Assignment 10

STEP 1: CREATE TABLES WITHOUT KEYS AND INDEXES.

TABLE: azp5611_table1

•••	a:	zp5611@C	MPSC4	31W-S016: ~	— ssh -p 1	1855 azp5611@cmpsc431w-S016.vmhost.psu.edu — 116×29
Oracle is a registered trademark of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.						
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.						
[mysql> use azp5611_431W; 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> CREATE TABLE azp5611_table2(fld1 VARCHAR(30) NOT NULL, fld2 VARCHAR(150) NOT NULL, fld3 VARCHAR(30) NOT NULL, fld4 VARCHAR(30) NOT NULL); Query OK, 0 rows affected (0.02 sec) [mysql> describe azp5611_table2						
[-> ;]						
Field						
fld1 fld2 fld3 fld4	varchar(30) varchar(150) varchar(30) varchar(30)					
4 rows in set (0.01 sec)						
mysql>						

TABLE: azp5611_table2

TABLE: azp5611_table3

STEP 2: Load the data, perform a SELECT * FROM [table name] LIMIT 10 for each table.

```
ERROR 1649 (4208): Unknown database 'azp5611_431w'
[mysql> use azp5611_431w;
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> LOAD DATA LOCAL INFILE '/home/azp5611/w10_table1.csv' INTO TABLE azp5611_table1 FIELDS TERMINATED BY',' LINES]
TERMINATED BY '\r\n' (fld1,fld2,fld3,fld4);
Query OK, 9977 rows affected (8.16 sec)
Records: 9977 Deleted: 6 Skipped: 8 Warnings: 8

[mysql> SELECT * FROM azp5611_table1 LIMIT 18;

| fld1 | fld2 | fld3 | fld4 |
| 1119 | 10546 | 27487 | 7405.75 |
| 6356 | 10368 | 21008 | 2214.71 |
| 5558 | 1533 | 22309 | 3740.96 |
| 2959 | 15181 | 20097 | 978.09 |
| 8115 | 10613 | 24002 | 4187.89 |
| 6496 | 10400 | 23572 | 261.65 |
| 8911 | 10662 | 20552 | 7536.58 |
| 2291 | 15386 | 22949 | 9146.34 |
| 9887 | 17176 | 27481 | 9416.11 |
| 8988 | 12918 | 29747 | 7867.41 |
| 10 rows in set (8.00 sec)

mysql>
```

TABLE: azp5611_table1

TABLE: azp5611_table2

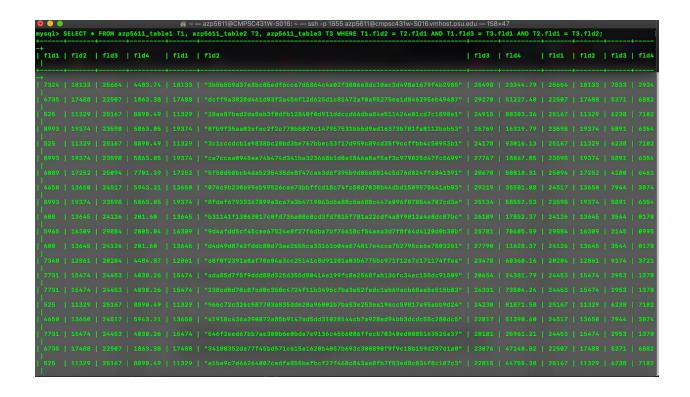
```
👔 ~ — azp5611@CMPSC431W-S016: ~ — ssh -p 1855 azp5611@cmpsc431w-S016.vmhost.psu.edu — 116×29
  17787
10740
            "80f9f4b867369af033415676b96c665b8fb0aa48a1b7f12278685119d61a221b"
                                                                                                         25343
                                                                                                                    68115.42
            "af80c85fa7404c1fd039c907ff563486b4e1c47902787a07790586f81bc82711"
                                                                                                          20004
                                                                                                                     86564.33
            "c2c3c3ec078f6fdb222dba676e413b6488f5a0c472f6dca499e78fecff471a94"
                                                                                                          26698
                                                                                                                    14803.38
lo rows in set (0.00 sec)
mysql> LOAD DATA LOCAL INFILE '/home/azp5611/w10_table3.csv' INTO TABLE azp5611_table3 FIELDS TERMINATED BY ',' LINE
S TERMINATED BY '\r\n' (fld1,fld2,fld3,fld4);
Query OK, 29977 rows affected (0.28 sec)
Records: 29977 Deleted: 0 Skipped: 0 Warnings: 0
nysql> SELECT * FROM azp5611_table3 LIMIT 10;
  fld1 | fld2 | fld3 | fld4 |
            13563
19240
11385
16912
11037
16418
                       3628
2819
  22276
23908
                       3408
                                8790
1649
  24394
28804
            19107
17046
            18147
18319
                                1434
5376
                       9070
9294
  28569
10 rows in set (0.00 sec)
mysql>
```

TABLE: azp5611_table3

STEP 3: Execute a COUNT(*) on each table.

STEP 4: Execute the following query, results including the number of rows and the time it took to execute the query.

SELECT * FROM azp5611_table1 T1, azp5611_table2 T2, azp5611_table3 T3 WHERE T1.fld2 = T2.fld1 AND t1.FLD3 = T3.fld1 AND T2.fld1 = T3.fld2;



STEP 5: Execute an EXPLAIN command on the previous SELECT statement.

STEP 6: Analyze the results of the EXPLAIN. Modify the database as needed to get the results to display in less than one second. Demonstrate this by re-executing the previous SELECT statement. Execute another EXPLAIN on the query and explain what it says and how it is different from the first EXPLAIN.

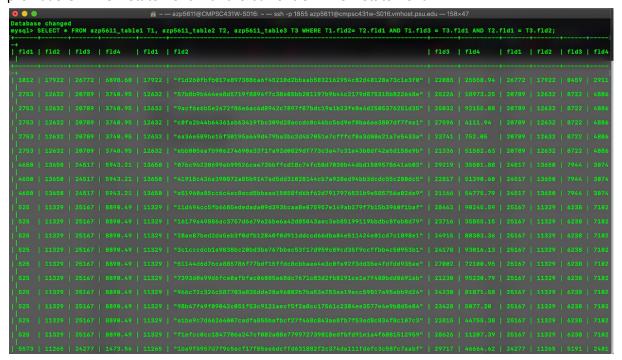
- -> Explain is used to obtain a query execution plan, which is the information from the optimizer about the statement execution.
- -> In our first execution of the SELECT statement, there is no indexing or keys being defined in our tables, therefore execution takes 27 seconds using WHERE clause with joins.
- -> After, modifying the tables by creating indexes in order to speed up searches/queries, results described below;

mysql> CREATE UNIQUE INDEX fields_index on azp5611_table1(fld1,fld2,fld3,fld4);

mvsql> CREATE UNIQUE INDEX field2 index on azp5611 table2(fld1.fld2.fld3.fld4);

CREATE UNIQUE INDEX field3_index on azp5611_table3(fld1,fld2,fld3,fld4);

-> Now, PERFORM SELECT * statement again in order to compare the execution time of the previous SELECT statement with the current SELECT statement.





- -> The execution takes 0.02 seconds by defining UNIQUE INDEX for columns in tables to retrieve data more quickly.
- -> EXPLAIN statement shows the difference and number of rows that were involved in execution.
- -> Here, "type" shows the column that is compared to the index named in the key column. Besides, "rows" lists the number of records that were examined to produce this output.