4.2 Data Definition Language

**Data Definition Language** (DDL) is a standard for commands that **define** the different structures in a database. DDL statements create, modify, and remove database objects such as tables, indexes, and users. Common DDL statements are CREATE, ALTER, and DROP.

4.2.1 Domain Type in SQL

The SQL-92 standard supports a variety of built-in domain types:

* + **char**(n) (or **character**(n)): fixed-length character string, with user-specified length.
  + **varchar**(n) (or **character varying**): variable-length character string, with user-specified maximum length.
  + **int** or **integer**: an integer (length is machine-dependent).
  + **smallint**: a small integer (length is machine-dependent).
  + **numeric**(*p, d*): a fixed-point number with user-specified precision, consists of *p* digits (plus a sign) and *d* of *p* digits are to the right of the decimal point. E.g., **numeric**(*3, 1*) allows 44.5 to be stored exactly but not 444.5.
  + **real** or **double precision**: floating-point or double-precision floating-point numbers, with machine-dependent precision.
  + **float**(n): floating-point, with user-specified precision of at least *n* digits.
  + **date**: a calendar date, containing four digit year, month, and day of the month.
  + **time**: the time of the day in hours, minutes, and seconds.

**Eg: create domain** *person-name* **char**(20)

4.2.2 Schema Definition in SQL

SQL-Schema Statements provide maintenance of catalog objects for a schema -- tables, views and privileges. This subset of SQL is also called the Data Definition Language for SQL. There are 6 SQL-Schema Statements:

**CREATE TABLE Statement**

The CREATE TABLE Statement creates a new base table

*table-name* is the new name for the table. *column-descr* is a column declaration. *constraint* is a *table* constraint.

**CREATE VIEW Statement**

The CREATE VIEW statement creates a new database view. A view is effectively a SQL query stored in the catalog. The CREATE VIEW has the following general format:

CREATE VIEW view-name [ ( column-list ) ] AS query-1[WITH [CASCADED|LOCAL] CHECK OPTION ]

**DROP TABLE Statement**

The DROP TABLE Statement removes a previously created table and its description from the catalog. It has the following general format:

DROP TABLE table-name {CASCADE|RESTRICT}

**DROP VIEW Statement**

The DROP VIEW Statement removes a previously created view and its description from the catalog. It has the following general format:

DROP VIEW view-name {CASCADE|RESTRICT}

4.3 Data Manipulation Language

4.3.1 The Select Clause

SQL **SELECT** statement is used to fetch the data from a database table which returns data in the form of result table. These result tables are called result-sets.

The basic syntax of SELECT statement is as follows:

SELECT column1, column2, columnN FROM table\_name;

OR,

SELECT \* FROM table\_name;

Example:

SELECT ID, NAME FROM CUSTOMERS;

4.3.2 The Where Clause

The SQL WHERE clause is used to specify a condition while fetching the data from single table or joining with multiple tables. If the given condition is satisfied then only it returns specific value from the table. You would use WHERE clause to filter the records and fetching only necessary records. The WHERE clause is not only used in SELECT statement, but it is also used in UPDATE, DELETE statement, etc.

**Syntax**

The basic syntax of SELECT statement with WHERE clause is as follows:

**SELECT column1, column2, column N FROM table\_name**

**WHERE [condition]**

4.3.3 The Form Clause

4.3.4 The Rename Operation

4.3.5 Tuple Variable

4.3.6 String Operations

4.3.7 Ordering the Display of Tuples

4.3.8 Duplicate Tuples