**CIS 422 DBMS**

Elijah Chong Tay 02/08/2023

|  |  |  |  |
| --- | --- | --- | --- |
| **20 Points** |  | **Assignment 01** |  |

**True or False Questions (5 points):**

|  |  |  |
| --- | --- | --- |
| # | Statement | True or False |
| 1 | A database is a collection of related data. | True |
| 2 | The relational model is a data model based on hierarchies and trees. | False |
| 3 | In a relational database, data is stored in lists. | False |
| 4 | In the relational model, data is stored in columns instead of rows. | False |
| 5 | A primary key is used to store calculated values. | False |
| 6 | A foreign key is a unique identifier for each record in a table. | False |
| 7 | Referential integrity ensures that all primary key values in a table are unique. | True |
| 8 | A check constraint is used to ensure data consistency between related tables. | False |
| 9 | A default value is used to enforce specific rules on data values in a table.) | False |
| 10 | NULL values are allowed in a column with a NOT NULL constraint. | False |

**Multiple-choice questions: (5 points)**

1. What is a database?
   1. A collection of related data
   2. A software application for data management
   3. A type of data structure
   4. All of the above
2. What is the relational model?
   1. A data model based on tables and relationships between them
   2. A data model based on hierarchies and trees
   3. A data model based on graphs and nodes
   4. A data model based on networks and connections
3. In a relational database, data is stored in:
   1. Tables
   2. Arrays
   3. Lists
   4. Maps
4. A primary key is used to:
   1. Identify a record in a table
   2. Enforce referential integrity
   3. Store calculated values
   4. All of the above
5. A foreign key is used to:
   1. Create a relationship between two tables
   2. Ensure data consistency between related tables
   3. Store calculated values
   4. None of the above
6. Integrity constraints ensure:
   1. Data accuracy and consistency
   2. Data security
   3. Data backup and recovery
   4. All of the above
7. Referential integrity ensures that:
   1. All foreign key values in a table match the primary key values in another table
   2. All primary key values in a table are unique
   3. All data values in a table are accurate
   4. None of the above
8. A check constraint is used to:
   1. Enforce specific rules on data values in a table
   2. Ensure data consistency between related tables
   3. Store calculated values
   4. None of the above
9. A default value is used to:
   1. Provide a value for a column in case no value is specified
   2. Enforce specific rules on data values in a table
   3. Ensure data consistency between related tables
   4. None of the above
10. What is cascading update and delete in the context of foreign key constraints?
11. The ability to update or delete referenced rows automatically when referenced row is updated or deleted
12. The ability to update or delete referencing rows automatically when referenced row is updated or deleted
13. The ability to update or delete both referenced and referencing rows automatically when referenced row is updated or deleted
14. The ability to update or delete neither referenced nor referencing rows automatically when referenced row is updated or deleted

**Short Answer question: (10 points)**

1. What is the purpose of a foreign key in a relational database table?

To create a relationship between two tables

1. What are referential integrity constraints and why are they important?

This is a term to describe the relationship between tables. These constraints help prevent incorrect records from being modified(add/del/etc..) It is important for data to remain consistent and up to date.

1. Create a database table with columns for "employee\_id", "first\_name", "last\_name", "hire\_date", and "department". Make "employee\_id" the primary key.

CREATE TABLE (

employee\_id CHAR(12),

first\_name VARCHAR(30),

last\_name VARCHAR(30),

hire\_date CHAR(8),

department VARCHAR(20),

PRIMARY KEY(employee\_id))

1. Add a foreign key constraint between the "employees" table and a "departments" table, with "department" as the foreign key in the "employees" table and "department\_id" as the primary key in the "departments" table.

ADD FOREIGN KEY (department) REFERENCES departments(department\_id)

1. Add a check constraint to ensure that "hire\_date" in the "employees" table is not in the future

ALTER TABLE employees

ADD CHECK (hire\_date <= CURRENT\_DATE());