Database Design CS 6360.003(Spring 2020)

**SQL Programming Project 2: Project Report** 

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**Aim:** To create a rudimentary Database engine based on MySQL and SQLite which uses B+ tree/B tree data structure for pages in Table and Index files.

# **Functionalities of the project:**

Different SQL commands have been implemented as a part of this project and they're as shown below with output screenshots:

1. **HELP** command to show the various commands and menu:

```
DavisBasePrompt (1) [Java Application] C:\Program Files\Java\jdk1.8.0_112\bin\javaw.exe (06-May-2020, 7:37:41 pm)
·-----
Welcome to DavisBase
DavisBase Version v1.0
© 2020 Aasia Afreen
Type 'help;' to display supported commands.
davisal> help:
SUPPORTED COMMANDS
All commands below are case insensitive
       USE database_name;
                                                     Changes current database.
       CREATE DATABASE database name;
                                                     Creates an empty database.
                                                   Displays all databases.
Deletes a database.
       SHOW DATABASES;
                                        Deletes a database.

Displays all tables in current database.
       DROP DATABASE database name;
       SHOW TABLES:
                                                     Creates a table in current database.
       CREATE TABLE table name (
              <column_name> <datatype> [PRIMARY KEY | NOT NULL]
               ...);
       SELECT <column_list> FROM table_name Display records whose rowid is <id>.

[WHERE rowid = <value>];

INSERT INTO table name
               [(<column1>, ...)] VALUES (<value1>, <value2>, ...);
               [WHERE condition];
       HELP:
                                                     Displays help information
       EXIT;
                                                     Exits the program
       davisql>
```

### 2. DDL Commands:

- a. Create Database command: Used to create a database
- b. Create Table Command: Used to create a table
- c. **Show Databases** command: To show the databases
- d. **Show tables** command: To show the tables

- e. **Drop Database** Command: To drop the tables
- f. **Drop Database** Command: To drop the database

```
DavisBasePrompt (1) [Java Application] C:\Program Files\Java\jdk1.8.0_112\bin\javaw.exe (06-May-2020, 7:54:18 pm)
______
Welcome to DavisBase
DavisBase Version v1.0
© 2020 Aasia Afreen
Type 'help;' to display supported commands.
davisql> use COMPANY;
Database changed
davisql> create table EMPLOYEE (Id INT PRIMARY KEY, Name TEXT, Bdate DATE);
Query Successful
1 row affected
davisql> show tables;
+----+
| table_name |
+----+
employee
+----+
Query Successful
1 row in set
davisql>
DavisBasePrompt (1) [Java Application] C:\Program Files\Java\jdk1.8.0_112\bin\javaw.exe (06-May-2020, 7:52:33 pm)
Welcome to DavisBase
DavisBase Version v1.0
© 2020 Aasia Afreen
Type 'help;' to display supported commands.
davisql> create database COMPANY;
Query Successful
1 row affected
davisql> show databases;
Database
+----+
catalog
company
Query Successful
2 rows in set
davisql> use COMPANY;
Database changed
davisql>
```

```
🧖 Problems @ Javadoc 📵 Declaration 📮 Console 🛭
DavisBasePrompt (1) [Java Application] C:\Program Files\Java\jdk1.8.0_112\bin\javaw.exe (06-May-2020, 10:48:00 pm)
5 rows in set
davisql> select id, name from employee;
+----+
id name
+---+
1 | mohsin |
2 aasia
3 aisha
4 | alex
5 | sameer |
+----+
Query Successful
5 rows in set
davisql> drop table employee;
Query Successful
1 row affected
davisql> show tables;
Empty Set
davisql> drop database company;
Query Successful
1 row affected
davisql> show databases;
+----+
Database
+----+
catalog
+----+
Query Successful
1 row in set
davisql>
```

### 3. DML Commands:

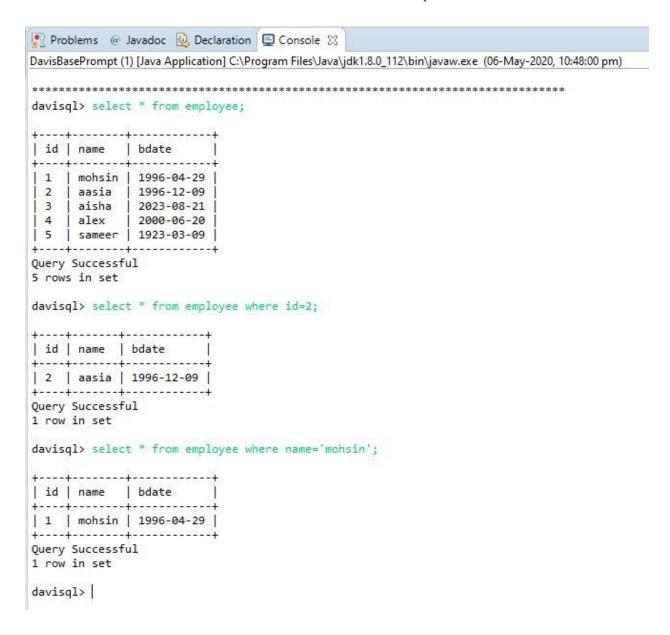
a. Insert Into Table command: To insert new values into the database

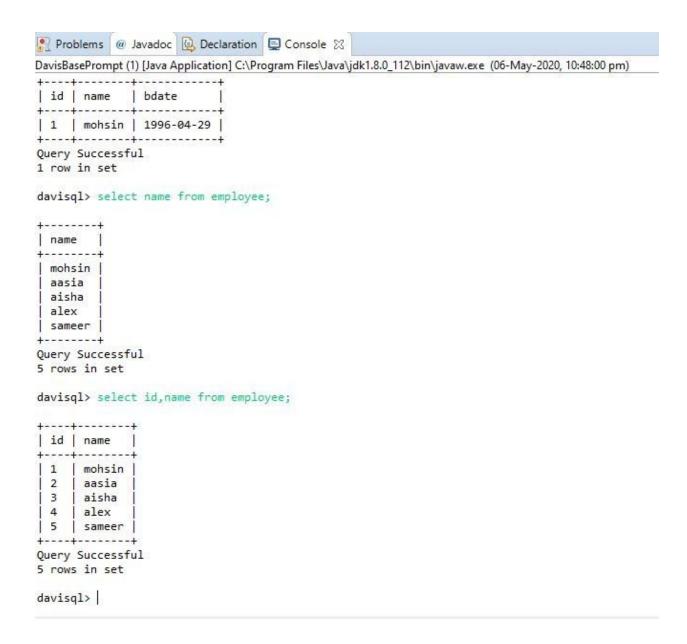
The Primary Key constraint has also been handled as shown in the screenshots below.

```
🥷 Problems @ Javadoc 📵 Declaration 📮 Console 🛭
 DavisBasePrompt (1) [Java Application] C:\Program Files\Java\jdk1.8.0_112\bin\javaw.exe (06-May-2020, 10:48:00 pm)
 Welcome to DavisBase
 DavisBase Version v1.0
 © 2020 Aasia Afreen
 Type 'help;' to display supported commands.
 davisql> use company;
 Database changed
 davisql> insert into employee values (1, 'Mohsin', '1996-04-29');
 Query Successful
 1 row affected
 davisql> insert into employee values (2, 'Aasia', '1996-12-09');
 Query Successful
 1 row affected
 davisql> select * from employee;
 | id | name | bdate
  | 1 | mohsin | 1996-04-29 |
 | 2 | aasia | 1996-12-09
  +----+------+
 Query Successful
 2 rows in set
 davisql>
🥷 Problems 🏿 @ Javadoc 🚇 Declaration 📮 Console 🔀
DavisBasePrompt (1) [Java Application] C:\Program Files\Java\jdk1.8.0_112\bin\javaw.exe (06-May-2020, 10:48:00 pm)
Welcome to DavisBase
DavisBase Version v1.0
© 2020 Aasia Afreen
Type 'help;' to display supported commands.
davisql> use company;
Database changed
davisql> insert into employee values (1, 'Mohsin', '1996-04-29');
Query Successful
1 row affected
davisql> insert into employee values (2, 'Aasia', '1996-12-09');
Query Successful
1 row affected
davisql> select * from employee;
+----+
| id | name | bdate
| 1 | mohsin | 1996-04-29 |
| 2 | aasia | 1996-12-09 |
Query Successful
2 rows in set
davisql> insert into employee values (2,'Afreen','1996-12-09');
ERROR(110P): Duplicate entry '2' for key 'PRIMARY'
davisql>
```

#### 4. VDL Commands:

- a. **Select \* from table query**: to select all rows from a table
- b. **Select \* from table where <attribute>=<value>** query: to select specific rows based on the conditional operators in where clause like '<','>','='.
- c. Select <attribute list> from tablename: to select specific columns from a table





# 5. **EXIT command:** to exit the database

```
davisql> show databases;

+-----+
| Database |
+-----+
| catalog |
+-----+
Query Successful
1 row in set

davisql> exit;
Exiting Database...
```