DBMS - Assignment No 02

Name: Ayush Shashikant Bulbule

Roll No: 31410

Topic: Employee Schema

Queries:

Part A. Design and Develop SQL DDL statements which demonstrate the use of SQL objects such as Table, View, Index, Sequence, Synonym, different constraints etc.

DDL Commands To Create Table:

1. Create Table Department

```
mysql> use te31410_db;
Database changed
mysql> create table departments(
    -> dept_id int primary key auto_increment,
    -> dept_name varchar(45),
    -> dept_loc varchar(45));
Query OK, 0 rows affected (0.23 sec)
```

```
31410 - Ayush Bulbule
mysql> describe departments;
+-----------+-------------+------+-----+---------+----------------+
| Field     | Type        | Null | Key | Default | Extra          |
+-----------+-------------+------+-----+---------+----------------+
| dept_id   | int         | NO   | PRI | NULL    | auto_increment |
| dept_name | varchar(45) | YES  |     | NULL    |                |
| dept_loc  | varchar(45) | YES  |     | NULL    |                |
+-----------+-------------+------+-----+---------+----------------+
3 rows in set (0.07 sec)

mysql>
```

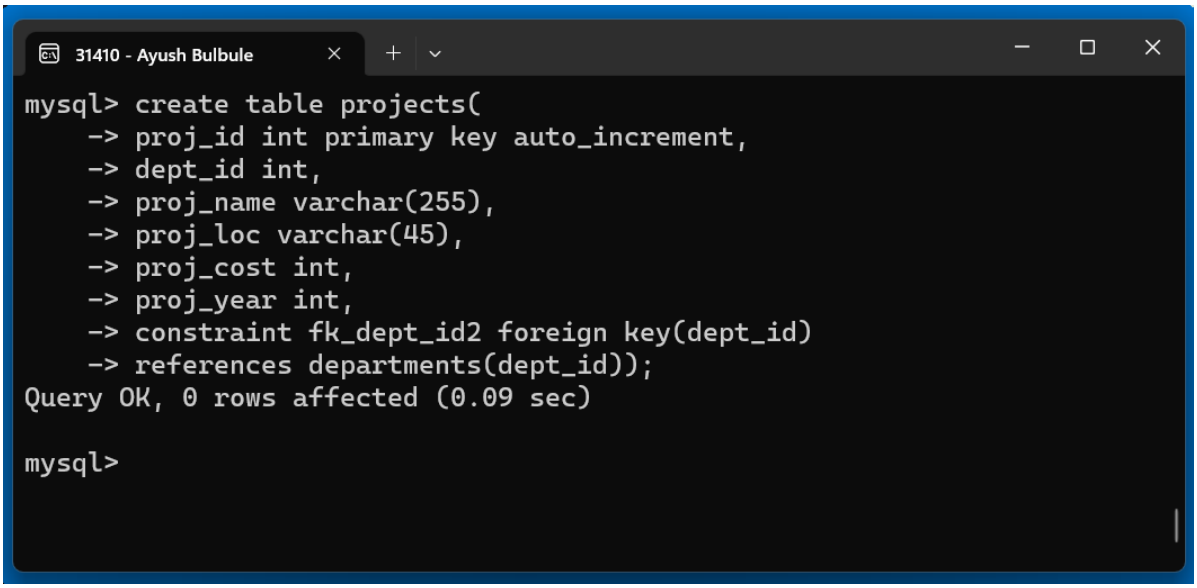
2. Create Table Employees:

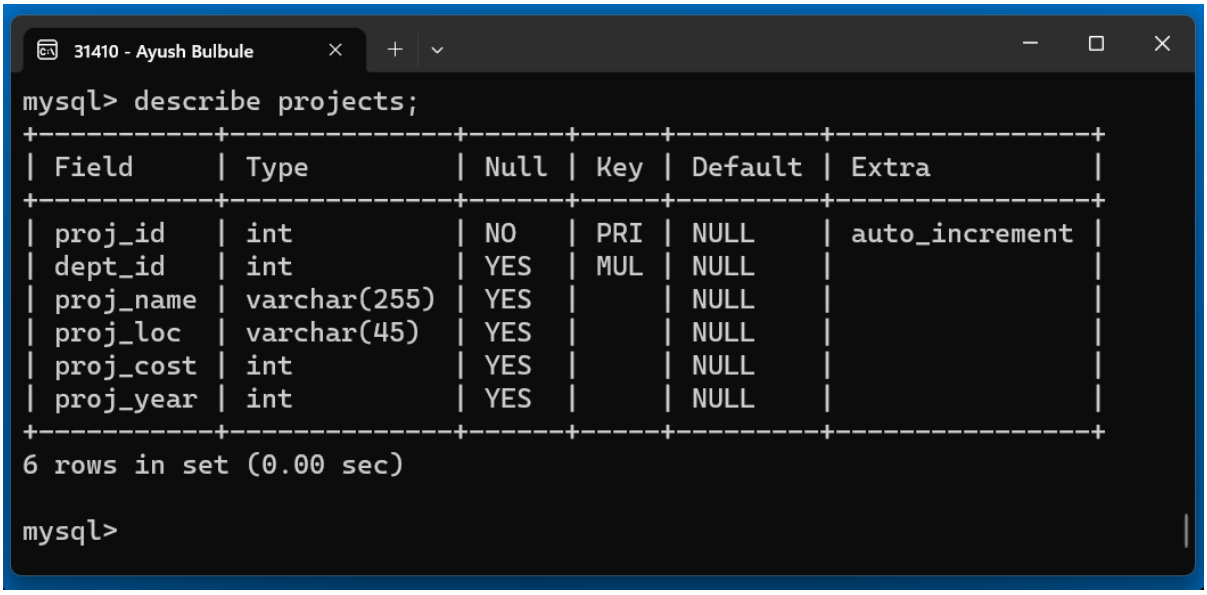
```
31410 - Ayush Bulbule
mysql> create table employees(
    -> emp_id int primary key auto_increment,
    -> dept_id int,
    -> emp_fname varchar(45),
    -> emp_lname varchar(45),
    -> emp_position varchar(45),
    -> emp_join_date date,
    -> constraint fk_dept_id1 foreign key(dept_id)
    -> references departments(dept_id));
Query OK, 0 rows affected (0.10 sec)
```

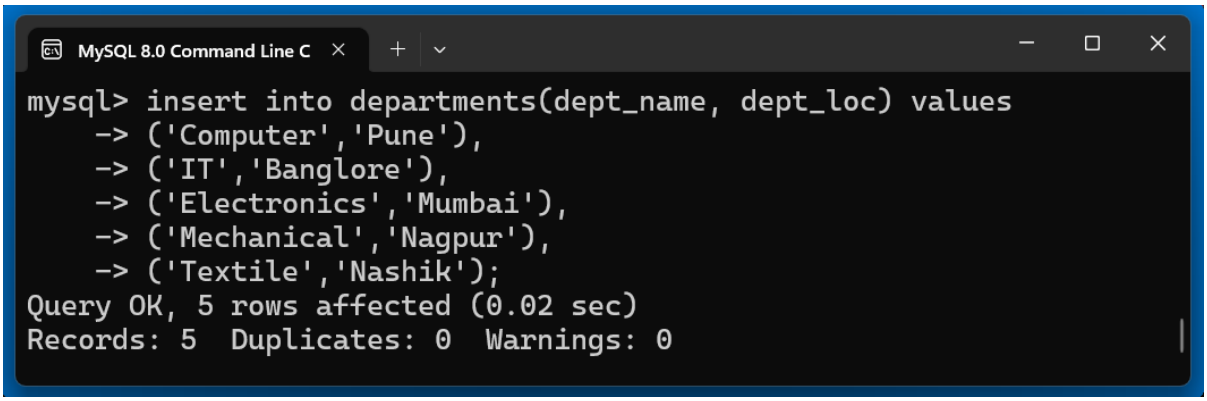
Output

```
31410 - Ayush Bulbule
mysql> describe employees;
+---------------+-------------+------+-----+---------+----------------+
| Field         | Type        | Null | Key | Default | Extra          |
+---------------+-------------+------+-----+---------+----------------+
| emp_id        | int         | NO   | PRI | NULL    | auto_increment |
| dept_id       | int         | YES  | MUL | NULL    |                |
| emp_fname     | varchar(45) | YES  |     | NULL    |                |
| emp_lname     | varchar(45) | YES  |     | NULL    |                |
| emp_position  | varchar(45) | YES  |     | NULL    |                |
| emp_join_date | date        | YES  |     | NULL    |                |
+---------------+-------------+------+-----+---------+----------------+
6 rows in set (0.01 sec)
```

3. Create Table Projects:


31410 - Ayush Bulbule
mysql> create table projects(
-> proj_id int primary key auto_increment,
-> dept_id int,
-> proj_name varchar(255),
-> proj_loc varchar(45),
-> proj_cost int,
-> proj_year int,
-> constraint fk_dept_id2 foreign key(dept_id)
-> references departments(dept_id));
Query OK, 0 rows affected (0.09 sec)
mysql>


31410 - Ayush Bulbule
mysql> describe projects;
+-----------+--------------+------+-----+---------+----------------+
| Field | Type | Null | Key | Default | Extra |
+-----------+--------------+------+-----+---------+----------------+
proj_id	int	NO	PRI	NULL	auto_increment
dept_id	int	YES	MUL	NULL	
proj_name	varchar(255)	YES		NULL	
proj_loc	varchar(45)	YES		NULL	
proj_cost	int	YES		NULL	
proj_year	int	YES		NULL	
+-----------+--------------+------+-----+---------+----------------+
6 rows in set (0.00 sec)
mysql>


MySQL 8.0 Command Line C
mysql> insert into departments(dept_name, dept_loc) values
-> ('Computer','Pune'),
-> ('IT','Banglore'),
-> ('Electronics','Mumbai'),
-> ('Mechanical','Nagpur'),
-> ('Textile','Nashik');
Query OK, 5 rows affected (0.02 sec)
Records: 5 Duplicates: 0 Warnings: 0

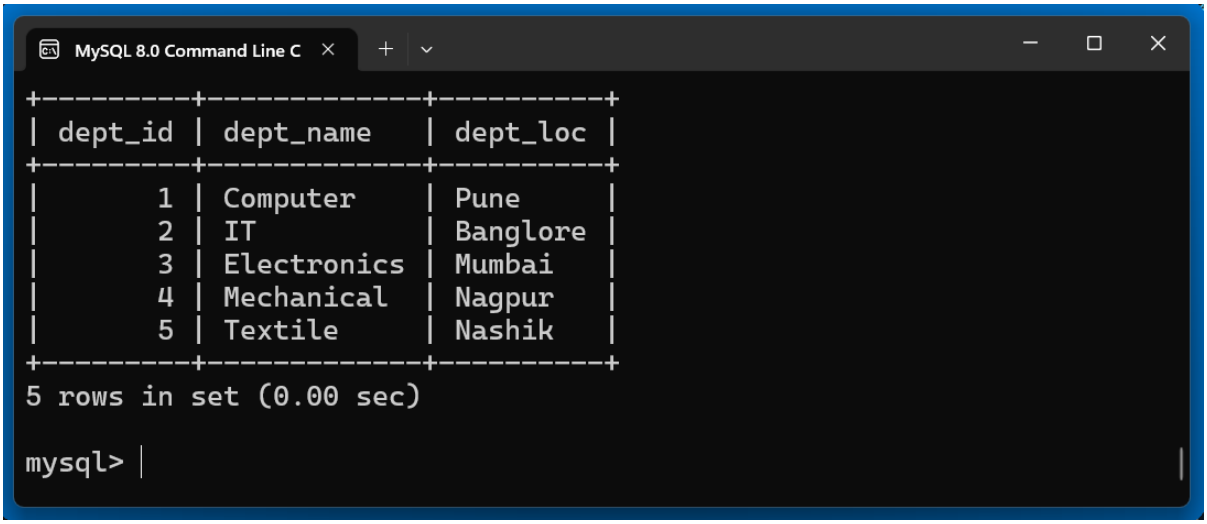
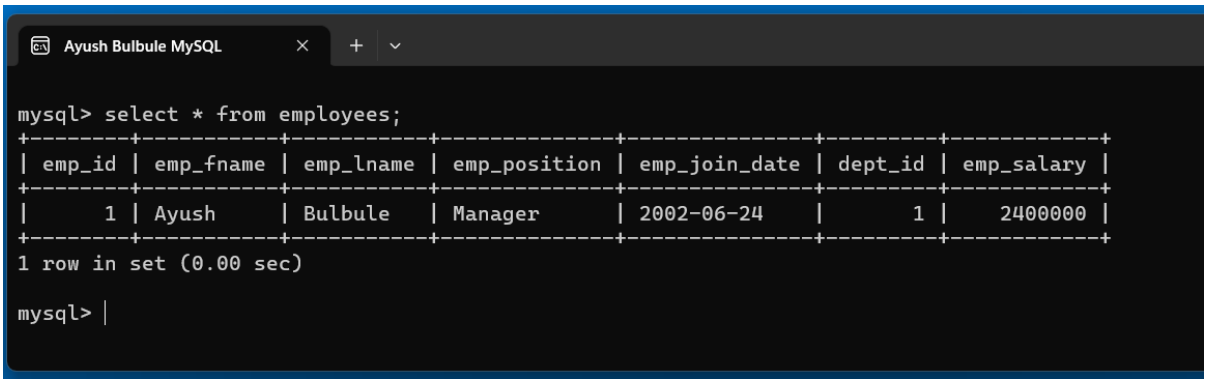
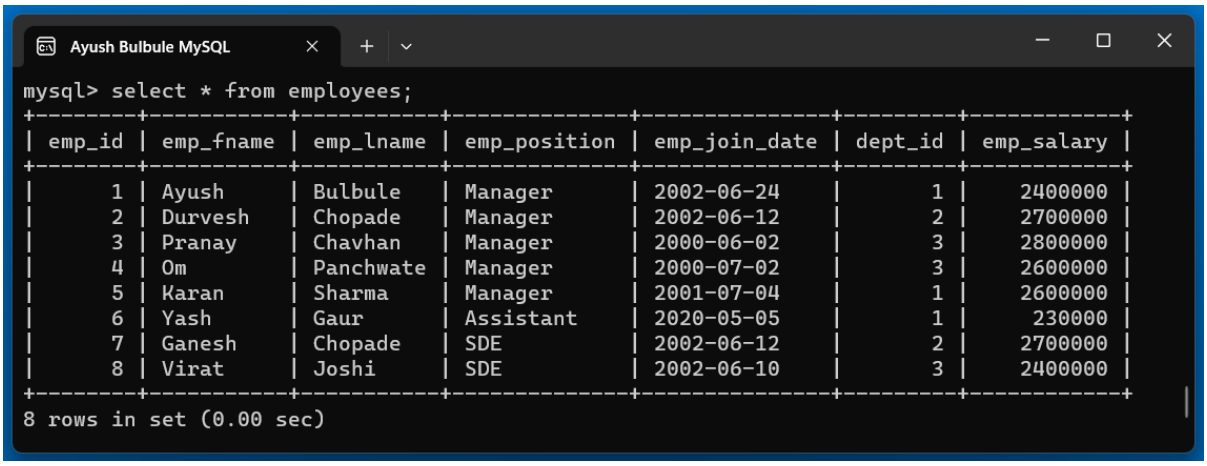
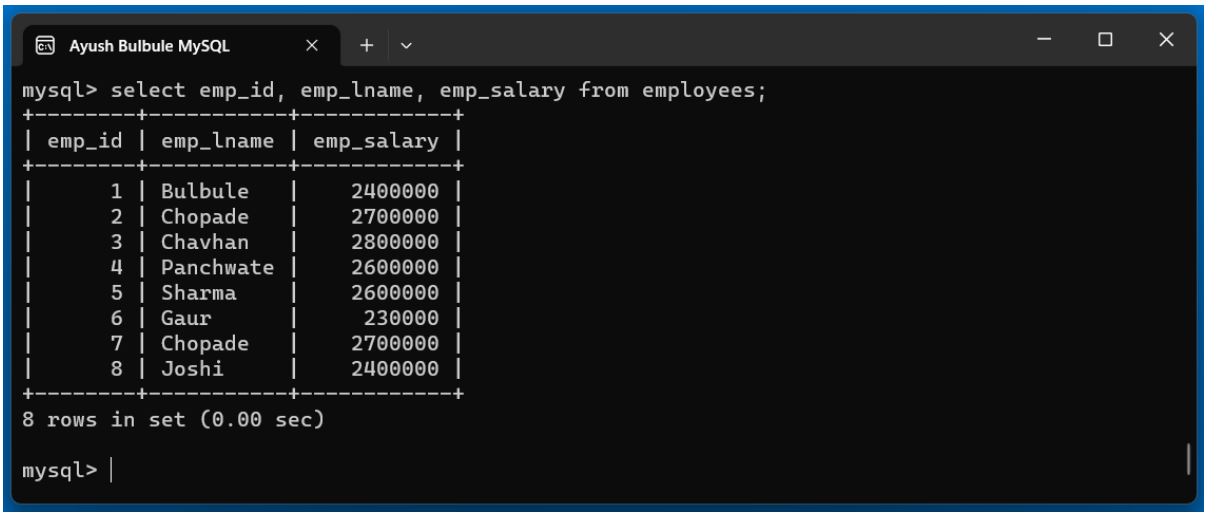

MySQL 8.0 Command Line C
+---------+-------------+----------+
| dept_id | dept_name | dept_loc |
+---------+-------------+----------+
1	Computer	Pune
2	IT	Banglore
3	Electronics	Mumbai
4	Mechanical	Nagpur
5	Textile	Nashik
+---------+-------------+----------+
5 rows in set (0.00 sec)
mysql>

Table:

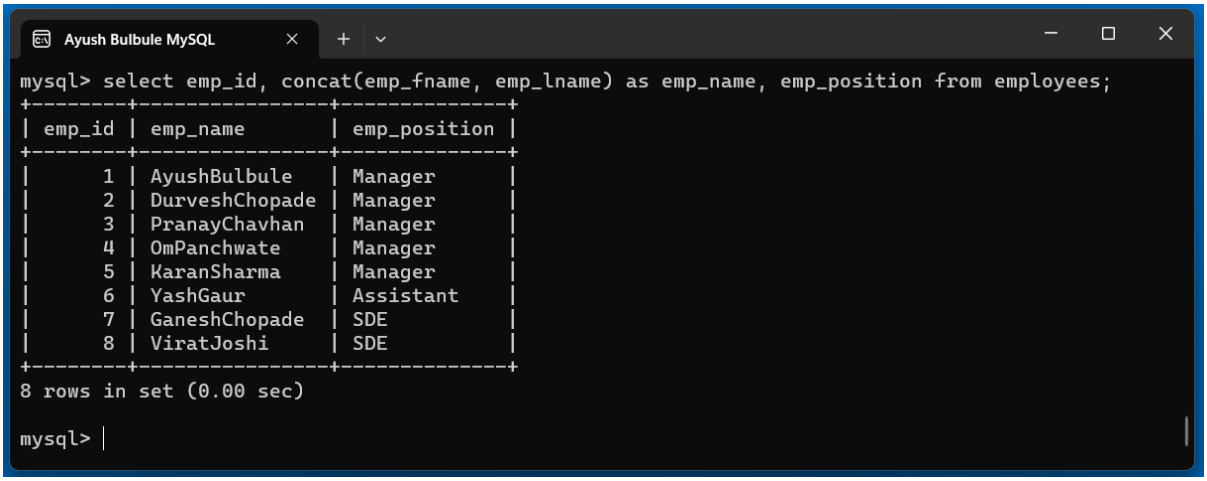

Ayush Bulbule MySQL
mysql> select * from employees;
+--------+-----------+-----------+--------------+---------------+---------+------------+
| emp_id | emp_fname | emp_lname | emp_position | emp_join_date | dept_id | emp_salary |
+--------+-----------+-----------+--------------+---------------+---------+------------+
| 1 | Ayush | Bulbule | Manager | 2002-06-24 | 1 | 2400000 |
+--------+-----------+-----------+--------------+---------------+---------+------------+
1 row in set (0.00 sec)
mysql>


Ayush Bulbule MySQL
mysql> select * from employees;
+--------+-----------+-----------+--------------+---------------+---------+------------+
| emp_id | emp_fname | emp_lname | emp_position | emp_join_date | dept_id | emp_salary |
+--------+-----------+-----------+--------------+---------------+---------+------------+
1	Ayush	Bulbule	Manager	2002-06-24	1	2400000
2	Durvesh	Chopade	Manager	2002-06-12	2	2700000
3	Pranay	Chavhan	Manager	2000-06-02	3	2800000
4	Om	Panchwate	Manager	2000-07-02	3	2600000
5	Karan	Sharma	Manager	2001-07-04	1	2600000
6	Yash	Gaur	Assistant	2020-05-05	1	230000
7	Ganesh	Chopade	SDE	2002-06-12	2	2700000
8	Virat	Joshi	SDE	2002-06-10	3	2400000
+--------+-----------+-----------+--------------+---------------+---------+------------+
8 rows in set (0.00 sec)

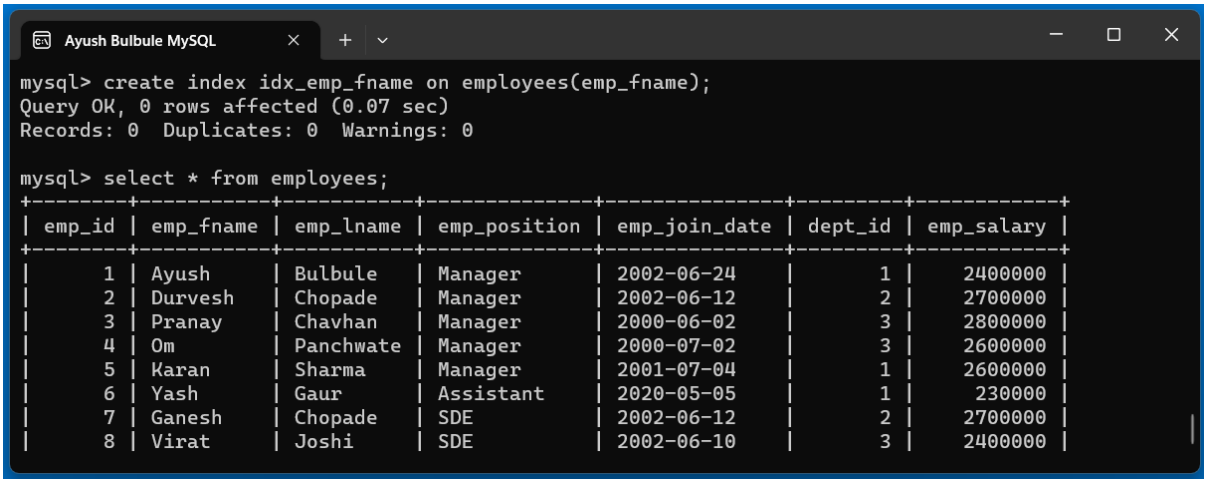
View:


Ayush Bulbule MySQL
mysql> select emp_id, emp_lname, emp_salary from employees;
+--------+-----------+------------+
| emp_id | emp_lname | emp_salary |
+--------+-----------+------------+
1	Bulbule	2400000
2	Chopade	2700000
3	Chavhan	2800000
4	Panchwate	2600000
5	Sharma	2600000
6	Gaur	230000
7	Chopade	2700000
8	Joshi	2400000
+--------+-----------+------------+
8 rows in set (0.00 sec)
mysql>

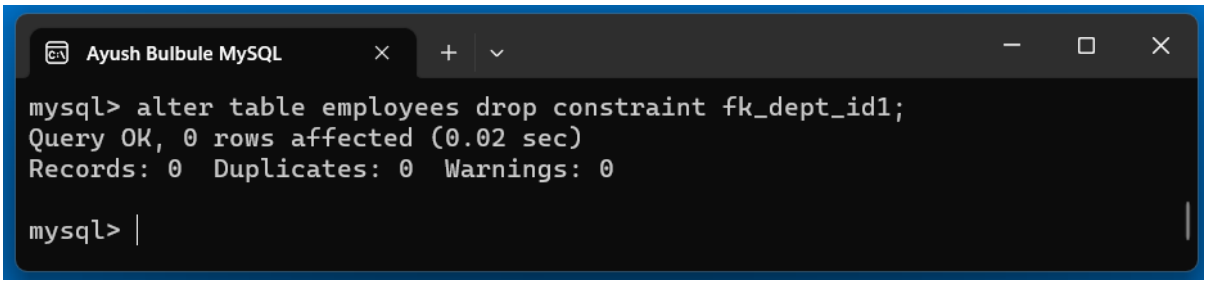
CONCAT



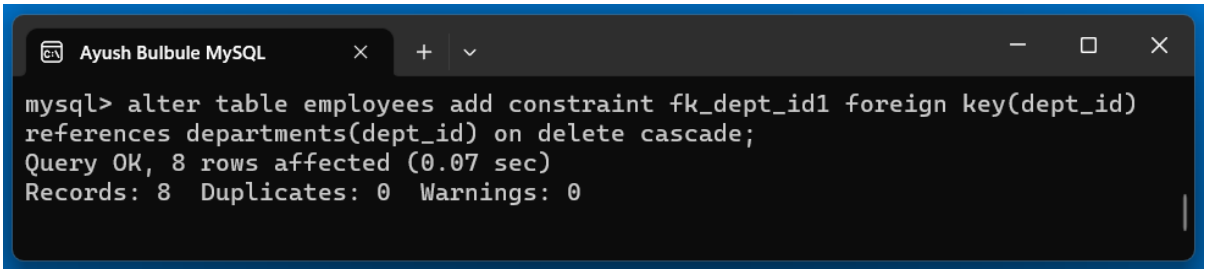
Index



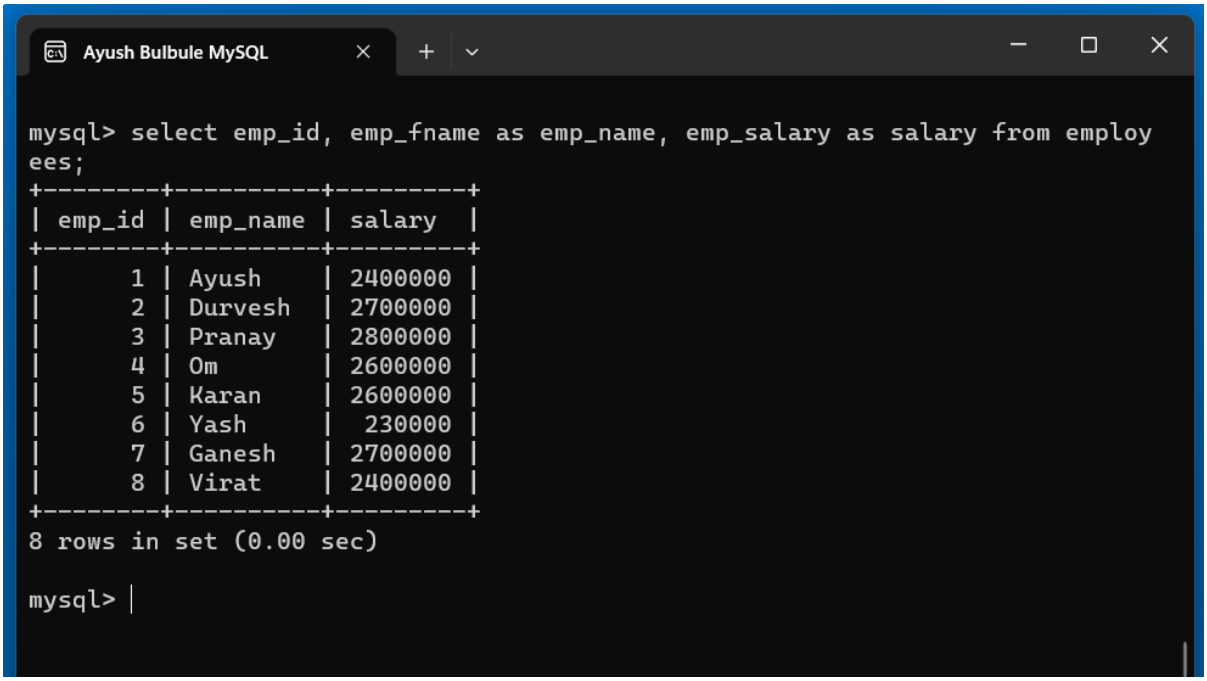
Various Constraints:



Foreign Key Constraint with on delete cascade

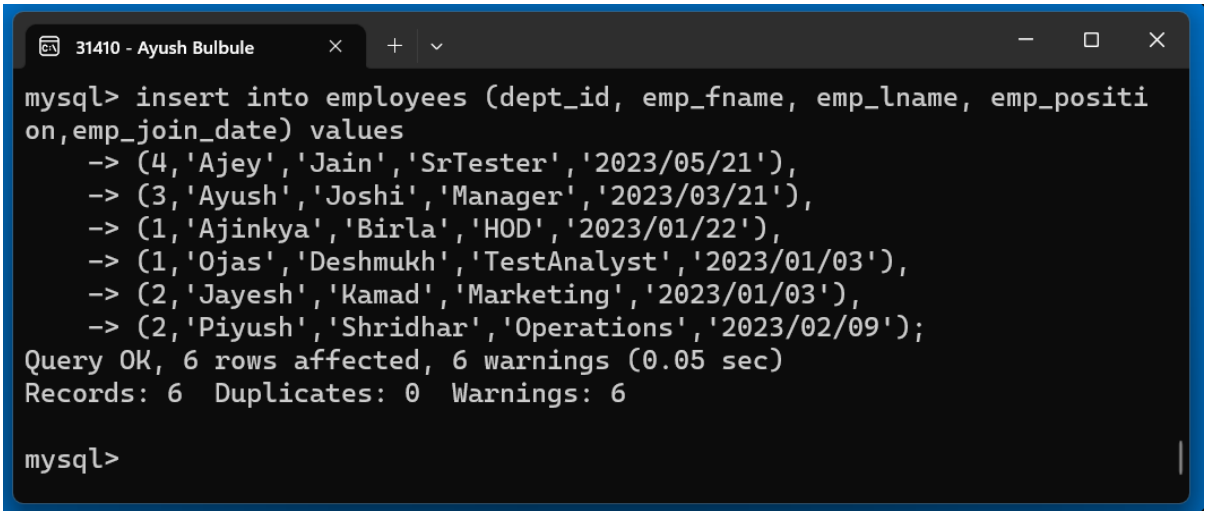


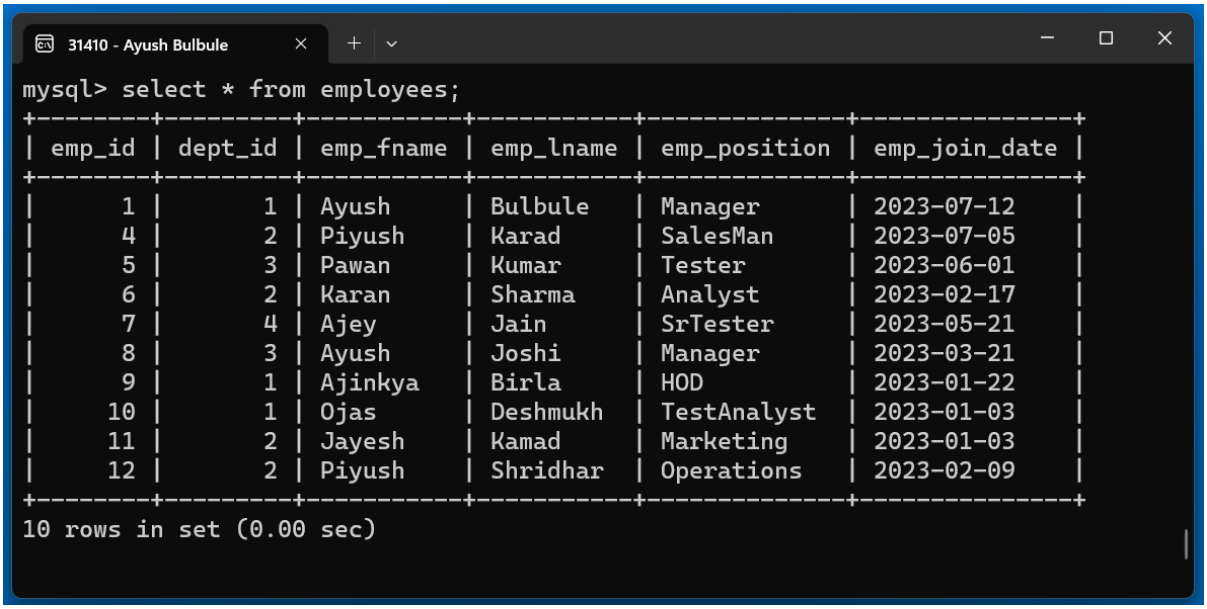
Aliases:



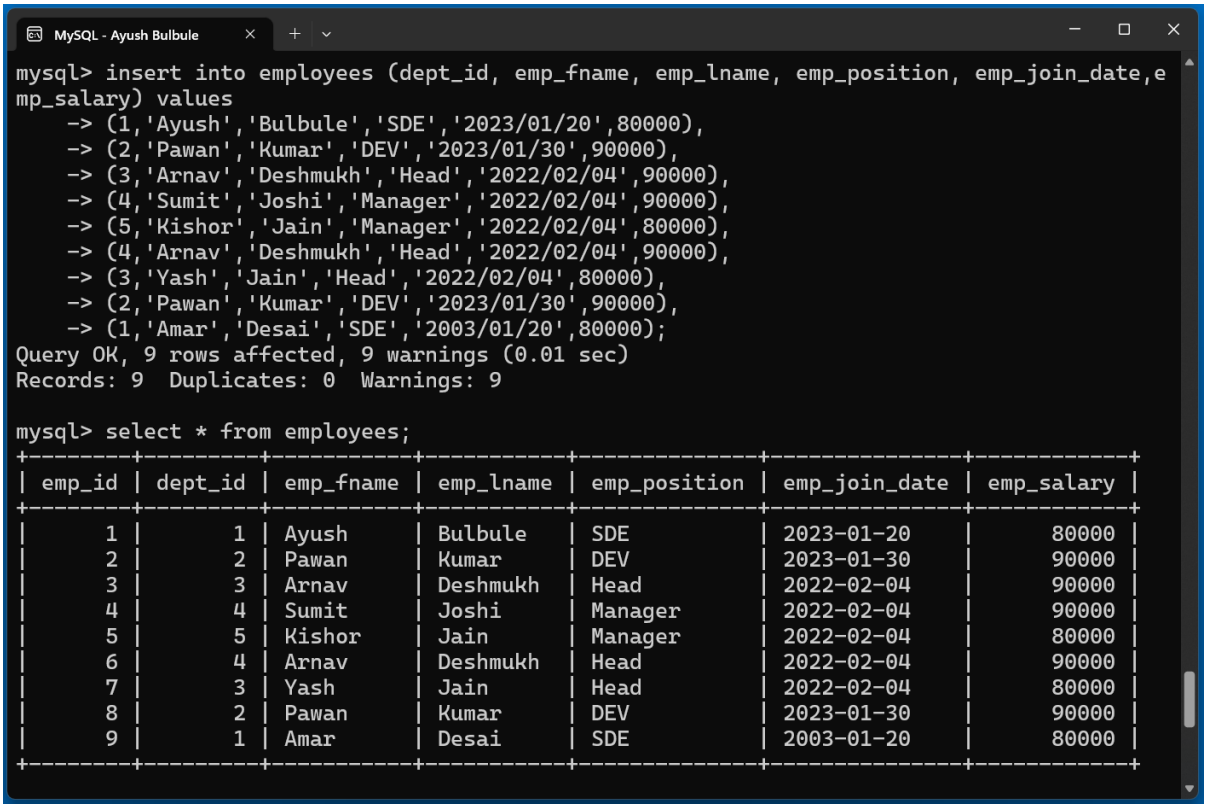
Part B:

B. Insert at least 10 records in the Employee table and insert other tables accordingly.

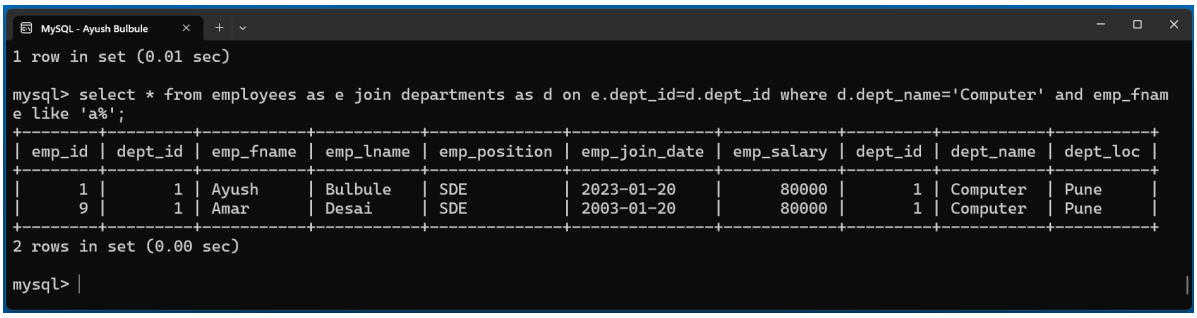




Result And Query:



2. Display all Employee details with Department ‘Computer’ and ‘IT’ and Employee first name starting with 'a' or 'h'.



3. Lists the number of different Employee Positions.

```
MySQL - Ayush Bulbule

mysql> select count(distinct emp_positions) from employees;
ERROR 1054 (42S22): Unknown column 'emp_positions' in 'field list'
mysql> select count(distinct emp_position) from employees;
+-----------------------------+
| count(distinct emp_position) |
+-----------------------------+
|                           4 |
+-----------------------------+
1 row in set (0.01 sec)
```

4. Give 10% increase in Salary of the Employee whose Joining Date before 2020.

```
MySQL - Ayush Bulbule

mysql> update employees set emp_salary = emp_salary*1.1 where emp_join_date<'2020-01-01';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> select * from employees;
+--------+---------+-----------+-----------+--------------+---------------+------------+
| emp_id | dept_id | emp_fname | emp_lname | emp_position | emp_join_date | emp_salary |
+--------+---------+-----------+-----------+--------------+---------------+------------+
|      1 |       1 | Ayush     | Bulbule   | SDE          | 2023-01-20    |       8000 |
|      2 |       2 | Pawan     | Kumar     | DEV          | 2023-01-30    |       9000 |
|      3 |       3 | Arnav     | Deshmukh  | Head         | 2022-02-04    |       9000 |
|      4 |       4 | Sumit     | Joshi     | Manager      | 2022-02-04    |       9000 |
|      5 |       5 | Kishor    | Jain      | Manager      | 2022-02-04    |       8000 |
|      6 |       4 | Arnav     | Deshmukh  | Head         | 2022-02-04    |       9000 |
|      7 |       3 | Yash      | Jain      | Head         | 2022-02-04    |       8000 |
|      8 |       2 | Pawan     | Kumar     | DEV          | 2023-01-30    |       9000 |
|      9 |       1 | Amar      | Desai     | SDE          | 2003-01-20    |       8800 |
+--------+---------+-----------+-----------+--------------+---------------+------------+
9 rows in set (0.00 sec)

mysql>
```

5. Delete Department details which location is ‘Mumbai’

```
MySQL - Ayush Bulbule

mysql> delete from departments where dept_loc='Mumbai';
Query OK, 1 row affected (0.01 sec)

mysql> select * from employees;
+--------+---------+-----------+-----------+--------------+---------------+------------+
| emp_id | dept_id | emp_fname | emp_lname | emp_position | emp_join_date | emp_salary |
+--------+---------+-----------+-----------+--------------+---------------+------------+
|      1 |       1 | Ayush     | Bulbule   | SDE          | 2023-01-20    |       8000 |
|      2 |       2 | Pawan     | Kumar     | DEV          | 2023-01-30    |       9000 |
|      4 |       4 | Sumit     | Joshi     | Manager      | 2022-02-04    |       9000 |
|      5 |       5 | Kishor    | Jain      | Manager      | 2022-02-04    |       8000 |
|      6 |       4 | Arnav     | Deshmukh  | Head         | 2022-02-04    |       9000 |
|      8 |       2 | Pawan     | Kumar     | DEV          | 2023-01-30    |       9000 |
|      9 |       1 | Amar      | Desai     | SDE          | 2003-01-20    |       8800 |
+--------+---------+-----------+-----------+--------------+---------------+------------+
7 rows in set (0.00 sec)

mysql>
```

```
MySQL - Ayush Bulbule
|      6 |       4 | Arnav     | Deshmukh  | Head         | 2022-02-04    |       9000 |
|      8 |       2 | Pawan     | Kumar     | DEV          | 2023-01-30    |       9000 |
|      9 |       1 | Amar      | Desai     | SDE          | 2003-01-20    |       8800 |
+--------+---------+-----------+-----------+--------------+---------------+------------+
7 rows in set (0.00 sec)

mysql> select * from departments;
+---------+------------+----------+
| dept_id | dept_name  | dept_loc |
+---------+------------+----------+
|       1 | Computer   | Pune     |
|       2 | IT         | Banglore |
|       4 | Mechanical | Nagpur   |
|       5 | Textile    | Nashik   |
+---------+------------+----------+
4 rows in set (0.00 sec)

mysql>
```

6. Find the names of Projects with location ‘pune’ .

   Table Data:

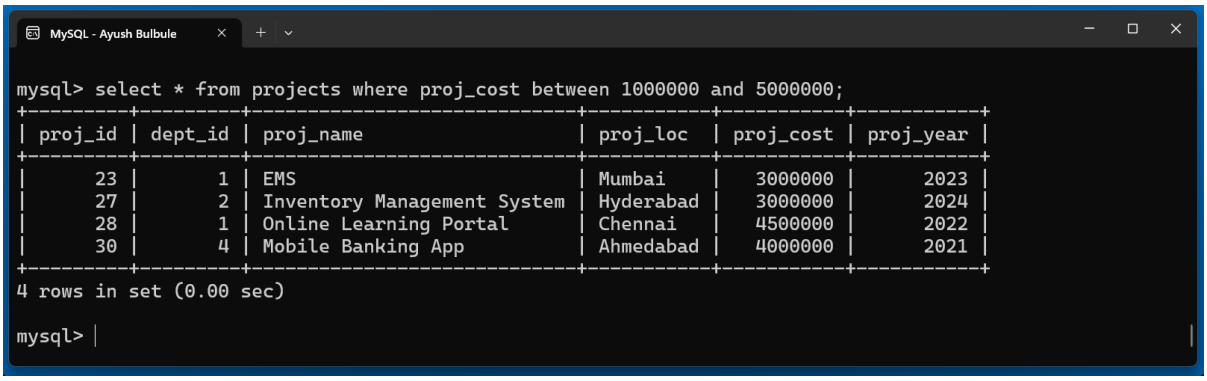
```
MySQL - Ayush Bulbule
mysql>
mysql> select * from projects;
+---------+---------+-----------------------------+-----------+-----------+-----------+
| proj_id | dept_id | proj_name                   | proj_loc  | proj_cost | proj_year |
+---------+---------+-----------------------------+-----------+-----------+-----------+
|      23 |       1 | EMS                         | Mumbai    |   3000000 |      2023 |
|      24 |       2 | Hotel System                | Pune      |   7000000 |      2022 |
|      25 |       5 | E-Commerce Platform         | Delhi     |   6000000 |      2022 |
|      26 |       4 | AI Chatbot Integration      | Bengaluru |   8500000 |      2023 |
|      27 |       2 | Inventory Management System | Hyderabad |   3000000 |      2024 |
|      28 |       1 | Online Learning Portal      | Chennai   |   4500000 |      2022 |
|      29 |       4 | Social Media Analytics      | Kolkata   |   7500000 |      2025 |
|      30 |       4 | Mobile Banking App          | Ahmedabad |   4000000 |      2021 |
|      31 |       2 | Cloud-Based CRM             | Jaipur    |   5500000 |      2024 |
|      32 |       5 | IoT Home Automation         | Lucknow   |   7000000 |      2023 |
|      33 |       1 | E-Healthcare System         | Indore    |   6500000 |      2022 |
|      34 |       5 | Blockchain Payment Platform | Patna     |   8000000 |      2021 |
+---------+---------+-----------------------------+-----------+-----------+-----------+
12 rows in set (0.00 sec)
```

   Query:

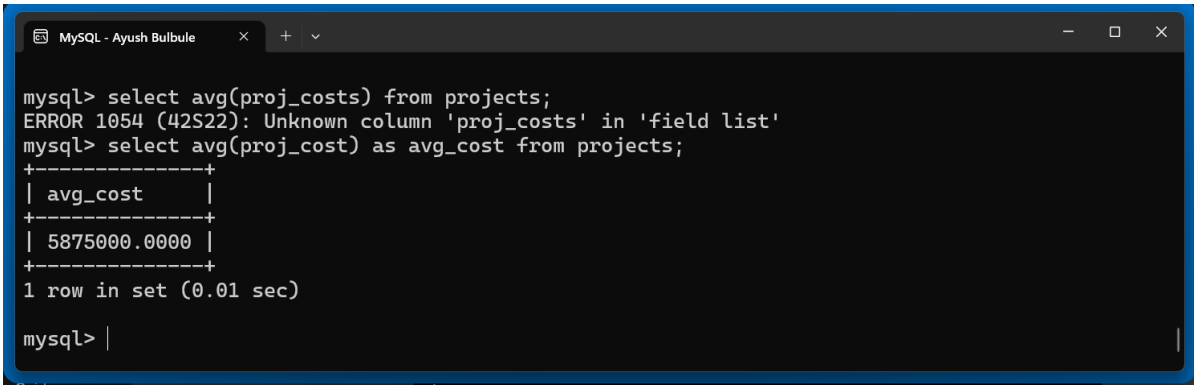
```
MySQL - Ayush Bulbule
mysql> select * from projects where proj_loc = 'Pune';
+---------+---------+--------------+----------+-----------+-----------+
| proj_id | dept_id | proj_name    | proj_loc | proj_cost | proj_year |
+---------+---------+--------------+----------+-----------+-----------+
|      24 |       2 | Hotel System | Pune     |   7000000 |      2022 |
+---------+---------+--------------+----------+-----------+-----------+
1 row in set (0.00 sec)

mysql>
```

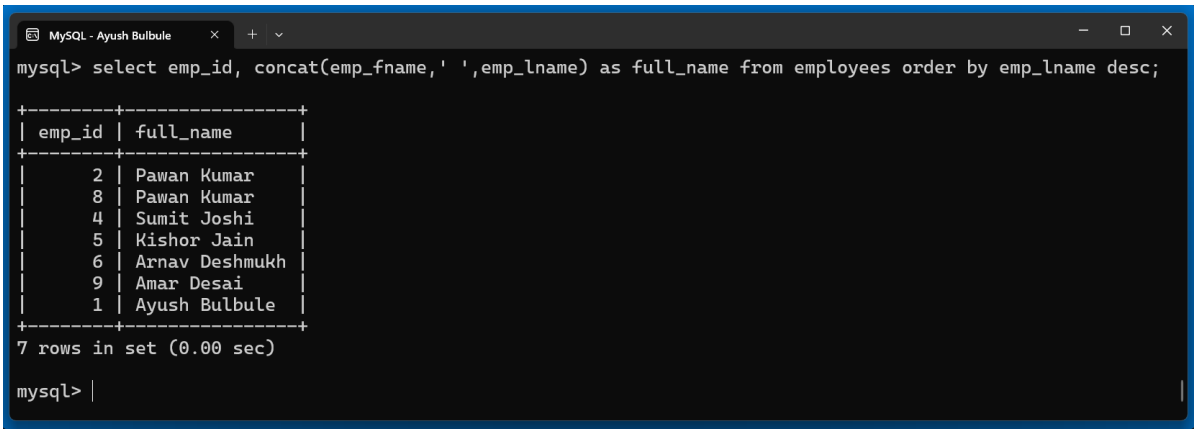
7. Find the project having cost in between 100000 to 500000.



8. Find the project having maximum price and find average of Project cost



9. Display all employees with Emp _id and Emp name in decreasing order of Emp_lname



10. Display Proj_name,Proj_location ,Proj_cost of all project started in 2004,2005,2007