1. A logical database schema introduces a blueprint of how the data is organized and related in tables. **1 / 1 point**

- ○ False
- ◉ True

**Correct**
Correct! A logical database schema shows how the data is organized in tables and how records of data are related in these tables.

2. Which column is the primary key in the following Patients table? **1 / 1 point**

| **Patients** | | |
|---|---|---|
| **Patient Name** | **Date Of Birth** | **Email** |
| Karl | 19/03/2000 | karl.k@luckyshrub.com |
| Mark | 20/05/1999 | mark.f@luckyshrub.com |
| Peter | 10/03/2001 | peter.g@luckyshrub.com |
| Peter | 19/03/2000 | peter.s@luckyshrub.com |

- ○ Patient name
- ◉ Email
- ○ Date of Birth

**Correct**
Correct! This is the right choice as it is unique in each row of the table.

3. A foreign key is used to connect tables in a database. **1 / 1 point**

- ○ False
- ◉ True

**Correct**
Correct! The foreign key is used to connect tables in a database.

4. The normalization process aims to reduce the negative effects of the different types of data anomalies. **1 / 1 point**

- ◉ True
- ○ False

**Correct**
Correct! The normalization process aims to reduce the negative effects of the update anomalies, insertion anomalies and deletion anomalies.

5. Identify the issue with the following table of data in accordance with the rules of first normal form criteria

1 / 1 point

| Department ID | Department Name | Director | Course ID | Course Name | Tutor ID | Tutor |
|---|---|---|---|---|---|---|
| D1 | Computing | Dr Karl | C1 | Database | T1 | Mark |
| D1 | Computing | Dr Karl | C2 | Python | T1 | Mark |
| D1 | Computing | Dr Karl | C3 | Web | T2 | Jack |
| D1 | Computing | Dr Karl | C4 | Java | T2 | Jack |
| D2 | Math | Dr Mosa | C5 | Math | T3 | Rose |

- ○ Atomicity problem.
- ◉ Duplication of data.

✓ **Correct**
Correct! There is too much redundancy of data in the given table.

6. To normalize the following table of data, you must decompose it into how many tables?

1 / 1 point

| Department ID | Department Name | Director | Course ID | Course Name | Tutor ID | Tutor |
|---|---|---|---|---|---|---|
| D1 | Computing | Dr Karl | C1 | Database | T1 | Mark |
| D1 | Computing | Dr Karl | C2 | Python | T1 | Mark |
| D1 | Computing | Dr Karl | C3 | Web | T2 | Jack |
| D1 | Computing | Dr Karl | C4 | Java | T2 | Jack |
| D2 | Math | Dr Mosa | C5 | Math | T3 | Rose |

- ○ Two tables (departments and courses).
- ○ Four tables (departments, directors, courses, and tutors).
- ◉ Three tables (departments, courses, and tutors).

✓ **Correct**
Correct! There is too much redundancy of data in the given table.

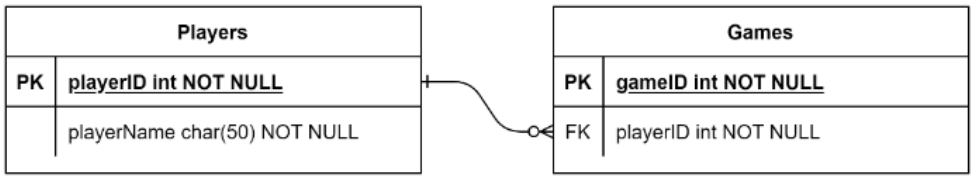
7. The table below contains a composite primary key made up of the columns "Tutor ID" and "Subject". What kind of normalization problem does this composite key create? **1 / 1 point**

| **Tutor ID** | **Subject** | Credits |
|---|---|---|
| T1 | Java | 20 |
| T1 | Web | 15 |
| T2 | Math | 15 |
| T2 | History | 20 |

- ○ First normal form data redundancy
- ◉ Second normal form partial dependency

**Correct**
Correct! The credits value is dependent on the subject value which is a subset of the composite primary key. This is called partial dependency that violates the second normal form.

8. Which of the following statements is the correct syntax to define a foreign key that links the "Players" and "Games" table in an ER diagram? 1 / 1 point




- ○ CREATE TABLE Games( gameID int NOT NULL, playerID int, PRIMARY KEY (gameID), FOREIGN KEY (gameID) REFERENCES players(gameID));
- ◉ CREATE TABLE Games( gameID int NOT NULL, playerID int, PRIMARY KEY (gameID), FOREIGN KEY (playerID) REFERENCES players(playerID));

**Correct**
Correct! In this example the SQL statement creates a FOREIGN KEY on the "playerID" column when the "Games" table is created.

9. A database relation is in second normal form if it is in first normal form and every non key attribute is _____ functionally dependent on the primary key. 1 / 1 point

- ○ Partially
- ◉ Fully

**Correct**
Correct! A database relation is in second normal form if it is in first normal form and every non key attribute is fully functionally dependent on the primary key.

10. Database normalization is a progressive process, which means that the database relation cannot be in the third normal form if it is not already applying the rules of the first and the second normal forms. 1 / 1 point

- ◉ True
- ○ False

**Correct**
Correct! Database normalization is a progressive process.