Data Essentials Repeat Assessment

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## **Question 1.**

**a)**

**Database relationships** define how tables in a database are linked and how data from multiple tables can be integrated and retrieved. The relationships are established through primary keys and foreign keys.

**b)**

**The threats faced by a database administrator** include many various threats that compromise the database in multiple ways, these threats can be Data Breaches, Data Loss/Corruption, Insider threats, etc.

**c)**

**Domains** refer to the allowable values that a particular attribute in a database can have, e.g. an attribute called “Date” could be restricted to only accepting data in a DD/MM/YYYY format.

**f)**

**Referential Integrity** is a concept in that ensures the consistency and validity of relationships between tables in a relational database. It ensures that foreign keys in one table always refer to valid, existing primary keys in another table.

**g)**

**Database keys** are crucial components for relational databases that maintain data integrity and establish relationships between tables, the main types of database keys are Primary Keys, Foreign Keys, Composite Keys, Candidate Keys.

## **Question 2.**

**a)**

## **Question 3.**

**a)**

1. Each table must have a unique name.
2. Each field must have a unique name.
3. Each table must have a primary key.
4. Each field must have a data type.
5. Tables are subject to Primary keys, Foreign keys and indexes/constraints.

**b)**

*NOTE:* these tables are not normalized and the answers will reflect this

Entity/Attribute (Table/field)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **EntityName** | **AttributeName** | **Data Type** | **Size** | **Null/Not Null** | **Constraint** |
| Dog | dogID | INT | 11 | Not Null | Primary Key |
| Dog | Name | VarChar | 255 | Not Null |  |
| Dog | DateOfBirth | DATE |  | Not Null |  |
| Dog | Owner | VarChar | 255 | Not Null |  |
| Dog | Breed | VarChar | 45 | Not Null |  |
| Dog | OwnerContact | VarChar | 12 | Not Null |  |
| DogGrooming | Grooming | VarChar | 45 | Not Null |  |
| DogGrooming | DogID | INT | 11 | Not Null | Composite PK/Foreign Key |
| DogGrooming | Date | DATE |  | Not Null | Composite PK |
| DogGrooming | Time | TIME |  | Not Null | Composite PK |
| DogGrooming | Where | VarChar | 255 | Not Null |  |
| DogGrooming | Fee | DECIMAL | 10,2 | Not Null |  |
| DogGrooming | Paid | BOOLEAN |  | Not Null |  |
| DogGrooming | Groomer | VarChar | 255 | Not Null |  |

## **Question 4.**