# Assignment No. 2(A)

**Title:**

a. **Design and develop SQL DDL statements which demonstrate the use of SQL objects such as Table, View, Index, Sequence, Synonym, different constraints etc.**
b. **Write at least 10 SQL queries on the suitable database application using SQL DML statements.**

**Solution:**

I. **Create following table**
**Table Name: Customer**
**Table Column Name: Account_no, Name, Balance, City**

```
>mysql  -h  192.168.2.232  -u  TEB65  -p

mysql> create database CollegeTEB2022;
Query OK, 1 row affected (0.01 sec)

mysql> use CollegeTEB2022;
Database changed
mysql> create table Customers(Account_no int primary key AUTO_INCREMENT,Name varchar(20)
NOT NULL,Balance int, City varchar(10));
Query OK, 0 rows affected (0.40 sec)

mysql> Desc Customers;
+---------------+----------------+---------+--------+------------+---------------------+
| Field         | Type           | Null    | Key    | Default    | Extra               |
+---------------+--------------- -+---------+--------+------------+---------------------+
| Account_no | int(11)        | NO     | PRI    | NULL     | auto_increment  |
| Name         | varchar(20)  | NO     |          | NULL     |                        |
| Balance      | int(11)        | YES    |          | NULL     |                        |
| City           | varchar(10)  | YES    |          | NULL     |                        |
+---------------+----------------+--------+-------+------------+---------------------+
4 rows in set (0.00 sec)
```

II. **Insert following record**
**1 Ram 10000 Pune**
**2 Ravi 25000 Nashik**
**3 Sachin 30000 Mumbai**

```
mysql> insert into Customers(Name,Balance,City) values ('Ram',10000,'Pune');
Query OK, 1 row affected (0.04 sec)

mysql>
mysql> insert into Customers(Name,Balance,City)
values('Ravi',25000,'Nashik'),('Sachin',30000,'Mumbai');
```

```
Query OK, 2 rows affected (0.05 sec)
Records: 2  Duplicates: 0  Warnings: 0

mysql> select * from Customers;
+--------------+---------+-----------+-----------+
| Account_no | Name  | Balance | City       |
+--------------+---------+------ ----+-----------+
|          1      | Ram    |   10000 | Pune      |
|          2      | Ravi    |   25000 | Nashik   |
|          3      | Sachin |   30000 | Mumbai |
+--------------+---------+----------+------------+
3 rows in set (0.00 sec)
```

## III. Set Operation: Union, Intersection, Minus

**Create following table**

**Table Name : Loan**

**Table Column Name : Loan_no, Name, Loan_Amount**

**Insert Following Record**

**1 Ram 10000**

**2 Ravi 50000**

**4 Dipak 40000**

```
mysql> create table Loan(Loan_no int primary key AUTO_INCREMENT,Name varchar(20) NOT NULL,Loan_amount int);
Query OK, 0 rows affected (0.31 sec)

mysql> insert into (Name,Balance,City) values('Ravi',25000,'Nashik'),('Sachin',30000,'Mumbai');
mysql> insert into Loan(Name,Loan_amount)values('Ram',10000),('Ravi',50000),('Dipak',40000);
Query OK, 3 rows affected (0.05 sec)
Records: 3  Duplicates: 0  Warnings: 0

mysql> select * from Loan;
+-----------+---------+-------------------+
| Loan_no | Name  | Loan_amount  |
+-----------+---------+-------------------+
|          1  | Ram    |      10000       |
|          2  | Ravi    |      50000       |
|          3  | Dipak |      40000       |
+-----------+---------+-------------------+
3 rows in set (0.00 sec)
```

### 1) Select customer having account in the bank or teken the loan from the bank

```
mysql> select name from Customers union select name from Loan;
+----------+
| name    |
+----------+
| Ram     |
| Ravi     |
```

```
| Sachin   |
| Dipak    |
+----------+
```

### 2) Select customer having account as well as loan in the bank

```
mysql> select Name from Customers where Name in (select Name from Loan);
+--------+
| Name |
+--------+
| Ram    |
| Ravi   |
+--------+
```

### 3) Select customer having account in the bank but not taken the loan

```
mysql> select Name from Customers where Name not in (select Name from Loan);
+---------+
| Name   |
+---------+
| Sachin |
+---------+
```

## IV. 1) Create a view to display customer having balance greater than 20000

```
mysql> create view Customer_Above_20000 as select * from Customers where Balance>= 20000;
Query OK, 0 rows affected (0.04 sec)

mysql> select * from Customer_Above_20000;
+----------------+---------+----------- +------------+
| Account_no  | Name   | Balance  | City        |
+----------------+---------+---------- -+------------+
|          2        | Ravi    |   25000   | Nashik    |
|          3        | Sachin |   30000   | Mumbai  |
+----------------+---------+------------+------------+
```

### 2) Create a view to display customer from nasik having Balance greater than 20000

```
mysql> create view Customer_Nashik as select * from Customers where Balance>= 20000 and
City='Nashik';
Query OK, 0 rows affected (0.04 sec)

mysql> select * from Customer_Nashik;
+---------------+--------+-----------+----------+
| Account_no | Name | Balance | City      |
+---------------+--------+-----------+----------+
|          2      | Ravi   |   25000  | Nashik |
+---------------+--------+-----------+----------+
```

## V. 1) Create a index on name column

```
mysql> create index name_index on Customers(Name);
Query OK, 0 rows affected (0.27 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> show Index from Customers;
```

| Table | Non_unique | Key_name | Seq_in_index | Column_name | Collation | Cardinality | Sub Part | Packed | Null | Index_type | Comment | Index_comment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Customers | 0 | PRIMARY | 1 | Account_no | A | 3 | NULL | NULL | | BTREE | | |
| Customers | 1 | name_index | 1 | Name | A | 3 | NULL | NULL | | BTREE | | |

### 2) Create a composite index on Account_no and name column

```
mysql> create index index1 on Customers(Account_no, Name);
Query OK, 0 rows affected (0.25 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> show index from Customers;
```

| Table | Non_unique | Key_name | Seq_in_index | Column_name | Collation | Cardinality | Sub Part | Packed | Null | Index_type | Comment | Index_comment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Customers | 0 | PRIMARY | 1 | Account_no | A | 3 | NULL | NULL | | BTREE | | |
| Customers | 1 | name_index | 1 | Name | A | 3 | NULL | NULL | | BTREE | | |
| Customers | 1 | myindex | 1 | Name | A | 3 | NULL | NULL | | BTREE | | |
| Customers | 1 | index1 | 1 | Account_no | A | 3 | NULL | NULL | | BTREE | | |
| Customers | 1 | index1 | 2 | Name | A | 3 | NULL | NULL | | BTREE | | |

## VI. 1) Display Customer in the ascending order of Balance

```
mysql> select * from Customers order by Balance asc;
+--------------+---------+-----------+-----------+
| Account_no | Name  | Balance  | City       |
+--------------+---------+-----------+-----------+
|       1        | Ram    |  10000  | Pune      |
|       2        | Ravi    |  25000  | Nashik   |
|       3        | Sachin |  30000  | Mumbai |
+--------------+----------+-----------+-----------+
3 rows in set (0.00 sec)
```

### 2) Display borower in the descending order of loan_amount

```
mysql> select * from Loan order by Loan_amount desc;
+-----------+---------+-----------------+
| Loan_no | Name  | Loan_amount |
+-----------+---------+-----------------+
|     2      | Ravi    |     50000       |
|     3      | Dipak |     40000       |
|     1      | Ram    |     10000       |
+---------- +---------+-----------------+
3 rows in set (0.00 sec)
```

## VII. Calculate and display interest on given loan for 20 year (Use Synonym)

```
mysql> Select Name,Loan_Amount,Loan_Amount*0.04*20 as InterestAfter20Yrs from Loan;
+---------+------------------+------------------------+
| Name   | Loan_Amount | InterestAfter20Yrs  |
+---------+------------------+------------------------+
| Ram    |     10000        |         8000.00        |
| Ravi    |     50000        |        40000.00        |
| Dipak |     40000        |        32000.00        |
+---------+-----------------+------------------------+
3 rows in set (0.00 sec)
```