SQL: (Structured English Query Language)”. Defined, SQL is a query language used for accessing and modifying information in one or more data tables and rows of a database.

**SQL Commands:**

**Data Definition Language (DDL):** CREATE, ALTER, DROP, RENAME, and TRUNCATE.

alter(add, modify,drop),rename(rename table name )

**Data Manipulation Language (DML):**  SELECT, INSERT, UPDATE, and DELETE.

**Transaction Control Language (TCL):** COMMIT, ROLLBACK, and SAVEPOINT.

**Data Control Language (DCL): GRANT, REVOKE (security) grant- can access the db, revoke-remove access from db**

**DELETE**  
  
1. DELETE is a DML statement.  
2. DELETE removes some rows if WHERE clause is used  
3. Can be rolled back  
4. Can be used with or without WHERE clause  
5. Does not reset identity of the table  
6. Triggers will be fired.  
7. When DELETE operation is performed, all the data get copied into Rollback Tablespace first,   
and then delete operation get performed. Hence we can get back the data by ROLLBACK command.

**DROP**  
1. DROP is a DDL statement.  
2. Removes a table from the database. Table structures, indexes, privileges, constraints will   
also be removed.  
3. Cannot be rolled back  
4. No Triggers will be fired.

**TRUNCATE**  
1. TRUNCATE is a DDL Statement.  
2. Removes all rows from a table, but the table structures and its columns, constraints, indexes   
remains.   
3. Cannot be rolled back  
4. Resets the identity of the table  
5. Truncate is faster and uses fewer system and transaction log than delete.  
6. Cannot use TRUNCATE on a table referenced by a FOREIGN KEY constraint.  
7. No Triggers will be fired.  
8. Cannot use WHERE conditions

* **COMMIT:** to save the changes.
* **ROLLBACK:** to rollback the changes.
* **SAVEPOINT:** creates points within groups of transactions in which to ROLLBACK
* **SET TRANSACTION:** Places a name on a transaction.

**Primary key: is always unique key and not null, helps to identify row unique from table**

**Foreign key:** A foreign key is a key used to link two tables together. This is sometimes also called as a referencing key.

**Unique key:** A Unique key constraint uniquely identifies each record in the database. This provides uniqueness for the column or set of columns.

**Tables-**columns and rows. rows are horizontal,columns are vertical.

**Fields:** a table has specified number of column is called fields

**Records:** any no of rows is called records

In**dex**: It use to faster retrieval of records from the table.

V**iew**: Virtual table which consists of subset of data contained in a table.

**Stored procedure**: It is function that consists for many SQL statements to access the database system

Tr**igger**: code or programs that automatically execute with response to some event on a table or view in a database.

C**onstraint** : restrictions/rules on particular column

1. Arithmetic operators: +,-,\*,/
2. Logical operators: AND,OR,NOT
3. Comparison operator: >,==,<,>=,<=

### ACID property

ACID is an acronym for Atomicity, Consistency, Isolation, Durability.

Atomicity: each transaction is all or nothing. It means if one part of the transaction fails, the entire transaction fails and the database state is left unchanged. i.e one transaction fails, then not executed rest of all.

Consistency: only valid data written in database.if any transcations results in invalid data,the database reverts to its previous data

Isolation: no interference between transactions and make sure transactions are securely processed.

Durability: data is recoverable that means once a transaction has been committed, it will remain permanent so, come what may even power loss, crashes or errors.

**Group BY clause: It is use to arrange the identical data into groups. Its followed by having clause**

**Eg : in table name has two same name so that group by clause will give result one same data name**

Kamala 25

Kamala 26

Will give kamala 25

Having Clause: Having clause is used to filter data based on the group functions. This is similar to WHERE condition but is used with group functions. Group functions cannot be used in WHERE Clause but can be used in HAVING clause.

Order By clause:

It is use to sort the data in ascending or descending order.

**Joins**: combine the results from 2 or more tables

**Natural Join** : It joins 2 tables based on all the common columns between 2 tables provided the column name and the data type of column is same for both the tables

I**nnerJoin**: Select all records from Table A and Table B, where the join condition is met.

**OuterJoin**

**-**Full Outer Join - Select all records from Table A and Table B, regardless of whether the join condition is met or not.

**-**Right Outer Join - all matched rows between 2 tables + unmatched rows from right table

* Left Outer Join – all matched rows between 2 tables + unmatched rows from left table

**Cross Join/Cartesian Product**: Cross join is a cartesian join means cartesian product of both the tables. This join does not need any condition to join two tables. This join returns records/rows that are multiplication of record number from both the tables means each row on left table will related to each row of right table. Syntax for right outer Join is as :

1. **Select \* from table\_1**
2. **cross join table\_2**

Count (\*) - it is use to count no of rows in the table eg 6 rows in= count =6

Distinct keyword- find out duplicate values and fetch only unique value

Like- column value is similar to specified character(s).use in wildcard character

Eg=like ‘s%’ (its is String pattern based)

IN – comparator one or more value

Eg where in(“maths’,’science’)

Between –compare data range values

Eg:Between 20 AND 25

Null- No data in the table\

Eg: where games is null

Top: select top N data

Eg=select top 3 from table

NOT IN- you want to retrieve a column that has no entries in the table or referencing table.

Eg where customer\_id Not IN Emp\_id

%-zero or more charactersEg,”ber%’,”%ber”,”%es%”

\_ A substitute for a single character Eg”\_er”,”be\_”,”b\_r”

GETDATE()

CURDATE()

CURTIME()

SYSDATE

Alias- Used to temporarily rename a table or a column heading.

Eg- select custer\_name as customer, contactName as[contact person]

DECODE- compares *expr* to each *search* value one by one. If *expr* is equal to a *search*, then Oracle Database returns the corresponding *result*. If no match is found, then Oracle returns *default*. If *default* is omitted, then Oracle returns null.

Like if –else-condition

INTERSECT -

Schema- collection of db objects

Data integrity –to accurate and consistency of data stored in a database