

18/8/25

TASK: 2-1 Generating Design of other traditional database model

Aim:

To Implement of DDL and DML commands of SQL with suitable example

- Create table
- Alter table
- Drop table
- Truncate
- Insert
- UPDATE
- DELETE
- SELECT

SQL (Structured Query Language):

SQL is the standard language used to interact with relational database. It allows user to create, modify, query, and manage data efficiently.

There are five types of SQL statement. They are,

1. Data Definition language (DDL)
2. Data manipulation language (DML)
3. Data Retrieval language (DRL)
4. Transactional control language (TCL)
5. Data control language (DCL)

1. Data Definition language (DDL):

DDL Commands:

DDL Commands are used to define, modify or delete the structure of database objects such as tables.

1. CREATE TABLE:

Definition: used to create a new table in the database.

SQL:

CREATE TABLE Books C

Book ID INT,

Title VARCHAR(150),

Author VARCHAR(100),

Price DECIMAL(8,2)

);

BookID	Title	Author	Price

CREATE TABLE Members C

MemberID INT,

Member Name VARCHAR(100),

JoinDate DATE

);

Member ID	Member Name	JoinDate

2. Describe or DESC

Definition: Display the structure of a table

SQL: DESC Books;

Output:

Field	TYPE
BookID	INT
Title	VARCHAR(150)
Author	VARCHAR(100)
Price	DECIMAL(8,2)

3. DROP TABLE

Definition: Delete the entire table structure and all its data

SQL: DROP TABLE Books;

Output:

Table Books dropped successfully

4. ALTER TABLE:

Definition: used to add, delete or modify columns in an existing table

SQL:

ALTER TABLE Books ADD PublishedYear INT;

Output:

Column PublishedYear added to Books

Book ID	Title	Author	Price	PublishedYear

Data manipulation language: (DML):

DML Commands:

1. INSERT INTO:

Definition:

Insert new rows into a table

SQL:

INSERT INTO Books (Book ID, Title, Author, Price)

VALUES (1, 'The Alchemist', 'Paulo Coelho', 350.00);

INSERT INTO Books (Book ID, Title, Author, Price)

VALUES (2, 'Wings of Fire', 'A.P.J Abdul Kalam', 400.00);

INSERT INTO Books (Book ID, Title, Author, Price)

VALUES (3, '1984', 'George Orwell', 299.00);

BookID	Title	Author	Price
1	The Alchemist	Paulo Coelho	350.00

BookID	Title	Author	Price
2	Wings of Fire	A.P.J Abdul Kalam	400.00

BookID	Title	Author	Price
3	1984	George Orwell	299.00

2. SELECT:

Definition: Retrieves data from one or more tables

SQL:

SELECT * FROM Books

BookID	Title	Author	Price
1	The Alchemist	Paulo Coelho	350.00
2	wings of fire	APJ Abdul Kalam	400.00
3	1984	George Orwell	299.00

3. UPDATE

Definition: modifies existing data in a table

SQL:

UPDATE Books SET Price = 450.00 WHERE

Output: Title = 'wings of Fire';

BookID	Title	Author	Price
1	The Alchemist	Paulo Coelho	350.00
2	wings of fire	APJ. Abdul Kalam	450.00
3	1984	George Orwell	299.00

4. DELETE :

Definition :

Delete one or more rows from a table

SQL:

DELETE FROM Books WHERE Book ID =

Output:

1 row deleted

SQL:

SELECT* FROM Books;

Output :

BookID	Title	Author	Price
2	wings of Fire	APJ. Abdul Kalam	450.00
3	1984	George Orwell	299.00

5. SELECT with WHERE clause

Definition:

Retrieves specific records that satisfy the condition

SQL

SELECT * FROM

Book WHERE Author

= 'George Orwell';

Command type	Command	Description
DDL	CREATE	Create table
DDL	DESC	Show table structure
DDL	DROP	Delete table
DDL	ALTER	Modify table structure
DML	INSERT	Add records to table
DML	SELECT	Retrieve records
DML	UPDATE	Modify existing record
DML	DELETE	Remove record

VEL TECH - CSE	
EX NO.	21
PERFORMANCE (5)	5
RESULT AND ANALYSIS (5)	5
VIVA VOCE (5)	5
RECORD (5)	5
TOTAL (20)	15
SIGN WITH DATE	18/11/23

Result:

These tasks for generating design of a relational database model successfully executed

18/8/25

TASK: 2.2 DDL and DML commands with constraints

Aim:

To implement the DDL and DML commands with constraints

DDL Commands:

CREATE, ALTER, DROP, TRUNCATE, RENAME

DML Commands:

INSERT, UPDATE, DELETE, SELECT

constraints:

Primary key

Foreign key

NOT NULL

UNIQUE

CHECK

DEFAULT

• DDL Commands (Data Definition language)

CREATE TABLE Books(

BookID INT PRIMARY KEY,

Title VARCHAR(150) NOT NULL,

Author VARCHAR(812) NOT NULL,

Price DECIMAL(8,2) CHECK (Price > 0),

PublishedYear INT DEFAULT 2020,

ISBN VARCHAR(20) UNIQUE

);

BookID	Title	Author	Price	publishedYear	ISBN

CREATE TABLE Members(

memberID INT PRIMARY KEY,

memberName VARCHAR(100) NOT NULL,

JoinDate DATE DEFAULT CURRENT_DATE,

Email VARCHAR(100) UNIQUE

);

memberID	memberName	JoinDate	Email

CREATE TABLE Borrowow (

BorrowID INT PRIMARY KEY,

Book ID INT NOT NULL,

MemberID INT NOT NULL,

BorrowDate DATE DEFAULT CURRENT_DATE,

ReturnDate DATE,

FOREIGN KEY (BookID) REFERENCES Books (BookID),

FOREIGN KEY (MemberID) REFERENCES Members (MemberID);

BorrowID	BookID	MemberID	BorrowDate	ReturnDate

1.2 ALTER TABLE

ALTER TABLE Books ADD Publisher VARCHAR(100);

BookID	Title	Author	Price	Published Year	ISBN	Publisher

1.3 TRUNCATE TABLE:

TRUNCATE TABLE Borrowow;

TABLE TRUNCATED

1.4 RENAME TABLE:

RENAME TABLE Members To LibraryMembers;

TABLE RENAMED

SELECT * FROM LibraryMembers

memberID	memberName	JoinDate	Email

DML commands for Library Management System

2.1 INSERT Data

INSERT INTO Books (BookID, Title, Author, Price, Published Year, ISBN)
VALUE (1, 'The Alchemist', 'Paulo Coelho', 350.00, 2018, '978006');

BookID	Title	Author	Price	Published Year	ISBN	Publisher
1	The Alchemist	Paulo Coelho	350.00	2018	978006	NULL

INSERT INTO LibraryMembers (MemberID, MemberName, JoinDate, Email)
value (101, 'Ananya Sharma', '2025-08-01', 'ananya@gmail.com');

MemberID	MemberName	JoinDate	Email
101	Ananya Sharma	2025-08-01	ananya@gmail.com

INSERT INTO Borrow (BorrowID, BookID, memberID, BorrowDate, ReturnDate)
VALUES (1001, 1, 101, '2025-08-10', NULL);

BorrowID	BookID	MemberID	BorrowDate	ReturnDate
1001	1	101	2025-08-10	NULL

2.2 UPDATE DATE

UPDATE Books

SET Price = 400.00, Published Year = 2020
WHERE BookID = 1;

I now updated

Books table After update

BookID	Title	Author	Price	ISBN	Publisher
1	The Alchemist	Paulo Coelho	400	97809102415	NULL

2.3 DELETE Data

```
DELETE FROM Borrow  
WHERE BorrowID = 1001;
```

1 row deleted from Borrow table

Borrow table after delete:

No rows:

2.4 SELECT with JOIN:

```
SELECT b.Title, b.Author, l.MemberName, l.Borrow  
Date  
FROM Borrow  
JOIN Books b ON b.BookID = l.BookID  
JOIN LibraryMember l ON l.MemberID =
```

No rows returned as Borrow table is empty

VEL-TECH - CSE	
EX NO.	2.2
PERFORMANCE (5)	5
RESULT AND ANALYSIS (5)	5
VIVA VOCE (5)	5
RECORD (5)	-
TOTAL (20)	15
SIGN WITH DATE	19/8/24

Result:

Thus all DDL and DML commands with correct syntax executed successfully