Quiz 11

Due Apr 15 at 10pm   **Points** 10   **Questions** 5   **Time Limit** None

Instructions

Answer the following questions in your own words. Do NOT simply cut and paste the information from the slides. You will receive a score of 0 if you copy the prose from the slides.

Attempt History

	Attempt	Time	Score
LATEST	**Attempt 1**	1,488 minutes	10 out of 10

     ⊘ Correct answers are no longer available.

Score for this quiz: **10** out of 10
Submitted Apr 15 at 6:19pm
This attempt took 1,488 minutes.

Question 1	2 / 2 pts

Describe the four ACID properties

Your Answer:

ACID stands for **A**tomicity **C**onsistency **I**solation and **D**uration.

Atomicity: Atomicity has two states abort or commit, it means that either the transaction occurs completely or is aborted there's no in between processing state.

Consistency: The data should be consistent before and after the transaction is completed even the transaction being successful or unsuccessful.

Isolation: System or database can handle multiple individual transaction simultaneously without interrupting other transactions.

Duration: This state verifies that even the transaction was successful or not the changes are done in the database and should survive permanently.

A *transaction* must have *ACID* properties

*A*tomic - all steps complete successfully or no change

*C*onsistent – both successful and unsuccessful transactions must leave the system in a consistent state

*I*solated – the data involved in the transaction must be isolated from other users until the transaction is complete

*D*urable – the changes must survive permanently

Question 2

2 / 2 pts

How are keys and foreign keys used in relational databases?

Your Answer:

Keys are kind of attributes which we can use to assign to any instance of an entity and uniquely identify it. Foreign keys are the reference keys of the Primary keys and are the condition for the reference to join the multiple tables together.

A primary key in a relational database table is analogous to a
dictionary key in that is helps the database to quickly find the row
in the database table with that value in the field serving as the
primary key.

A Foreign Key in table A, FK(A), is used to quickly identify a
corresponding primary key in table B, PK(B), where the FK(A) in
table A matches PK(B) a primary key in table B.

E.g. the Student table in the Student repository includes a primary
key for the student's CWID.   This primary key in the Student table
is also a foreign key in the Grades table where the studentCWID
field in the Grades table matches the student's CWID in the
Student table.

Question 3   2 / 2 pts

Why are joins important in relational databases?

Your Answer:

Joins are important in relational databases because the data is stored
frequently and may be stored in multiple tables so to maintain and
manage the data we use JOIN to connect multiple related tables with
each other. It is the best way to combine two data sets and filter out data
from multiple relatable tables.

Joins are important because they allow us to combine data across
two or more tables. E.g. we joined the Instructor table with the
Grades table to calculate the total number of students by course
for each instructor.   Without joins, we would be forced to duplicate
data across tables which would complicate updates and adds.

Question 4   2 / 2 pts

What impact does a 'where' clause have on a select query? When should you use a 'where' clause?

Your Answer:

WHERE clause can be used to select different rows from the table that suit those parameters or requirements defined. We should use WHERE clause when we need to get a specific rows of data from the result.

A 'where' clause restricts records in a select statement to include only those rows that match the 'where' clause.

Question 5   2 / 2 pts

Why do database designers split information across tables rather than putting all data in a single table?   E.g. Why did we split the Projects and Employees tables?

Your Answer:

Data consistency is one of the most important property, so normalization and splitting data is advisable because Splitting the information across tables in a single table increases more user readability, maintainability and also decreases the redundancy of data in a single table. So it makes easy to have multiple data which at the end can be merged using JOIN clause but maintains the Duration and Consistency property.

Database tables are designed to store each bit of information in one place to minimize the space needed to save the data and to facilitate changes.   E.g. if information is duplicated, then any change requires that all copies must be changed to keep the data consistent.

Quiz Score: **10** out of 10