Quiz-4

Name_____cayden dunn_____ Total = 10pts.

Books and notes are allowed but no human intervention.

1. What is the motivation of using parallelism. [1pts]

- increase computational speed, multiple computations can occur simultaneously, reducing overall execution time
- improve efficiency, more tasks can be completed in a given time increasing the throughput of the system
- solve large-scale problems.

2. What is the motivation of using distributed data storage? [1pt]

- Scalability. it allows systems to handle a growing amount of data by adding more machines to the network that can scale horizontally instead of vertically
- fault tolerance, if one node fails, data isn't lost as it is replicated across multiple nodes, ensuring continuous availability
- data locality, allows processing of data close to where it is stored, reducing data transfer times

3. State a difference between parallel and distributed DBMS. [2pts]

In a parallel DBMS data is stored on a single machine, but processing is done by multiple processors concurrently. In contrast, a distributed DBMS stores data across multiple machines connected via a network. Its just horizontal and vertical scaling. Both have different usecases where they should be employed and they have there own cons an pros

4. What is set difference operation? Give an example. [2]

The set difference returns elements present in one set but not in another

example A = {1, 2, 3, 4, 5} B = {4, 5, 6, 7, 8}

find A – B

= {1, 2, 3}

5. What is the selection and projection operator. Give an example of each. [2 + 2]

Selection Operator - is used to select a subset of tuples from a relation that satisfy a selection condition

Example - given a table Students, use the selection to find all students older than 20, sigma(Age > 20)(Students).

Projection Operator - is used to select certain columns from a table and discard the others, producing a new table as a result

Example - same Students table, use projection to select just the Name and Age columns. results in a new table that includes only the names and ages of the students, and excludes all other information about them.