SQL NOTES

-BY CLOUDYML

* What is a Database?

→ A database is an organized collection of data, stored and retrieved digitally from a remote or local computer system. Databases can be vast and complex, and such databases are developed using fixed design and modeling approaches.

* What are constraints in SQL?

→ Constraints are used to specify the rules concerning data in the table. The constraints are:

NOT NULL → Restricts NULL value from being inserted into a column.

CHECK → Verifies values in a field satisfy a condition.

UNIQUE → Ensures unique values to be inserted in the field.

PRIMARY KEY → Uniquely identifies each record in a table.

FOREIGN KEY → Ensures referential integrity for a record in other table.

* What is a Primary Key?

→ The **PRIMARY KEY** constraint uniquely identifies each row in a table. It must contain unique values and has an implicit not null constraint. A table in SQL is strictly restricted to have one and only one primary key.

* What is the SELECT Statement?

→ **SELECT** operates in SQL is used to retrieve data from a database. The data returned is stored in a result-table called the result-set.

SYNTAX : SELECT * FROM Table-name;

Date / /

* What is SQL?

→ SQL stands for Structured Query Language. It is the standard language for relational database management systems. Handles organized data comprised of entities and relations.

* What are Tables and Fields?

→ A tables is an organized collection of data stored in the form of rows and columns. Columns can be categorized as fields and the rows can be referred to as records.

* What is a View?

→ A **VIEW** in SQL is a virtual table based on the result set of an SQL statement. A view contains rows and columns, just like a real table.

* What is the difference between DELETE, DROP and TRUNCATE?

→ **DELETE** - deletes rows based on a given condition

DROP - the entire table and rows are dropped along with the table schema.

TRUNCATE - deletes all rows from the table but not the table schema.

Date / /

* What is pattern matching in SQL?

→ SQL pattern matching provides for pattern search in data if you have no clue as to what word should it be. The **LIKE** operator is used in conjunction with SQL wildcards to fetch the required information.

% - represents zero, single or multiple characters

_ - represents a single character

Example: Name starting with 'a'

'a%'

Date / /

* What is the difference between Commit and Rollback when used in Transactions?

→ **COMMIT** - Commit marks the end of a successful transaction. After commit, the change made by that query will be permanent and visible.

ROLLBACK - Used to erase all modifications made from the start of a transaction or to a savepoint.

* What are some common clauses used with the SELECT query?

→

WHERE - Used to filter records based on specific conditions

ORDER BY - Used to sort the records based on some fields in ascending or descending order.

GROUP BY - Used to group records with identical data

HAVING - Used to filter records in combination with GROUP BY clause.

* What are aggregate functions?

→ An aggregate function performs operations on a collection of values to return a single scalar value. Used with the **GROUPBY** and **HAVING** clauses of the SELECT statement.

AVG() - calculates mean of values

COUNT() - total number of records in a table or view.

MIN() - minimum value

MAX() - maximum value

SUM() - calculates sum of a collection of values.

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