

Safal Tyagi | Database Project | DavisBase

Code is written in Java in single file DavisBase which contains following classes:

DavisBase: Main entry point for the DavisBase

DavisBasePrompt: Manages the user prompt related functionalities like show help, process query strings and call respective methods from DavisBaseEngine class.

DavisBaseEngine: Provides the core database engine functionalities to process queries. This uses B+ Tree Indexer (*DavisBaseFileIndexer*) to manage file indexing and (*DavisBaseDataBuffer*) classes to manage data streaming from or to database.

DavisBaseFileIndexer: Implements the B+ tree-based file indexing system for DB

DavisBaseDataBuffer: Responsible for formatting the data in pretty printed tables

List of commands to test:

help;

create table students (roll_number INT);

create table contacts (ssn INT, full_name TEXT, phone_number TEXT);

show tables;

insert into contacts values (11111, Safal Tyagi, 4699255256);

insert into contacts values (22222, Chris Davis, 333-444-5252);

insert into contacts values (33333, Shen Li, 444-925-5666);

*select * from contacts;*

*select * from contacts WHERE ssn=11111;*

*select * from davisbase_tables;*

*select * from davisbase_columns;*

drop table contacts;

exit;

Sample Outputs

davisql> [help](#);

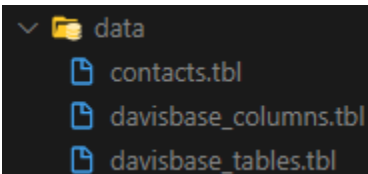
```
-----
Welcome to DavisBase
DavisBase Version v1.0a
©2020 Safal Tyagi
Type "help;" to display supported commands.
-----
davisql> help;
*****
• SHOW tables - Displays a list of all tables in DavisBase.
  usage and example: SHOW tables;
• CREATE TABLE - Creates a new table schema, i.e. a new empty table.
  usage: CREATE TABLE table_name ( column_name1 INT PRIMARY KEY, column_name2 data_type2 [NOT NULL], column_name3 data_type3 [NOT NULL],...);
  example: CREATE TABLE contacts ( ssn INT PRIMARY KEY, full_name TEXT [NOT NULL], phone_number TEXT);
• DROP TABLE - Remove a table schema, and all of its contained data.
  usage: DROP TABLE table_name
  example: DROP TABLE contacts
• INSERT INTO TABLE - Inserts a single record into a table.
  usage: INSERT INTO table_name VALUES (value1,value2,value3,...);
  example: INSERT INTO contacts VALUES (1231231234, Safal Tyagi, 469-925-5256);
• SELECT ... FROM ... WHERE ...
  usage: SELECT * FROM table_name WHERE column_name operator value;
  example: SELECT * FROM contacts;
  example: SELECT * FROM contacts WHERE ssn=1231231234;
  example: SELECT * FROM davisbase_tables;
  example: SELECT * FROM davisbase_columns;
• EXIT - Cleanly exits the program and saves all table information in non-volatile files
  usage and example: EXIT;
*****
davisql> █
```

davisql> [show tables](#);

```
davisql> show tables;
-----
table_name |
-----
davisbase_tables |
davisbase_columns |

davisql> █
```

davisql> [create table contacts \(ssn INT, full_name TEXT, phone_number TEXT\);](#)



```

└─ data
   ├── contacts.tbl
   ├── davisbase_columns.tbl
   └── davisbase_tables.tbl
```

```
davisql> create table contacts (ssn INT, full_name TEXT, phone_number TEXT);
davisql> show tables;
-----
table_name |
-----
davisbase_tables |
davisbase_columns |
students |
contacts |
```

davisql> [insert into contacts \(ssn, full_name, phone_number\) values \(11111, Safal Tyagi, 4699255256\);](#)

davisql> [insert into contacts \(ssn, full_name, phone_number\) values \(22222, Chris Davis, 333-444-5252\);](#)

davisql> [insert into contacts \(ssn, full_name, phone_number\) values \(33333, Shen Li, 444-925-5666\);](#)

```
davisql> insert into contacts (ssn, full_name, phone_number) values (11111, Safal Tyagi, 4699255256);
davisql> insert into contacts (ssn, full_name, phone_number) values (22222, Chris Davis, 333-444-5252);
davisql> insert into contacts (ssn, full_name, phone_number) values (33333, Shen Li, 444-925-5666);
```

```
davisql> select * from contacts;
```

```
davisql> select * from contacts;
```

```
-----
ssn      |full_name      |phone_number    |
-----
33333    |shen li        |444-925-5666    |
11111    |safal tyagi    |4699255256      |
22222    |chris davis    |333-444-5252    |
```

```
davisql> select * from contacts WHERE ssn=11111;
```

```
davisql> select * from contacts WHERE ssn=1231231234;
```

```
-----
ssn      |full_name      |phone_number    |
-----
```

```
davisql> select * from contacts WHERE ssn=11111;
```

```
-----
ssn      |full_name      |phone_number    |
-----
11111    |safal tyagi    |4699255256      |
```

```
davisql> select * from davisbase_tables;
```

```
davisql> select * from davisbase_columns;
```

```
davisql> select * from davisbase_tables;
```

```
-----
rowid    |table_name      |
-----
1        |davisbase_tables|
2        |davisbase_columns|
3        |students        |
4        |contacts        |
```

```
davisql> select * from davisbase_columns;
```

```
-----
rowid    |table_name      |column_name      |data_type  |ordinal_position|is_nullable  |
-----
1        |davisbase_tables|rowid            |INT        |1               |NO           |
2        |davisbase_tables|table_name       |TEXT       |2               |NO           |
3        |davisbase_columns|rowid            |INT        |1               |NO           |
4        |davisbase_columns|table_name       |TEXT       |2               |NO           |
5        |davisbase_columns|column_name      |TEXT       |3               |NO           |
6        |davisbase_columns|data_type        |TEXT       |4               |NO           |
7        |davisbase_columns|ordinal_position |TINYINT    |5               |NO           |
8        |davisbase_columns|is_nullable      |TEXT       |6               |NO           |
10       |contacts        |ssn              |INT        |1               |YES          |
11       |contacts        |full_name        |TEXT       |2               |YES          |
12       |contacts        |phone_number     |TEXT       |3               |YES          |
```

```
davisql> drop table contacts;
```

```
davisql> drop table contacts;
davisql> show tables
;
-----
table_name |
-----
davisbase_tables |
davisbase_columns |
students |

davisql> 
```

davisql> [exit](#);

```
davisql> exit;
Exiting...
PS C:\Users\satyagi\OneDrive\UTD\Courses\2020 Spring\6360 DB\Projects\project2> 
```

Please let me know if you have any questions: skt180001@utdallas.edu | 469-925-5256