CSE441: DATABASE SYSTEMS
ASSIGNMENT 1

In this assignment, you are supposed write a mini-sql engine which will run a subset of SQL Queries using **command line interface**.

Programming Languages Allowed : Any
Deadline: 9:00 pm, January 21st

Dataset:

1. csv files for tables.
    a. If a file is : *File1.csv*, the table name would be File1.
    b. There will be no tab-separation or space-separation, so you are not required to handle it but you have to make sure to take care of both csv file type cases: the one where values are in double quotes and the one where values are without quotes.
2. All the elements in files would be only INTEGERS.
3. A file named: metadata.txt(note the extension) would be given to you which will have the following structure for each table:

```
<begin_table>
<table_name>
<attribute1>
....
<attributeN>
<end_table>
```

Type of Queries: You'll be presented with the following set of queries:

1. **Select all records** : Select * from table_name; (2 points)
2. **Aggregate functions:** Simple aggregate functions on a single column. Sum, average, max and min. They will be very trivial given that the data is only numbers: select max(col1) from table1; (5 points)
3. **Project Columns**(could be any number of columns) from one or more tables : Select col1, col2 from table_name; (3 points)
4. **Project with distinct from one table:** (2 Points)
    select distinct(col1) from table_name;
5. **Select with where from one or more tables:** select col1,col2 from table1,table2 where col1 = 10 AND col2 = 20; (4 points)
    a. In the where queries, there would be a maximum of one AND/OR operator with no NOT operators.
6. **Create command:** You will required to modify the *metadata.txt* and create a new csv file in the working directory. Example: (2 points)

```
CREATE TABLE table_name(
column1 datatype,
```

column2 datatype,
.....
columnN datatype)

7. **Insert Command:** Example: Insert into <table-name> values(v_1,..v_n); (3 points)
8. **Delete Command:** Delete a single record from a given table. Only one where condition would be given. You are not required to handle multiple conditions in where clause.
   Delete from <table-name> where <attribute> = <some-value> (2 points)
9. **Truncate Command:** Delete all records from a table. (2 point)
   TRUNCATE TABLE table_name;
10. **Drop Table:** Delete an empty table. (2 point)
    DROP TABLE table_name;

Total : 27 points

IMPORTANT:

a. ERROR HANDLING: Please make sure you do error handling correctly.
b. For the above queries, please note all the permutations and combinations of SQL that MySQL permits, specially when it comes to multiple tables. What is mentioned above are examples of what the queries could be
c. **Parser: You can use pre-built parsers for SQL queries.**
d. Please create a running terminal i.e. on starting the program, a MySQL type prompt should appear.

Deliverables:

1. Source code files zipped as your Roll Number.
2. MOSS will be run on the assignment with assignments of previous two semesters as well. **Copying in the Assignments can lead from a *Zero* in the current assignment to an F in the course.**
3. PLEASE MAKE SURE YOU SUBMIT THE ASSIGNMENT ON MOODLE, DURING EVALUATIONS WE WILL BE DIRECTLY DOING IT