INTRODUCTION TO SQL

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SQL

- Structured Query Language

- “It is a Language which provides interface to Database system”

- Used to Create Database
- Used to Modify Database
- Used to Manipulate Data in the Database
History of SQL

- Developed by DR. E.F.Codd in 1970.
- Sponsored by IBM and Known as SEQUEL.
- 1979 Relational Software Inc. released 1st Commercial Version of SQL
- ANSI and ISO developed different standard of SQL
  - SQL-92
  - SQL-99 known as SQL-3
Features of SQL

• Can be used by Range of Users

• English like language so easy to understand by users.

• Non-Procedural language

• Reduces time to Create System.
Rules of SQL

- SQL Statements are start with Verb.( example SELECT)
- Each verb followed by number of clause. Example(FROM, WHERE).
- A space separates clause like DROPTABLE EMP;
- SQL Statements are end with Semicolon(;).
- SQL Parameters are separated by Comma(,).
- Statement may be split across lines but keyword may not.
- Reserved verb can not used as Identifier.
- Identifier must start with Alphabet & should not more than 30 characters.
- Comments may be enclosed between /* */ symbol.
### SQL Delimiter

<table>
<thead>
<tr>
<th>Symbol</th>
<th>SQL Meaning</th>
<th>Symbol</th>
<th>SQL Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>Addition</td>
<td>:</td>
<td>Host Variable</td>
</tr>
<tr>
<td>-</td>
<td>Subtraction</td>
<td>* *</td>
<td>Exponential</td>
</tr>
<tr>
<td>*</td>
<td>Multiplication</td>
<td>:=</td>
<td>Assignment</td>
</tr>
<tr>
<td>/</td>
<td>Division</td>
<td>=&gt;</td>
<td>Association</td>
</tr>
<tr>
<td>= &lt;&gt;</td>
<td>Relational</td>
<td></td>
<td></td>
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<tr>
<td>( )</td>
<td>Expression</td>
<td></td>
<td></td>
</tr>
<tr>
<td>;</td>
<td>Termination of Statements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>Attribute Indicator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>,</td>
<td>Comma Separator</td>
<td>/* */</td>
<td>Comment (Multiple Line)</td>
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<tr>
<td>.</td>
<td>Component Selector</td>
<td></td>
<td></td>
</tr>
<tr>
<td>@</td>
<td>Remote access Indicator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>“</td>
<td>Quote Identifier</td>
<td></td>
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</tbody>
</table>
Components of SQL

- DDL (Data Definition Language).
- DML (Data Manipulation Language).
- DCL (Data Control Language).
- DQL (Data Query Language).
DDL (Data Definition Language)

- Set of SQL Commands used to Create, Modify & Delete Database Structure.
- It affects only Database not Data of Table.
- Commands normally used by DBA.
- **Examples**
  - CREATE, ALTER, DROP, TRUNCATE, COMMENT, GRANT, REVOKE.
DML (Data Manipulation Language)

- Used to change data in Database
- Affects Data of Database not Structure of Database.

**Example**
- INSERT, UPDATE, DELETE, CALL, EXPLAIN PLAN, LOCK.
DCL (Data Control Language)

- Control Access of Data in the Database.

- Group of DML Statements create DCL.

**Example**
- COMMIT
- SAVEPOINT
- RALLBACK
- GRANT/REVOKE.
**DQL (Data Query Language)**

- Used to Retrieve Data from Database.

- Used to Sort Data in Ascending or Descending order.

**Example:**

- SELECT