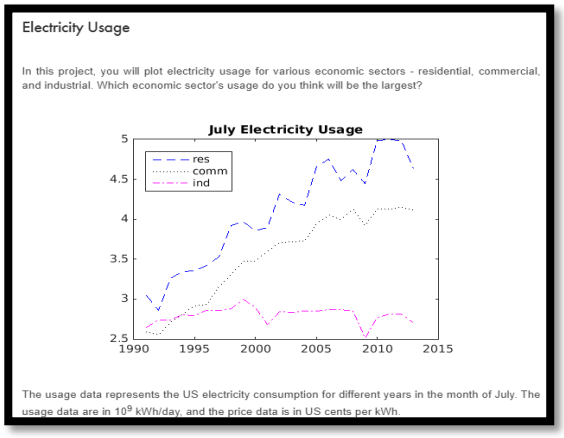
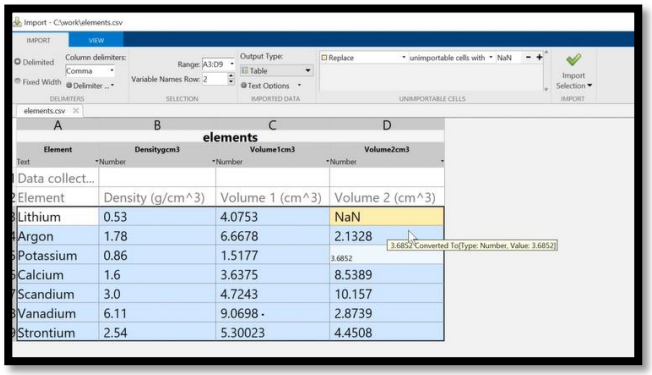
DAILY ASSESSMENT

Date:	**08/07/2020**	**Name:**	**Davis S. Patel**
Course:	**Matlab Onramp**	**USN:**	**4AL16EC045**
Topic:	**Review Problems** **Importing Data** **Logical Arrays** **Programming** **Final Project** **Conclusion**	**Semester & Section:**	**8th - A**
GitHub Repository:	**Davis**		

FORENOON SESSION DETAILS

Image of session





REPORT –

Tools that Import Multiple File Formats

You can import data into MATLAB from a disk file or the system clipboard interactively.

To import data from a file, do one of the following:

- On the **Home** tab, in the **Variable** section, select **Import Data**
- Double-click a file name in the Current Folder browser.
- Call uiimport.

To import data from the clipboard, do one of the following:

- On the Workspace browser title bar, click, and then select **Paste**.
- Call uiimport.

To import without invoking a graphical user interface, the easiest option is to use the importdata function.

The logical data type represents true or false states using the numbers 1 and 0, respectively. Certain MATLAB functions and operators return logical values to indicate fulfillment of a condition. You can use those logical values to index into an array or execute conditional code.

Functions

Short-circuit &&, || Logical operations with short-circuiting

& Find logical AND

~ Find logical NOT

| Find logical OR

xor Find logical exclusive-OR

all Determine if all array elements are nonzero or true

any Determine if any array elements are nonzero

false Logical 0 (false)

find Find indices and values of nonzero elements

islogical Determine if input is logical array

logical Convert numeric values to logicals

true Logical 1 (true)

Programming

Scripts, functions, and classes

When you have a sequence of commands to perform repeatedly or that you want to save for future reference, store them in a program file. The simplest type of MATLAB® program is a script, which contains a set of commands exactly as you would type them at the command line. For additional programming flexibility, create functions which accept input and return outputs. When you have specialized data structures or require many functions to interact with special kinds of data, create classes using object-oriented programming techniques.

- **Scripts**

  Basic program files

- **Functions**

  Programs that accept inputs and return outputs

- **Live Scripts and Functions**

  Program files that can include formatted text, images, and output to explain the code

- **Classes**

  Create new types of objects to use in MATLAB using object-oriented programming

- **Files and Folders**

  File operations, MATLAB search path

- **Programming Utilities**

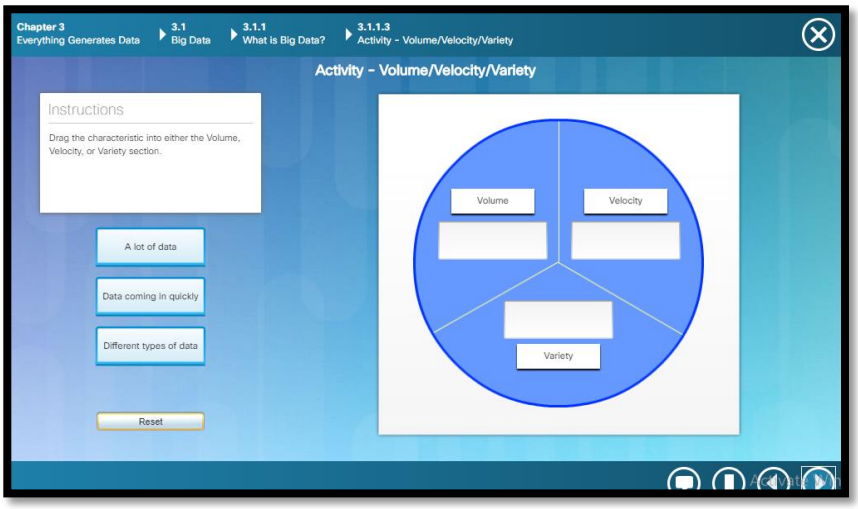
  Evaluate expressions or functions indirectly, obfuscate code, set timers, handle exceptions

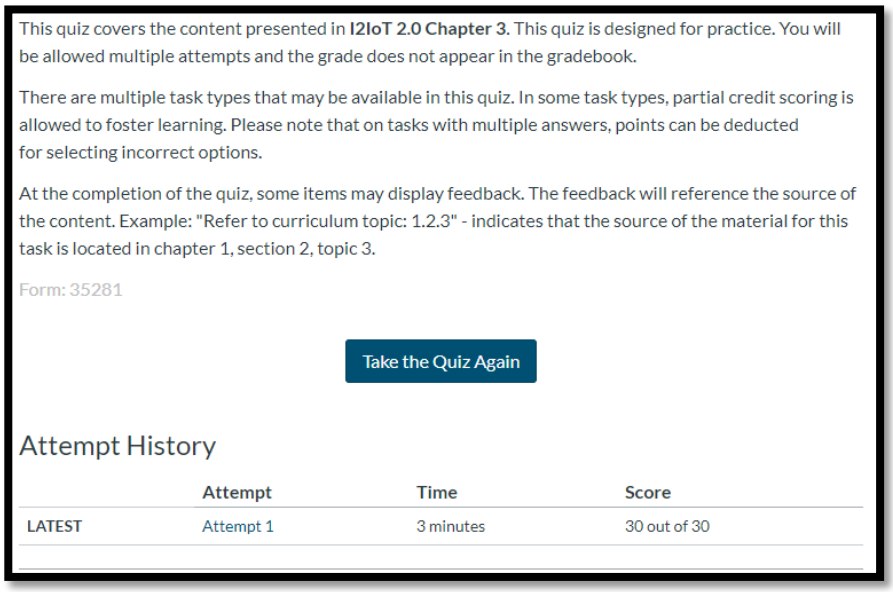
DAILY ASSESSMENT

Date:	**08/07/2020**	**Name:**	**Davis S. Patel**
Course:	**IOT**	**USN:**	**4AL16EC045**
Topic:	**Everything Generates Data**	**Semester & Section:**	**8th - A**
GitHub Repository:	**Davis**		

AFTERNOON SESSION DETAILS

Image Of Session





REPORT –

Data is information that comes from a variety of sources, such as people, pictures, text, sensors, and web sites. Data also comes from technology devices like cell phones, computers, kiosks, tablets, and cash registers. Most recently, there has been a spike in the volume of data generated by sensors. Sensors are now installed in an ever growing number of locations and objects. These include security cameras, traffic lights, intelligent cars, thermometers, and even grape vines!

Big Data is a lot of data, but what is a lot? No one has an exact number that says when data from an organization is considered “Big Data.” Here are three characteristics that indicate an organization may be dealing with Big Data:

- They have a large amount of data that increasingly requires more storage space (volume).
- They have an amount of data that is growing exponentially fast (velocity).
- They have data that is generated in different formats (variety).

How much data do sensors collect? Here are some estimated examples:

- Sensors in one autonomous car can generate 4,000 gigabits (Gb) of data per day.

- An Airbus A380 Engine generates 1 petabyte (PB) of data on a flight from London to Singapore.
- Safety sensors in mining operations can generate up to 2,4 terabits (TB) of data every minute.
- Sensors in one smart connected home can produce as much as 1 gigabyte (GB) of information a week.

While Big Data does create challenges for organizations in terms of storage and analytics, it can also provide invaluable information to fine-tune operations and improve customer satisfaction.

Large Datasets

Companies do not necessarily have to generate their own Big Data. Smaller organizations might not have the sensors, the volume of customers, or the ability to generate the variety of information that could benefit their company. There are sources of free data sets available, ready to be used and analyzed by anyone willing to look for them.

Many companies of various sizes believe they have to collect their own data to see benefits from big data analytics, but it is simply not true.

What Are the Challenges of Big Data?

IBM's Big Data estimates conclude that "each day we create 2.5 quintillion bytes of data". To put this into context, every minute of every day:

- We upload over 300 hours of YouTube video.
- We send over 3.5 million text messages.
- We stream over 86 thousand hours of Netflix video.
- We like over 4 million Facebook posts.
- We request over 14 million forecasts from The Weather Channel.

The rapid growth of data can be an advantage or an obstacle when it comes to achieving business goals. To be successful, enterprises must be able to easily access and manage their data assets.

With this enormous amount of data being constantly created, traditional technologies and data warehouses cannot keep up with storage needs. Even with the cloud storage facilities that are available from companies like Amazon, Google, Microsoft, and many others, the security of stored data becomes a big problem. Big Data solutions must be secure, have a high fault tolerance, and use replication to ensure data does not get lost. Big Data storage is not only about storing data, it is also about managing and securing it.

Where Can We Store Big Data?

Big data is typically stored on multiple servers, usually housed within data centers. For security, accessibility, and redundancy, the data is usually distributed and/or replicated on many different servers in many different data centers.

Fog Computing

Fog computing is an architecture that utilizes end-user clients or "edge" devices to do a substantial amount of the pre-processing and storage required by an organization. Fog computing was designed to keep the data closer to the source for pre-processing.

Sensor data, in particular, can be pre-processed closer to where it was collected. The information gained from that pre-processed analysis can be fed back into the companies' systems to modify processes if required. Because the sensor data is pre-processed by end devices within the company system, communications to and from the servers and devices would be quicker. This requires less bandwidth than constantly going out to the cloud.

After the data has been pre-processed, it is often shipped off for longer term storage, backup, or deeper analysis within the cloud.