# SQL ASSIGNMENT-1

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1. **Difference between Procedural and Declarative programming languages**
   Ans:

| DECLARATIVE | PROCEDURAL |
|---|---|
| It is a language which shows what to do, not how to do. | It is a language which needs what to do and how to do both. |
| Just like writing a statement and waiting for the result, not the back side process. | And it is like waiting for the result as well as their workflow should be correct. |
| Example: SQL | Example: Python, Java, C++ |
| Often used in query languages, markup languages, or configuration files. | Programs are typically structured into functions or procedures. |

2. **Levels of isolation?**
   Ans:
   **Isolation :** Isolation means that a transaction should take place in a system in such a way that it is the only transaction that is accessing the resources in a database system.
   **Transaction isolation level is defined by the following phenomenon:-**

   **Dirty Read:**
   A transaction reads data written by uncommitted transaction. (uncommitted data is called “dirty.”)
   For example, Let’s say transaction 1 updates a row and leaves it uncommitted, meanwhile, Transaction 2 reads the updated row. If transaction 1 rolls back the change, transaction 2 will have read data that is considered never to have existed.

   **Non-Repeatable Reads, and Read Skew:**
   suppose transaction T1 reads data. Due to concurrency, another transaction T2 updates the same data and commit, Now if transaction T1 rereads the same data, it will retrieve a different value.
   And more.

   Levels of Isolation in DBMS

1. **Read Uncommitted:**
   - Reads uncommitted data of other transactions.
   - Dirty reads, non-repeatable reads, phantom reads can happen.

- Fastest but least safe.

2. **Read Committed:**
   - Reads only committed data.
   - Dirty read is avoided, but non-repeatable and phantom reads still possible.
   - Default in many DBs like Oracle.

3. **Repeatable Read:**
   - Same row gives same value on multiple reads.
   - Dirty & non-repeatable reads avoided, phantom reads can still happen.

4. **Serializable:**
   - Highest isolation – works like transactions are executed one by one.
   - Dirty, non-repeatable, phantom reads are fully avoided.
   - Slowest but most reliable.

3. **Query and statement difference?**
   Ans:

| QUERY | STATEMENT |
|---|---|
| Query is something like a statement which returns something after writing it. | Statement refers to the line of command which is use to perform only operation without getting any resultant o/p. |
| It can be the SELECT, SHOW, DESCRIBE etc. | It can be CREATE, INSERT, UPDATE. |

4. **Diff in key and primary key?**
   Ans:

| Key | Primary Key |
|---|---|
| Key is something like a unique value which is use to access data from the DB. | Primary key is also like unique identity which is use to access data but set of rules. |
| Key is made up of combination of multiple data | On the other hand Primary key is only said to be unique and not be null. |
| Example: Candidate Key<br>1. {name, surname, address}<br>-> unique key can be combination of name and address | Example: Primary Key<br>1. {id, student_name, student_class} |

2.

| | | |
|---|---|---|
| a | b | rr |
| a | b | yy |

In the above table a - rr are unique, and a - yy is unique

Here id is primary key which can not be null but should be unique.

| | | |
|---|---|---|
| 1 | a | b |
| 2 | a | null |

1 and 2 are unique id's

**5. Difference between Drop , truncate and delete?**

Ans:

| S.No. | DROP | TRUNCATE | DELETE |
|---|---|---|---|
| 1 | Drop removes the existence of the object. | Truncate removes the entire data inside the table in one move only. | Delete removes the data from the table but it depends on the condition. |
| 2 | Like removing table name with its inner data. | Like removing all inner data and left the Attributes. | Like removing the data according to given condition or remove only row2, or row3 . |
| 3 | Drop changes all the structure of the DB. | Only changes the table structure. | Slightly similar to truncate. |
| 4 | Can not use rollback if deleted. | Can not use WHERE clause, hence doesn't provide the feature of specific table data deletion. | Can delete specific data by using WHERE clause. |

**6. Which is the fast b/w delete and Truncate which takes less time?**

Ans:

Truncate is the fastest operation of removing technique comparing then delete.

```
DELETE FROM Customers; — Logs each row deletion
TRUNCATE TABLE Customers; — Logs only page deallocations
```