

MSDS 7330: File Organization and Database Management Homework Assignment 2

This is a homework assignment for MSDS7330, File Organization and Database Management. This quiz is due at the end of the synchronous class period in which the unit is discussed or whenever the instructor turns you to hand it in. Enter your answer to each question in the MSDS 7330 Homework Answer Sheet Word document. Be sure to place your name and due date in the Homework Answer Sheet and place your last name and the homework number at the beginning of the file name. For example, the filename for the homework answer sheet for homework 2 for Raghuram Srinivas should be *SrinivasMSDS7330HomeWorkAnswerSheet.docx*.

For each question, in the Homework Answer Sheet state the letter of your chosen answer and write out the explanation why the answer is correct. Note that the explanation involves also explaining why the other answers are not correct.

Your answer Word document should be submitted on the 2DS system for the quiz number equal to the homework number. For example, the homework 2 should be submitted for homework assignment 2.

1) The DBMS acts as an interface between what two components of an enterprise-class database system?

- a) Database application and the database
- b) Data and the database
- c) The user and the database application
- d) Database application and SQL

Correct answer: a). A Database-management system (DBMS) is system software for creating and managing databases. The DBMS provides users and programmers with a systematic way to create, retrieve, update and manage data. Therefore, the DBMS acts as an interface between database application and the database. Answer b) does not include database application, and Answer c) does not include database. For Answer d), SQL stands for Structured Query Language and is a domain-specific language used in programming and designed for managing data. SQL is only one of the big data applications.

2) The following are components of a database except which of the following?

- a) user data
- b) metadata
- c) reports
- d) indexes

Correct answer: c). Answer c) reports is the output generated by users, much like database application. Answers a), b) metadata (data about the data in data dictionary) and c) are the disk storage component

3) Table is synonymous with the term

- a) record
- b) relation
- c) column
- d) row

Correct answer: b). Formal term "Relation" is synonymous with the term "Table" or "File". A table is a collection of related data held in a structured format within a database. It consists of columns ([Answer c](#)) and rows ([Answer d](#)). In terms of the relations model of databases, a table can be considered a convenient representation of a relation ([Answer b](#)). [Answer a](#)) record contain fields that are related, such as customer or an employee.

4) Row is synonymous with the term

- a) column
- b) relation
- c) field
- d) record

Correct answer: d). Formal term "Tuple" is synonymous with term "Row" or "Record", while formal term "Attribute" is synonymous with term "Column" ([Answer a](#)) or "Field" ([Answer c](#)), formal term "Relation" ([Answer b](#)) is synonymous with the term "Table" or "File".

5) Attribute is synonymous with the term

- a) record
- b) relation
- c) column
- d) row

Correct answer: c). Formal term "Attribute" is synonymous with term "Column" or "Field", while formal term "Tuple" is synonymous with term "Row" ([Answer d](#)) or "Record" ([Answer a](#)). [Answer b](#)) "Relation" is synonymous with the term "Table" or "File".

6) A *database schema* is

- a) A plan created by the database.
- b) The logical design of the database.
- c) A particular instance of a database.
- d) The snapshot of the data in the database at a given time.

Correct answer: b). Database schema refers to a visual representation of a database, a set of rules that govern a database, or to the entire set of objects belonging to a particular user. There are two main kinds of database schema: a logical database schema ([Answer b](#)) and a physical database schema. Database instance is a snapshot of the data in the database at a given instant in time ([Answers c, d](#)). A database schema is not a plan created by the database ([Answer a](#)).

- 7) The primary key is selected from the
- a) composite keys.
 - b) determinants.
 - c) candidate keys.
 - d) foreign keys.

Correct answer: c). A Candidate Key can be any column or a combination of columns that can qualify as unique key in database without extraneous data. Each table may have one or more Candidate Keys. One of these Candidate Keys is selected as the table Primary Key which is a column or a combination of columns that uniquely identify a record. Answer d) Foreign Key identifies unique columns in another table. For Answer a) Composite Key, if a table do have a single column that qualifies for a Candidate key, then you have to select 2 or more columns to make a row unique. Any Primary Key or Candidate Key is a determinant (Answer b)), but there may be determinants that are not Primary or Candidate Keys.

- 8) Which of the following is a group of one or more attributes that uniquely identifies a row?
- a) Key
 - b) Determinant
 - c) Tuple
 - d) Relation

Correct answer: a). Answer a) Key can uniquely identifies a row. If a table do have a single column that qualifies for a Candidate key, then you have to select 2 or more columns to make a row unique. Any Primary Key or Candidate Key is a determinant (Answer b)), but there may be determinants that are not Primary or Candidate Keys. Formal term "Tuple" (Answer c)) is synonymous with term "Row" or "Record", and Formal term "Relation" (Answer d)) is synonymous with the term "Table" or "File".

- 9) In the relational model, relationships between relations or tables are created by using:
- a) composite keys.
 - b) determinants.
 - c) candidate keys.
 - d) foreign keys.

Correct answer: d). Answer d) Foreign Key is a field that links one table to another table. A table can have an unlimited number of foreign keys linking to other tables. For Answer a) Composite Key, if a table do have a single column that qualifies for a Candidate key, then you have to select 2 or more columns to make a row unique. Any Primary Key or Candidate Key is a determinant (Answer b)), but there may be determinants that are not Primary or Candidate Keys. A Candidate Key (Answer c)) can be any column or a combination of columns that can qualify as unique key in database without extraneous data. Each table may have one or more Candidate Keys.