Q2)
a. Design and Develop SQL DDL statements which demonstrate the use of
SQL objects such as Table, View, Index, Sequence, Synonym, different
constraints etc.

```
ubuntu@ip-172-31-7-135:~$ sudo mysql
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 8
Server version: 8.0.34-0ubuntu0.22.04.1 (Ubuntu)

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input
statement.

mysql> SHOW DATABASES;
+--------------------+
| Database           |
+--------------------+
| VedantTestDB       |
| information_schema |
| mysql              |
| performance_schema |
| sys                |
+--------------------+
5 rows in set (0.00 sec)

mysql> USE VedantTestDB;
Database changed
mysql> CREATE TABLE StudentMaster (
    -> Std_ID INT NOT NULL
AUTO_INCREMENT,
    -> FirstName VARCHAR(50),
    -> LastName VARCHAR(50),
    -> Address VARCHAR(500),
    -> City VARCHAR(50),
    -> PRIMARY KEY(Std_ID));
Query OK, 0 rows affected (0.22 sec)

mysql> INSERT INTO StudentMaster (FirstName,LastName,Address,City)
mysql> VALUE ("Vedant", "Gorule", "Chinchwad", "Pune");
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO StudentMaster (FirstName,LastName,Address,City)
mysql> VALUE ("Pranav", "Khandagle", "Chinchwad", "Pune");
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO StudentMaster (FirstName,LastName,Address,City)
mysql> VALUE ("Mayur", "Thakur", "Mulashi", "Pune");
Query OK, 1 row affected (0.00 sec)
```

```
mysql> INSERT INTO StudentMaster (FirstName,LastName,Address,City)
mysql> VALUE ("Shreeyash", "Garde", "Panchavati", "Nashik");
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO StudentMaster (FirstName,LastName,Address,City)
mysql> VALUE ("Sujal", "Koli", "Kurduwadi", "Solapur");
Query OK, 1 row affected (0.01 sec)

mysql> SELECT * FROM StudentMaster;
+--------+-----------+-----------+------------+---------+
| Std_ID | FirstName | LastName  | Address    | City    |
+--------+-----------+-----------+------------+---------+
|      1 | Vedant    | Gorule    | Chinchwad  | Pune    |
|      2 | Pranav    | Khandagle | Chinchwad  | Pune    |
|      3 | Mayur     | Thakur    | Mulashi    | Pune    |
|      4 | Shreeyash | Garde     | Panchavati | Nashik  |
|      5 | Sujal     | Koli      | Kurduwadi  | Solapur |
+--------+-----------+-----------+------------+---------+
5 rows in set (0.01 sec)

mysql> CREATE INDEX student_index
    -> ON StudentMaster (Std_ID, FirstName, LastName, Address, City);
Query OK, 0 rows affected (0.07 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> CREATE VIEW vw_student_master AS SELECT FirstName, LastName,
City
FROM StudentMaster;
Query OK, 0 rows affected (0.00 sec)

mysql> SELECT * FROM vw_student_master;
+-----------+-----------+---------+
| FirstName | LastName  | City    |
+-----------+-----------+---------+
| Vedant    | Gorule    | Pune    |
| Pranav    | Khandagle | Pune    |
| Mayur     | Thakur    | Pune    |
| Shreeyash | Garde     | Nashik  |
| Sujal     | Koli      | Solapur |
+-----------+-----------+---------+
5 rows in set (0.00 sec)

mysql> CALL sys.create_synonym_db('VedantTestDB', 'Student');
+-------------------------------------------+
| summary                                   |
+-------------------------------------------+
| Created 2 views in the `Student` database |
+-------------------------------------------+
1 row in set (0.05 sec)

Query OK, 0 rows affected (0.05 sec)


mysql> SHOW DATABASES;
```

```
+--------------------+
| Database           |
+--------------------+
| Student            |
| VedantTestDB       |
| information_schema |
| mysql              |
| performance_schema |
| sys                |
+--------------------+
6 rows in set (0.00 sec)
```

b. Write at least 10 SQL queries on the suitable database application using SQL DML statements.

```
mysql> USE VedantTestDB;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed

mysql> SHOW TABLES;
+----------------------+
| Tables_in_VedantTestDB |
+----------------------+
| StudentMaster        |
| student_group        |
+----------------------+
2 rows in set (0.00 sec)

mysql> SELECT * FROM StudentMaster;
+--------+-----------+-----------+------------+---------+
| Std_ID | FirstName | LastName  | Address    | City    |
+--------+-----------+-----------+------------+---------+
|      1 | Vedant    | Gorule    | Chinchwad  | Pune    |
|      2 | Pranav    | Khandagle | Chinchwad  | Pune    |
|      3 | Mayur     | Thakur    | Mulashi    | Pune    |
|      4 | Shreeyash | Garde     | Panchavati | Nashik  |
|      5 | Sujal     | Koli      | Kurduwadi  | Solapur |
+--------+-----------+-----------+------------+---------+
5 rows in set (0.00 sec)

mysql> SELECT * FROM StudentMaster WHERE City = 'Pune';
+--------+-----------+-----------+-----------+------+
| Std_ID | FirstName | LastName  | Address   | City |
+--------+-----------+-----------+-----------+------+
|      1 | Vedant    | Gorule    | Chinchwad | Pune |
|      2 | Pranav    | Khandagle | Chinchwad | Pune |
|      3 | Mayur     | Thakur    | Mulashi   | Pune |
+--------+-----------+-----------+-----------+------+
3 rows in set (0.00 sec)

mysql> UPDATE StudentMaster SET City = "Kolhapur" WHERE Std_ID = 1;
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> SELECT * FROM StudentMaster;
+--------+-----------+-----------+------------+----------+
| Std_ID | FirstName | LastName  | Address    | City     |
+--------+-----------+-----------+------------+----------+
|      1 | Vedant    | Gorule    | Chinchwad  | Kolhapur |
|      2 | Pranav    | Khandagle | Chinchwad  | Pune     |
|      3 | Mayur     | Thakur    | Mulashi    | Pune     |
|      4 | Shreeyash | Garde     | Panchavati | Nashik   |
|      5 | Sujal     | Koli      | Kurduwadi  | Solapur  |
+--------+-----------+-----------+------------+----------+
5 rows in set (0.00 sec)
```

```
mysql> DELETE FROM StudentMaster WHERE Std_ID = 4;
Query OK, 1 row affected (0.02 sec)

mysql> SELECT * FROM StudentMaster;
+--------+-----------+-----------+------------+----------+
| Std_ID | FirstName | LastName  | Address    | City     |
+--------+-----------+-----------+------------+----------+
|      1 | Vedant    | Gorule    | Chinchwad  | Kolhapur |
|      2 | Pranav    | Khandagle | Chinchwad  | Pune     |
|      3 | Mayur     | Thakur    | Mulashi    | Pune     |
|      5 | Sujal     | Koli      | Kurduwadi  | Solapur  |
+--------+-----------+-----------+------------+----------+
4 rows in set (0.00 sec)

mysql> INSERT INTO StudentMaster (FirstName,LastName,Address,City)
VALUE ("Maihul", "Ligade", "Moshi", "Pune");
Query OK, 1 row affected (0.00 sec)

mysql> SELECT * FROM StudentMaster;
+--------+-----------+-----------+------------+----------+
| Std_ID | FirstName | LastName  | Address    | City     |
+--------+-----------+-----------+------------+----------+
|      1 | Vedant    | Gorule    | Chinchwad  | Kolhapur |
|      2 | Pranav    | Khandagle | Chinchwad  | Pune     |
|      3 | Mayur     | Thakur    | Mulashi    | Pune     |
|      5 | Sujal     | Koli      | Kurduwadi  | Solapur  |
|      6 | Maihul    | Ligade    | Moshi      | Pune     |
+--------+-----------+-----------+------------+----------+
5 rows in set (0.00 sec)

mysql> UPDATE StudentMaster SET Address = "Jarag Nagar" WHERE Std_ID =
1;
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> SELECT * FROM StudentMaster;
+--------+-----------+-----------+-------------+-----------+
| Std_ID | FirstName | LastName  | Address     | City      |
+--------+-----------+-----------+-------------+-----------+
|      1 | Vedant    | Gorule    | Jarag Nagar | Kolhapur  |
|      2 | Pranav    | Khandagle | Chinchwad   | Pune      |
|      3 | Mayur     | Thakur    | Mulashi     | Pune      |
|      5 | Sujal     | Koli      | Kurduwadi   | Solapur   |
|      6 | Maihul    | Ligade    | Moshi       | Pune      |
+--------+-----------+-----------+-------------+-----------+
5 rows in set (0.00 sec)

mysql> DELETE FROM StudentMaster WHERE Address = 'Moshi';
Query OK, 1 row affected (0.00 sec)
```

```
mysql> SELECT * FROM StudentMaster;
+--------+-----------+-----------+-------------+----------+
| Std_ID | FirstName | LastName  | Address     | City     |
+--------+-----------+-----------+-------------+----------+
|      1 | Vedant    | Gorule    | Jarag Nagar | Kolhapur |
|      2 | Pranav    | Khandagle | Chinchwad   | Pune     |
|      3 | Mayur     | Thakur    | Mulashi     | Pune     |
|      5 | Sujal     | Koli      | Kurduwadi   | Solapur  |
+--------+-----------+-----------+-------------+----------+
4 rows in set (0.00 sec)

mysql> DELETE FROM StudentMaster WHERE Address != 'Jarag Nagar';
Query OK, 3 rows affected (0.01 sec)

mysql> SELECT * FROM StudentMaster;
+--------+-----------+----------+-------------+----------+
| Std_ID | FirstName | LastName | Address     | City     |
+--------+-----------+----------+-------------+----------+
|      1 | Vedant    | Gorule   | Jarag Nagar | Kolhapur |
+--------+-----------+----------+-------------+----------+
1 row in set (0.00 sec)

mysql> SELECT ROUND(3.14159265, 2);
+---------------------+
| ROUND(3.14159265, 2) |
+---------------------+
|                3.14 |
+---------------------+
1 row in set (0.01 sec)

mysql> SELECT CONCAT('Hello', ' ', 'World');
+------------------------------+
| CONCAT('Hello', ' ', 'World') |
+------------------------------+
| Hello World                  |
+------------------------------+
1 row in set (0.00 sec)

mysql> SELECT DATEDIFF('2023-10-15', '2023-10-01');
+-------------------------------------+
| DATEDIFF('2023-10-15', '2023-10-01') |
+-------------------------------------+
|                                  14 |
+-------------------------------------+
1 row in set (0.00 sec)

mysql> SELECT REPLACE('Hello, World', 'World', 'MySQL');
+------------------------------------------+
| REPLACE('Hello, World', 'World', 'MySQL') |
+------------------------------------------+
| Hello, MySQL                             |
+------------------------------------------+
1 row in set (0.00 sec)
```

```
mysql> CREATE TABLE setop (
-> UserID INT PRIMARY KEY,
    ->      FavoriteColors VARCHAR(255)
    -> );
Query OK, 0 rows affected (0.03 sec)

mysql> INSERT INTO setop (UserID, FavoriteColors)
    -> VALUES
    ->      (1, 'Red,Blue'),
    ->      (2, 'Green,Yellow,Blue'),
    ->      (3, 'Red');
Query OK, 3 rows affected (0.01 sec)
Records: 3  Duplicates: 0  Warnings: 0

mysql> SELECT UserID
    -> FROM setop
    -> WHERE FIND_IN_SET('Blue', FavoriteColors) > 0;
+--------+
| UserID |
+--------+
|      1 |
|      2 |
+--------+
2 rows in set (0.00 sec)
```