<u>**Assignment 3**</u>

Assignment on Spark and Cloud Data Platform

Due by Jul 9, 2023

<u>**Part A**</u>: **All answers are included in the html and ipynb file.**

<u>**Part B:**</u>

1. [Marks: 2] Read the below statements, choose the correct answer, and provide explanations.

1. <u>A platform as a service (PaaS) solution that hosts web apps in Azure provide professional development services to continuously add features to custom applications.</u>

ANS: Yes.

    Explanation: Organizations typically use PaaS for these scenarios: Development framework that developers can build upon to develop or customize cloud-based applications.
    References: <u>https://azure.microsoft.com/en-gb/overview/what-is-paas/</u>

2. <u>A platform as a service (PaaS) database offering in Azure provides built-in high availability.</u>

ANS: Yes.

    Explanation: Azure SQL Database is a fully managed platform as a service (PaaS) database engine, and it is always running on the latest stable version of the SQL Server database engine and patched OS with 99.99% availability.

    Reference: https://docs.microsoft.com/en-us/azure/azure-sql/database/sql-database-paas-overview

2. [Marks: 2] Read the below statement, choose the correct answer, and provide explanations.

A relational database must be used when:

a. A dynamic schema is required

b. Data will be stored as key/value pairs

c. Storing large images and videos

d. Strong consistency guarantees are required

ANS: d.

Explanation:
1. Relational database has a fixed/predefined schema defined before data is stored ==> A is wrong.
2. Relational databases would store data in tables with predefined columns and data types, storing in key-value pairs is not necessary. ==> B is wrong
3. Rational database is not good at storing or handling large binary files, like large images and videos, but good at handling structured data ==> C is wrong
4. It was known for providing strong consistency guarantees.

3. [Marks: 2] Read the below statement, choose the correct answer, and provide explanations.
When you are implementing a Software as a Service solution, you are responsible for:

a. Configuring high availability

b. Defining scalability rules

c. Installing the SaaS solution

d. **Configuring the SaaS solution**

ANS: d

Explanation: As a customer, we should be responsible for configuring the SaaS solution, and we cannot control others, like option a or b. Installing the solution is not the responsibility.

4. [Marks: 2] Read the below statements, choose the correct answer, and provide explanations.

   1. To achieve a hybrid cloud model, a company must always migrate from a private cloud model.
      ANS: No. Both private and public clouds can be involved.

   2. A company can extend the capacity of its internal network by using a public cloud
      ANS: Yes. The public cloud acts can be seen as an extension of the company's internal resources, and the capacity would be extended with the scalable resources provided by the public cloud.

   3. In a public cloud model, only guest users at your The company can access the resources in the cloud
      ANS: No. Public cloud model can be accessed by anyone over the internet, both internal and external users.

5. [Marks: 2] Read the below statements, choose the correct answer, and provide explanations.

- A cloud service that remains available after a failure occurs

ANS: Fault tolerance

Explanation: Fault tolerance: the ability of the service to continue functioning even when a component fail.

- A cloud service that can be recovered after a failure occurs

ANS: Disaster recovery

Explanation: Disaster recovery: the processes to recover and restore services after a significant disruption or failure.(one of the definition)

- A cloud service that performs quickly when demand increases

ANS: Dynamic Scalability

Explanation: Dynamic scalability is the ability for compute resources toto adjust its resources in response to changes in demand.

- <u>A cloud service that can be accessed quickly from the internet</u>

ANS: Low Latency

Explanation: Latency refers to the lag in the transmission of data between a client & a server, and low latency means the service can be accessed quickly from the internet.