Report

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<tr><td>Date:</td><td>8 July 2020</td><td>Name:</td><td>Safiya Banu</td></tr>
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Everything generates data
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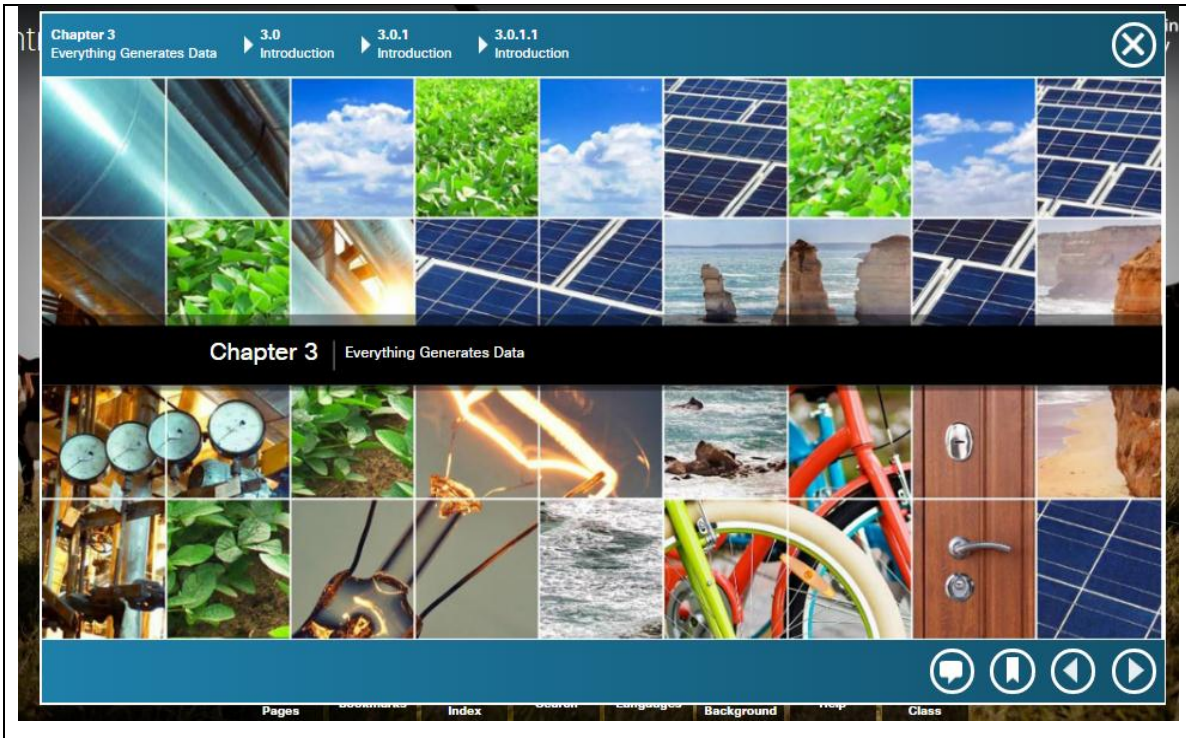

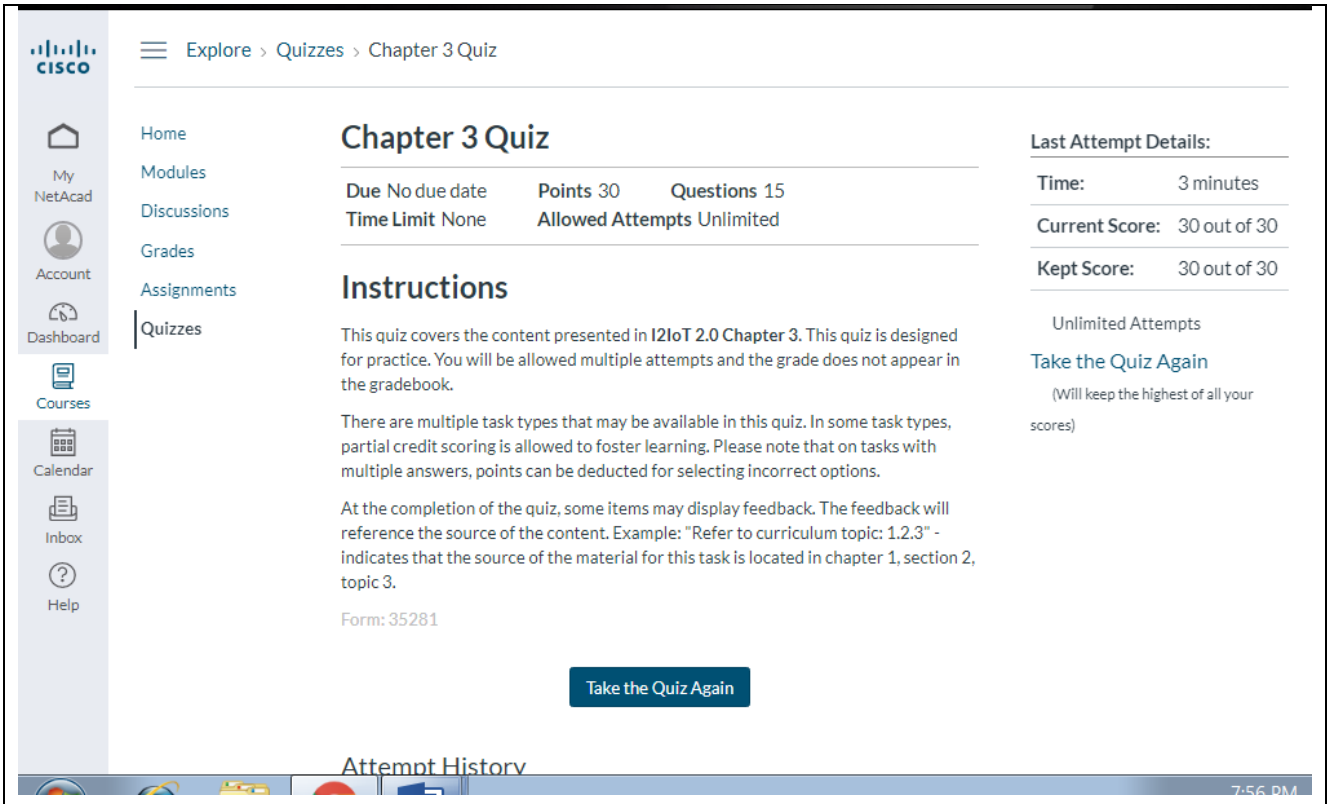

What is Big Data?

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.

Large Databases

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.

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.

To see more live Internet statistics click here.

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.