**SQL Final Exam**

1. What is the difference between delete, drop, truncate?
2. What is normalization and what are the advantages of it? Explain different types of Normalization.
3. Explain ACID properties of a database.
4. What is the main difference of ‘BETWEEN’ and ‘IN’ condition operators with examples.

**Answers:**

1. Drop will delete the data and drop the structure of the table. Truncate will only delete the data and not the structure of the table. Delete can delete all the data or specific data form the table.
2. The process of table design to minimize the data redundancy is called normalization. We need to divide a database into two or more table and define relationships between them. Advantages of Normalization:

* Based on mathematical foundation
* Removes the redundancy to a large extent
* After 3NF, data redundancy is minimized to the extent of foreign keys
* Removes the anomalies present in INSERTs, UPDATEs and DELETEs

1. **ACID** (Atomicity, Consistency Isolation, Durability) is a concept that is generally looked for when evaluating databases and application architectures. For a reliable database all these four attributes should be achieved. **Atomicity** is an all-or-none proposition. **Consistency** guarantees that a transaction never leaves your database in a half-finished state. **Isolation** keeps transactions separated from each other until they’re finished. **Durability** guarantees that the database will keep track of pending changes in such a way that the server can recover from an abnormal termination.
2. Differences between the BETWEEN and IN  operator is that BETWEEN is used to select a range of data between two values while the IN operator allows you to specify multiple values. For example:

SELECT COUNT(\*), SEX FROM EMPLOYEES WHERE DOB BETWEEN '01/01/1960' AND '31/12/1975' GROUP BY SEX;

SELECT LAST\_NAME, SALARY FROM EMPLOYEES

WHERE SALARY IN

(SELECT SALARY

FROM EMPLOYEES

WHERE LAST\_NAME = 'ABEL');