**ISS4014 – Database Design**

**Chapter 14 – Activities and Homework Response Sheet**

Name: Logan Strong

Date: March 19th, 2024

**Review: (2 pts each)**

1. What are the traditional 3 Vs of Big Data? Briefly define each.

* Volume: the quantity of the data being stored
* Velocity: the speed at which data is being entered into the system
* Variety: the different variations in structure of the data being entered

2. Explain the difference between scaling up and scaling out.

Scaling up is taken the same server(s) the data is on and giving it more memory and processing power. Scaling out instead is taking the data on the servers you already have and spreading them across more new servers.

3. What are the key assumptions made by the Hadoop Distributed File System approach?

The key assumptions made are that there is **high volume** of data, that it will **be written once but read many times**, that it has **streaming access**, and is extremely **fault tolerant** due to it being spread across several low cost machines.

4. How does data mining work? Discuss the different phases in the data mining process.

It’s a process that uses automated tools to analyze data in a data warehouse or similar source to identify relationships and anomalies. It has a data preparation phase, data analysis and classification, knowledge acquisition, and prognosis phase.

5. Explain the difference between the traditional way of storing data in a relational database and storing data in a NoSQL database such as MongoDB or DynamoDB.

The greatest difference is that while traditional databases require schemas to store data, NoSQL databases are schema-less in there implementation to allow more flexible storage when working with data that has a greater volume.

**Lab (20 pts)**

Image 1 – two items (3pts):

A screenshot of a computer

Description automatically generated

Image 2 – 27 items (3pts):

A screenshot of a computer

Description automatically generated

Image 3 – get-item (1pt):

A black screen with colorful spots

Description automatically generated

Image 4 – Marina King (3pts):

A computer screen with white text

Description automatically generated

Image 5 – Thomas Duran (1pt):

A computer screen with white text

Description automatically generated

Image 6 – Betsy Malone (3pts):

A computer screen shot of white text

Description automatically generated

Image 7 - scan (1pt):

A computer screen shot of white text

Description automatically generated

Image 8 – over 30 (1pt):

A computer screen with white text

Description automatically generated

Image 9 – database (1pt):

A screen shot of a computer

Description automatically generated

Image 10 – programming (3pts):

A screen shot of a computer

Description automatically generated