COLLEGE MANAGEMENT

Aim of the Project:

The aim of this project is to develop a comprehensive college management system using MySQL, which effectively manages student information,teachers information, and employees records.

Introduction:

In today's educational landscape, colleges and universities face the challenge of managing a vast amount of information related to students, courses, faculty, and academic activities. Traditional methods of record-keeping are often manual, time-consuming, and prone to errors. To address these issues, a computerized college management system can offer significant advantages in terms of data accuracy, accessibility, and administrative efficiency.

The proposed college management project utilizes the power of MySQL, a robust and widely-used relational database management system, to create a centralized repository of data.

Objectives of the Project:

The main objectives of this college management project are as follows:

1. **Student Information Management:**

   Develop a system to capture and maintain accurate student records including personal details, contact information, and academic history.

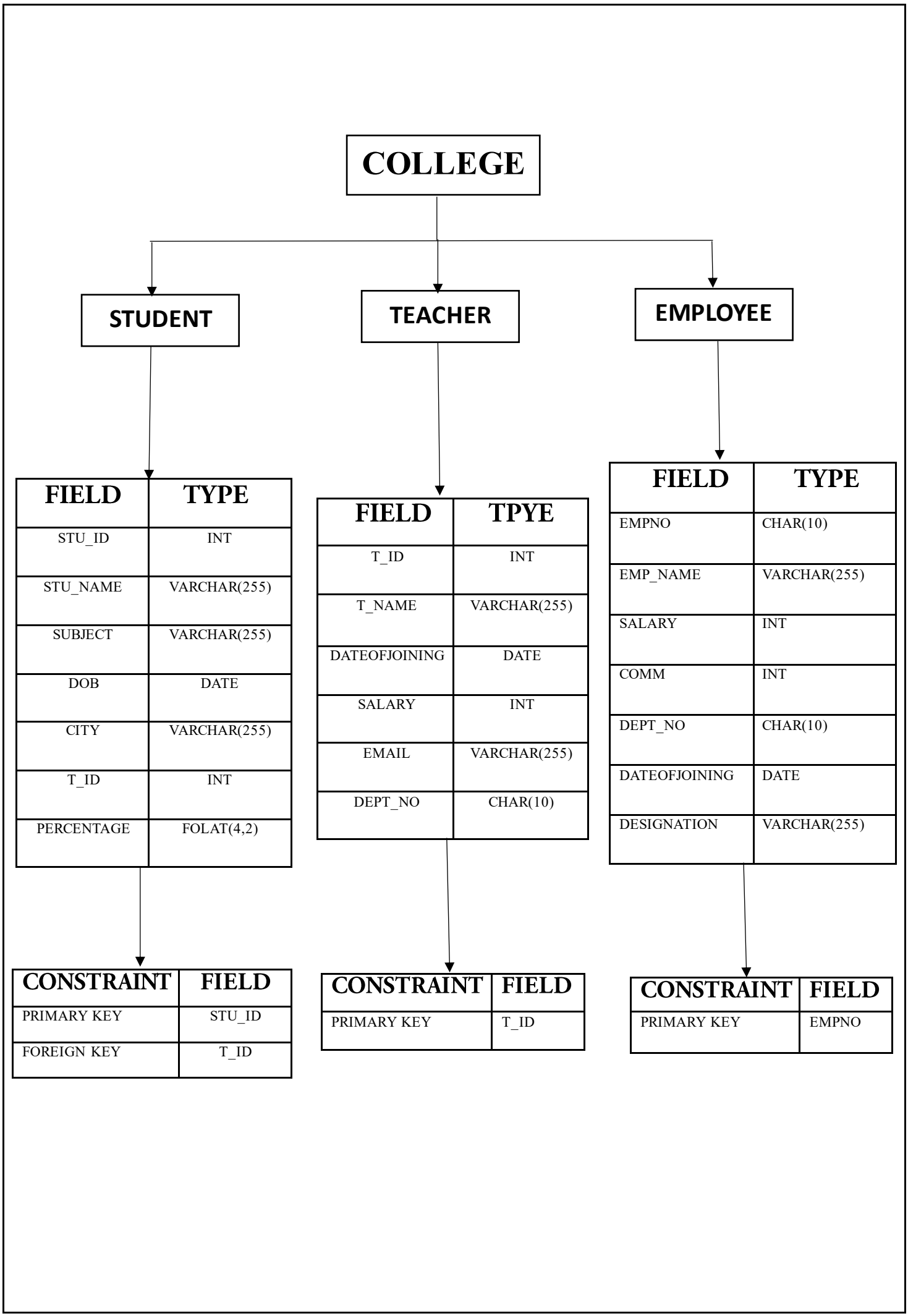
2. **Faculty Records and Assignments:**

   Create a repository for professor details, specialization, and contact information.

   Enable assignment tracking, submission, and grading for professors.

3. **Efficient Querying and Reporting:**

   Develop a set of standardized queries to generate reports on student performance, course enrollment trends, and other relevant insights.


COLLEGE
STUDENT
TEACHER
EMPLOYEE
FIELD
TYPE
STU_ID
INT
STU_NAME
VARCHAR(255)
SUBJECT
VARCHAR(255)
DOB
DATE
CITY
VARCHAR(255)
T_ID
INT
PERCENTAGE
FOLAT(4,2)
FIELD
TPYE
T_ID
INT
T_NAME
VARCHAR(255)
DATEOFJOINING
DATE
SALARY
INT
EMAIL
VARCHAR(255)
DEPT_NO
CHAR(10)
FIELD
TYPE
EMPNO
CHAR(10)
EMP_NAME
VARCHAR(255)
SALARY
INT
COMM
INT
DEPT_NO
CHAR(10)
DATEOFJOINING
DATE
DESIGNATION
VARCHAR(255)
CONSTRAINT
FIELD
PRIMARY KEY
STU_ID
FOREIGN KEY
T_ID
CONSTRAINT
FIELD
PRIMARY KEY
T_ID
CONSTRAINT
FIELD
PRIMARY KEY
EMPNO

STRUCTURE OF TABLE

- **TEACHER:**

```
mysql> DESC TEACHER;
+--------------+-------------+------+-----+---------+----------------+
| Field        | Type        | Null | Key | Default | Extra          |
+--------------+-------------+------+-----+---------+----------------+
| T_id         | int         | NO   | PRI | NULL    | auto_increment |
| T_name       | varchar(255)| YES  |     | NULL    |                |
| Dateofjoining| date        | YES  |     | NULL    |                |
| Salary       | int         | YES  |     | NULL    |                |
| Email        | varchar(255)| YES  |     | NULL    |                |
| dept_no      | char(10)    | YES  |     | NULL    |                |
+--------------+-------------+------+-----+---------+----------------+
```

- **STUDENT:**

```
mysql> DESC STUDENT;
+-----------+-------------+------+-----+---------+----------------+
| Field     | Type        | Null | Key | Default | Extra          |
+-----------+-------------+------+-----+---------+----------------+
| stu_id    | int         | NO   | PRI | NULL    | auto_increment |
| stu_name  | varchar(255)| YES  |     | NULL    |                |
| subject   | varchar(255)| YES  |     | NULL    |                |
| DOB       | date        | YES  |     | NULL    |                |
| city      | varchar(255)| YES  |     | NULL    |                |
| T_id      | int         | YES  | MUL | NULL    |                |
| percentage| float(4,2)  | YES  |     | NULL    |                |
+-----------+-------------+------+-----+---------+----------------+
```

- **EMPLOYEE:**

```
mysql> DESC EMPLOYEE;
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| empno        | char(10)    | NO   | PRI | NULL    |       |
| Emp_Name     | varchar(255)| YES  |     | NULL    |       |
| salary       | int         | YES  |     | NULL    |       |
| comm         | int         | YES  |     | NULL    |       |
| dept_no      | char(10)    | YES  |     | NULL    |       |
| Dateofjoining| date        | YES  |     | NULL    |       |
| Designation  | varchar(255)| YES  |     | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
```

CONTENTS OF TABLES

- **TEACHER:** SELECT * FROM TEACHER;

```
mysql> SELECT * FROM TEACHER;
+------+---------+---------------+--------+-------------------------+---------+
| T_id | T_name  | Dateofjoining | Salary | Email                   | dept_no |
+------+---------+---------------+--------+-------------------------+---------+
|  101 | smita   | 2010-09-12    |  47000 | smitamhatre@gmail.com   | D01     |
|  102 | Kirti   | 2011-06-15    |  35000 | kirtitivari@gmail.com   | D02     |
|  103 | varsha  | 2012-07-12    |  25000 | varsharane@gamil.com    | D03     |
|  104 | rakesh  | 2011-06-21    |  40000 | rakeshpawar@gmail.com   | D04     |
|  105 | vaibhav | 2012-02-01    |  27000 | jagjapvaibhav@gmail.com | D05     |
|  106 | ashok   | 2010-06-08    |  45000 | ashokpatil@gamil.com    | D06     |
|  107 | dipali  | 2013-06-11    |  30000 | dipalipatil@gmail.com   | D07     |
+------+---------+---------------+--------+-------------------------+---------+
```

- **STUDENT:** SELECT * FROM STUDENT;

```
mysql> SELECT * FROM STUDENT;
+--------+-----------+-------------+------------+------------+------+------------+
| stu_id | stu_name  | subject     | DOB        | city       | T_id | percentage |
+--------+-----------+-------------+------------+------------+------+------------+
|      1 | pratiksha | mathematics | 2002-11-14 | panvel     |  101 |      84.73 |
|      2 | rutuja    | IT          | 2003-03-21 | navi mumbai |  102 |      75.50 |
|      3 | Shruti    | CS          | 2003-06-17 | thane      |  103 |      85.23 |
|      4 | Prajwal   | Python      | 2003-06-27 | mumbai     |  104 |      70.00 |
|      5 | Vishant   | IT          | 2002-05-08 | thane      |  105 |      69.40 |
|      6 | Sahil     | CS          | 2002-04-05 | panvel     |  106 |      65.69 |
|      7 | Kashish   | Mathematics | 2003-03-11 | navi mumbai |  107 |      80.50 |
+--------+-----------+-------------+------------+------------+------+------------+
```

- **EMPLOYEE:** SELECT * FROM EMPLOYEE;

```
mysql> SELECT * FROM EMPLOYEE;
+-------+----------+--------+------+---------+---------------+--------------+
| empno | Emp_Name | salary | comm | dept_no | Dateofjoining | Designation  |
+-------+----------+--------+------+---------+---------------+--------------+
| E001  | shyam    |  15000 |  250 | D01     | 2007-07-04    | peon         |
| E002  | ram      |  17000 |  350 | D02     | 2006-06-04    | peon         |
| E003  | narayan  |  20000 | NULL | D03     | 2005-07-11    | Salesman     |
| E004  | tushar   |  25000 | NULL | D04     | 2004-03-24    | Receptionist |
| E005  | Omkar    |  27000 |  550 | D05     | 2007-09-14    | Receptionist |
| E006  | Hari     |  18000 |  300 | DO6     | 2005-06-16    | peon         |
| E007  | Mayur    |  30000 |  600 | D07     | 2006-10-04    | salesman     |
+-------+----------+--------+------+---------+---------------+--------------+
```

VIEWS

- **Update the details of Employee:**

  UPDATE EMPLOYEE SET COMM=NULL WHERE EMPNO="E007";

```
mysql> UPDATE EMPLOYEE SET COMM=NULL WHERE EMPNO="E007";
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> SELECT * FROM EMPLOYEE;
+-------+----------+--------+------+---------+---------------+--------------+
| empno | Emp_Name | salary | comm | dept_no | Dateofjoining | Designation  |
+-------+----------+--------+------+---------+---------------+--------------+
| E001  | shyam    |  15000 |  250 | D01     | 2007-07-04    | peon         |
| E002  | ram      |  17000 |  350 | D02     | 2006-06-04    | peon         |
| E003  | narayan  |  20000 | NULL | D03     | 2005-07-11    | Salesman     |
| E004  | tushar   |  25000 | NULL | D04     | 2004-03-24    | Receptionist |
| E005  | Omkar    |  27000 |  550 | D05     | 2007-09-14    | Receptionist |
| E006  | Hari     |  18000 |  300 | DO6     | 2005-06-16    | peon         |
| E007  | Mayur    |  30000 | NULL | D07     | 2006-10-04    | salesman     |
+-------+----------+--------+------+---------+---------------+--------------+
```

- **Delete the column comm:**

  ALTER TABLE EMPLOYEE DROP COLUMN COMM;

```
mysql> ALTER TABLE EMPLOYEE DROP COLUMN COMM;
Query OK, 0 rows affected (0.07 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> SELECT * FROM EMPLOYEE;
+-------+----------+--------+---------+---------------+--------------+
| empno | Emp_Name | salary | dept_no | Dateofjoining | Designation  |
+-------+----------+--------+---------+---------------+--------------+
| E001  | shyam    |  15000 | D01     | 2007-07-04    | peon         |
| E002  | ram      |  17000 | D02     | 2006-06-04    | peon         |
| E003  | narayan  |  20000 | D03     | 2005-07-11    | Salesman     |
| E004  | tushar   |  25000 | D04     | 2004-03-24    | Receptionist |
| E005  | Omkar    |  27000 | D05     | 2007-09-14    | Receptionist |
| E006  | Hari     |  18000 | DO6     | 2005-06-16    | peon         |
| E007  | Mayur    |  30000 | D07     | 2006-10-04    | salesman     |
+-------+----------+--------+---------+---------------+--------------+
```

- **Rename the employee table to emp_info:**

ALTER TABLE CMPLOYEE RENAME TO EMP_INFO;

```
mysql> ALTER TABLE EMPLOYEE RENAME TO EMP_INFO;
Query OK, 0 rows affected (0.01 sec)

mysql> SELECT * FROM EMP_INFO;
+-------+----------+--------+---------+---------------+--------------+
| empno | Emp_Name | salary | dept_no | Dateofjoining | Designation  |
+-------+----------+--------+---------+---------------+--------------+
| E001  | shyam    |  15000 | D01     | 2007-07-04    | peon         |
| E002  | ram      |  17000 | D02     | 2006-06-04    | peon         |
| E003  | narayan  |  20000 | D03     | 2005-07-11    | Salesman     |
| E004  | tushar   |  25000 | D04     | 2004-03-24    | Receptionist |
| E005  | Omkar    |  27000 | D05     | 2007-09-14    | Receptionist |
| E006  | Hari     |  18000 | DO6     | 2005-06-16    | peon         |
| E007  | Mayur    |  30000 | D07     | 2006-10-04    | salesman     |
+-------+----------+--------+---------+---------------+--------------+
```

OPERATORS

Display the records of a teacher who has salary between 30000 and 45000:

SELECT * FROM TEACHER WHERE SALARY BETWEEN 30000 AND 45000;

```
mysql> SELECT * FROM TEACHER WHERE SALARY BETWEEN 30000 AND 45000;
+------+--------+---------------+--------+----------------------+---------+
| T_id | T_name | Dateofjoining | Salary | Email                | dept_no |
+------+--------+---------------+--------+----------------------+---------+
|  102 | Kirti  | 2011-06-15    |  35000 | kirtitivari@gmail.com | D02     |
|  104 | rakesh | 2011-06-21    |  40000 | rakeshpawar@gmail.com | D04     |
|  106 | ashok  | 2010-06-08    |  45000 | ashokpatil@gamil.com  | D06     |
|  107 | dipali | 2013-06-11    |  30000 | dipalipatil@gmail.com | D07     |
+------+--------+---------------+--------+----------------------+---------+
```

Display the details of teacher whose name is “smita”,”varsha”,”Vaibhav”:

SELECT * FROM TEACHER WHERE T_NAME IN(“SMITH”,”VARSHA”,”VAIBHAV”);

```
mysql> SELECT * FROM TEACHER WHERE T_NAME IN("SMITA","VARSHA","VAIBHAV");
+------+---------+---------------+--------+------------------------+---------+
| T_id | T_name  | Dateofjoining | Salary | Email                  | dept_no |
+------+---------+---------------+--------+------------------------+---------+
|  101 | smita   | 2010-09-12    |  47000 | smitamhatre@gmail.com  | D01     |
|  103 | varsha  | 2012-07-12    |  25000 | varsharane@gamil.com   | D03     |
|  105 | vaibhav | 2012-02-01    |  27000 | jagjapvaibhav@gmail.com | D05     |
+------+---------+---------------+--------+------------------------+---------+
```

Display the details of student whose student id is 7 or subject is python:

SELECT * FROM STUDENT WHERE STU_ID=7 OR SUBJECT=”PYTHON”;

```
mysql> SELECT * FROM STUDENT WHERE STU_ID=7 OR SUBJECT="PYTHON";
+--------+----------+-------------+------------+-------------+------+------------+
| stu_id | stu_name | subject     | DOB        | city        | T_id | percentage |
+--------+----------+-------------+------------+-------------+------+------------+
|      4 | Prajwal  | Python      | 2003-06-27 | mumbai      |  104 |      70.00 |
|      7 | Kashish  | Mathematics | 2003-03-11 | navi mumbai |  107 |      80.50 |
+--------+----------+-------------+------------+-------------+------+------------+
```

Display the details of student whose name as ‘pratiksha’ and having percentage more than 80:

SELECT * FROM STUDENT WHERE STU_NAME=”PRATIKSHA” AND PERCENTAGE>80.00;

```
mysql> SELECT * FROM STUDENT WHERE STU_NAME="PRATIKSHA" AND PERCENTAGE>80.00;
+--------+-----------+-------------+------------+--------+------+------------+
| stu_id | stu_name  | subject     | DOB        | city   | T_id | percentage |
+--------+-----------+-------------+------------+--------+------+------------+
|      1 | pratiksha | mathematics | 2002-11-14 | panvel |  101 |      84.73 |
+--------+-----------+-------------+------------+--------+------+------------+
```

Display the records of employee who is working as ‘peon’:

SELECT * FROM EMPLOYEE WHERE DESIGNATION=”PEON”;

```
mysql> SELECT * FROM EMPLOYEE WHERE DESIGNATION="PEON";
+-------+----------+--------+------+---------+---------------+-------------+
| empno | Emp_Name | salary | comm | dept_no | Dateofjoining | Designation |
+-------+----------+--------+------+---------+---------------+-------------+
| E001  | shyam    |  15000 |  250 | D01     | 2007-07-04    | peon        |
| E002  | ram      |  17000 |  350 | D02     | 2006-06-04    | peon        |
| E006  | Hari     |  18000 |  300 | DO6     | 2005-06-16    | peon        |
+-------+----------+--------+------+---------+---------------+-------------+
```

Display the details of student whose not live in navi Mumbai:

SELECT * FROM STUDENT WHERE CITY!=”NAVI MUMBAI”;

```
mysql> SELECT * FROM STUDENT WHERE CITY!="NAVI MUMBAI";
+--------+-----------+-------------+------------+--------+------+------------+
| stu_id | stu_name  | subject     | DOB        | city   | T_id | percentage |
+--------+-----------+-------------+------------+--------+------+------------+
|      1 | pratiksha | mathematics | 2002-11-14 | panvel |  101 |      84.73 |
|      3 | Shruti    | CS          | 2003-06-17 | thane  |  103 |      85.23 |
|      4 | Prajwal   | Python      | 2003-06-27 | mumbai |  104 |      70.00 |
|      5 | Vishant   | IT          | 2002-05-08 | thane  |  105 |      69.40 |
|      6 | Sahil     | CS          | 2002-04-05 | panvel |  106 |      65.69 |
+--------+-----------+-------------+------------+--------+------+------------+
```

Like operator:

SELECT * FROM TEACHER WHERE T_NAME LIKE '%A';

```
mysql> SELECT * FROM TEACHER WHERE T_NAME LIKE '%A';
+------+--------+--------------+--------+----------------------+---------+
| T_id | T_name | Dateofjoining | Salary | Email                | dept_no |
+------+--------+--------------+--------+----------------------+---------+
|  101 | smita  | 2010-09-12    |  47000 | smitamhatre@gmail.com | D01     |
|  103 | varsha | 2012-07-12    |  25000 | varsharane@gamil.com  | D03     |
+------+--------+--------------+--------+----------------------+---------+
```

Rlike operator:

SELECT * FROM STUDENT WHERE STU_NAME RLIKE '[V|P]';

```
mysql> SELECT * FROM STUDENT WHERE STU_NAME RLIKE '[V|P]';
+--------+----------+-------------+------------+--------+------+------------+
| stu_id | stu_name | subject     | DOB        | city   | T_id | percentage |
+--------+----------+-------------+------------+--------+------+------------+
|      1 | pratiksha | mathematics | 2002-11-14 | panvel |  101 |      84.73 |
|      4 | Prajwal   | Python      | 2003-06-27 | mumbai |  104 |      70.00 |
|      5 | Vishant   | IT          | 2002-05-08 | thane  |  105 |      69.40 |
+--------+----------+-------------+------------+--------+------+------------+
```

FUNCTIONS

- **Display the avg(),max(),min(),sum() and count() of salary from Emlpoyee and teacher.**

SELECT MAX(SALARY),MIN(SALARY),AVG(SALARY),COUNT(SALARY) FROM EMPLOYEE;

```
mysql> SELECT MAX(SALARY),MIN(SALARY),AVG(SALARY),COUNT(SALARY) FROM EMPLOYEE;
+-------------+-------------+-------------+---------------+
| MAX(SALARY) | MIN(SALARY) | AVG(SALARY) | COUNT(SALARY) |
+-------------+-------------+-------------+---------------+
|       30000 |       15000 |  21714.2857 |             7 |
+-------------+-------------+-------------+---------------+
```

SELECT MAX(SALARY),MIN(SALARY),AVG(SALARY),COUNT(SALARY) FROM TEACHER;

```
mysql> SELECT MAX(SALARY),MIN(SALARY),AVG(SALARY),COUNT(SALARY) FROM TEACHER;
+-------------+-------------+-------------+---------------+
| MAX(SALARY) | MIN(SALARY) | AVG(SALARY) | COUNT(SALARY) |
+-------------+-------------+-------------+---------------+
|       47000 |       25000 |  35571.4286 |             7 |
+-------------+-------------+-------------+---------------+
```

CLAUSE

1. Where clause:

SELECT * FROM TEACHER WHERE T_ID=103;

```
mysql> SELECT * FROM TEACHER WHERE T_ID=103;
+------+--------+--------------+--------+---------------------+---------+
| T_id | T_name | Dateofjoining | Salary | Email               | dept_no |
+------+--------+--------------+--------+---------------------+---------+
|  103 | varsha | 2012-07-12    |  25000 | varsharane@gamil.com | D03     |
+------+--------+--------------+--------+---------------------+---------+
```

2. Group by clause:

SELECT COUNT(*),CITY FROM STUDENT GROUP BY CITY;

```
mysql> SELECT COUNT(*),CITY FROM STUDENT GROUP BY CITY;
+----------+-------------+
| COUNT(*) | CITY        |
+----------+-------------+
|        2 | panvel      |
|        2 | navi mumbai |
|        2 | thane       |
|        1 | mumbai      |
+----------+-------------+
```

3. Having clause:

SELECT MAX(SALARY),DESIGNATION FROM EMPLOYEE GROUP BY DESIGNATION HAVING MAX(SALARY)>20000;

```
mysql> SELECT MAX(SALARY),DESIGNATION FROM EMPLOYEE GROUP BY DESIGNATION HAVING MAX(SALARY)>20000;
+------------+-------------+
| MAX(SALARY) | DESIGNATION  |
+------------+-------------+
|      30000 | Salesman    |
|      27000 | Receptionist |
+------------+-------------+
```

4. Order by clause:

SELECT * FROM EMPLOYEE ORDER BY EMP_NAME DESC;

```
mysql> SELECT * FROM EMPLOYEE ORDER BY EMP_NAME DESC;
+-------+----------+--------+------+---------+---------------+--------------+
| empno | Emp_Name | salary | comm | dept_no | Dateofjoining | Designation  |
+-------+----------+--------+------+---------+---------------+--------------+
| E004  | tushar   |  25000 | NULL | D04     | 2004-03-24    | Receptionist |
| E001  | shyam    |  15000 |  250 | D01     | 2007-07-04    | peon         |
| E002  | ram      |  17000 |  350 | D02     | 2006-06-04    | peon         |
| E005  | Omkar    |  27000 |  550 | D05     | 2007-09-14    | Receptionist |
| E003  | narayan  |  20000 | NULL | D03     | 2005-07-11    | Salesman     |
| E007  | Mayur    |  30000 | NULL | D07     | 2006-10-04    | salesman     |
| E006  | Hari     |  18000 |  300 | DO6     | 2005-06-16    | peon         |
+-------+----------+--------+------+---------+---------------+--------------+
```

5. Limit clause:

SELECT * FROM TEACHER WHERE SALARY LIMIT 2,1;

```
mysql> SELECT * FROM TEACHER WHERE SALARY LIMIT 2,1;
+------+--------+---------------+--------+----------------------+---------+
| T_id | T_name | Dateofjoining | Salary | Email                | dept_no |
+------+--------+---------------+--------+----------------------+---------+
|  103 | varsha | 2012-07-12    |  25000 | varsharane@gamil.com | D03     |
+------+--------+---------------+--------+----------------------+---------+
```

SUBQUERY

- **Display the details of all the teacher whose salary is more than the average salary.**

  SELECT * FROM TEACHER WHERE SALARY>(SELECT AVG(SALARY) FROM TEACHER);

```
mysql> SELECT * FROM TEACHER WHERE SALARY>(SELECT AVG(SALARY) FROM TEACHER);
+------+--------+---------------+--------+----------------------+---------+
| T_id | T_name | Dateofjoining | Salary | Email                | dept_no |
+------+--------+---------------+--------+----------------------+---------+
|  101 | smita  | 2010-09-12    |  47000 | smitamhatre@gmail.com | D01     |
|  104 | rakesh | 2011-06-21    |  40000 | rakeshpawar@gmail.com | D04     |
|  106 | ashok  | 2010-06-08    |  45000 | ashokpatil@gamil.com  | D06     |
+------+--------+---------------+--------+----------------------+---------+
```

- **Display the details of Employee who has salary more than 'TUSHAR'.**
  SELECT * FROM EMPLOYEE WHERE SALARY>(SELECT SALARY FROM EMPLOYEE WHERE EMP_NAME="TUSHAR");

```
mysql> SELECT * FROM EMPLOYEE WHERE SALARY>(SELECT SALARY FROM EMPLOYEE WHERE EMP_NAME="TUSHAR");
+-------+----------+--------+------+---------+--------------+-------------+
| empno | Emp_Name | salary | comm | dept_no | Dateofjoining | Designation  |
+-------+----------+--------+------+---------+--------------+-------------+
| E005  | Omkar    |  27000 |  550 | D05     | 2007-09-14    | Receptionist |
| E007  | Mayur    |  30000 | NULL | D07     | 2006-10-04    | salesman     |
+-------+----------+--------+------+---------+--------------+-------------+
```

- **Display the details of all the student who live in a city with any student whose name contains a T.**
  SELECT * FROM STUDENT WHERE CITY IN(SELECT CITY WHERE STU_NAME LIKE "%T%");

```
mysql> SELECT * FROM STUDENT WHERE CITY IN(SELECT CITY WHERE STU_NAME LIKE "%T%");
+--------+-----------+-------------+------------+-------------+------+------------+
| stu_id | stu_name  | subject     | DOB        | city        | T_id | percentage |
+--------+-----------+-------------+------------+-------------+------+------------+
|      1 | pratiksha | mathematics | 2002-11-14 | panvel      |  101 |      84.73 |
|      2 | rutuja    | IT          | 2003-03-21 | navi mumbai |  102 |      75.50 |
|      3 | Shruti    | CS          | 2003-06-17 | thane       |  103 |      85.23 |
|      5 | Vishant   | IT          | 2002-05-08 | thane       |  105 |      69.40 |
+--------+-----------+-------------+------------+-------------+------+------------+
```

- **Display the details of teacher who has 2nd highest salary.**
  SELECT * FROM TEACHER WHERE SALARY=(SELECT MAX(SALARY) FROM TEACHER WHERE SALARY<(SELECT MAX(SALARY) FROM TEACHER));

```
mysql> SELECT * FROM TEACHER WHERE SALARY=(SELECT MAX(SALARY) FROM TEACHER WHERE SALARY<(SELECT MAX(SALARY) FROM TEACHER
));
+------+--------+--------------+--------+--------------------+---------+
| T_id | T_name | Dateofjoining | Salary | Email              | dept_no |
+------+--------+--------------+--------+--------------------+---------+
|  106 | ashok  | 2010-06-08    |  45000 | ashokpatil@gamil.com | D06     |
+------+--------+--------------+--------+--------------------+---------+
```

JOINS

➢ INNER JOIN:

SELECT s.STU_ID,s.STU_NAME,s.SUBJECT,s.PERCENTAGE AS STUDENT,t.T_NAME,t.SALARY,t.DEPT_NO AS TEACHER FROM STUDENT s INNER JOIN TEACHER t ON s.T_ID=t.T_ID;

```
mysql> SELECT s.STU_ID,s.STU_NAME,s.SUBJECT,s.PERCENTAGE AS STUDENT,t.T_NAME,t.SALARY,t.DEPT_NO AS TEACHER FROM STUDENT
s INNER JOIN TEACHER t ON s.T_ID=t.T_ID;
+--------+-----------+-------------+---------+---------+--------+---------+
| STU_ID | STU_NAME  | SUBJECT     | STUDENT | T_NAME  | SALARY | TEACHER |
+--------+-----------+-------------+---------+---------+--------+---------+
|      1 | pratiksha | mathematics |   84.73 | smita   |  47000 | D01     |
|      2 | rutuja    | IT          |   75.50 | Kirti   |  35000 | D02     |
|      3 | Shruti    | CS          |   85.23 | varsha  |  25000 | D03     |
|      4 | Prajwal   | Python      |   70.00 | rakesh  |  40000 | D04     |
|      5 | Vishant   | IT          |   69.40 | vaibhav |  27000 | D05     |
|      6 | Sahil     | CS          |   65.69 | ashok   |  45000 | D06     |
|      7 | Kashish   | Mathematics |   80.50 | dipali  |  30000 | D07     |
+--------+-----------+-------------+---------+---------+--------+---------+
```

➢ LEFT JOIN:

SELECT s.STU_ID,s.STU_NAME,s.SUBJECT,s.DOB,s.CITY,s.PERCENTAGE AS STUDENT,t.T_NAME,t.SALARY AS TEACHER FROM STUDENT s LEFT JOIN TEACHER t ON s.T_ID=t.T_ID;

```
mysql> SELECT s.STU_ID,s.STU_NAME,s.SUBJECT,s.DOB,s.CITY,s.PERCENTAGE AS STUDENT,t.T_NAME,t.SALARY AS TEACHER FROM
STUDENT s LEFT JOIN TEACHER t ON s.T_ID=t.T_ID;
+--------+-----------+-------------+------------+-------------+---------+---------+---------+
| STU_ID | STU_NAME  | SUBJECT     | DOB        | CITY        | STUDENT | T_NAME  | TEACHER |
+--------+-----------+-------------+------------+-------------+---------+---------+---------+
|      1 | pratiksha | mathematics | 2002-11-14 | panvel      |   84.73 | smita   |   47000 |
|      2 | rutuja    | IT          | 2003-03-21 | navi mumbai |   75.50 | Kirti   |   35000 |
|      3 | Shruti    | CS          | 2003-06-17 | thane       |   85.23 | varsha  |   25000 |
|      4 | Prajwal   | Python      | 2003-06-27 | mumbai      |   70.00 | rakesh  |   40000 |
|      5 | Vishant   | IT          | 2002-05-08 | thane       |   69.40 | vaibhav |   27000 |
|      6 | Sahil     | CS          | 2002-04-05 | panvel      |   65.69 | ashok   |   45000 |
|      7 | Kashish   | Mathematics | 2003-03-11 | navi mumbai |   80.50 | dipali  |   30000 |
+--------+-----------+-------------+------------+-------------+---------+---------+---------+
```

➢ RIGHT JOIN:

SELECT s.STU_NAME,s.SUBJECT,s.PERCENTAGE AS STUDENT,t.T_NAME,t.SALARY,t.DEPT_NO AS TEACHER FROM STUDENT s RIGHT JOIN TEACHER t ON s.T_ID=t.T_ID;

```
mysql> SELECT s.STU_NAME,s.SUBJECT,s.PERCENTAGE AS STUDENT,t.T_NAME,t.SALARY,t.DEPT_NO AS TEACHER FROM STUDENT s RIGHT
JOIN TEACHER t ON s.T_ID=t.T_ID;
+-----------+-------------+---------+---------+--------+---------+
| STU_NAME  | SUBJECT     | STUDENT | T_NAME  | SALARY | TEACHER |
+-----------+-------------+---------+---------+--------+---------+
| pratiksha | mathematics |   84.73 | smita   |  47000 | D01     |
| rutuja    | IT          |   75.50 | Kirti   |  35000 | D02     |
| Shruti    | CS          |   85.23 | varsha  |  25000 | D03     |
| Prajwal   | Python      |   70.00 | rakesh  |  40000 | D04     |
| Vishant   | IT          |   69.40 | vaibhav |  27000 | D05     |
| Sahil     | CS          |   65.69 | ashok   |  45000 | D06     |
| Kashish   | Mathematics |   80.50 | dipali  |  30000 | D07     |
+-----------+-------------+---------+---------+--------+---------+
```

➢ CROSS JOIN:

SELECT s.STU_NAME AS STUDENT,t.T_NAME AS TEACHER FROM STUDENT s CROSS JOIN TEACHER t ON s.T_ID=t.T_ID;

```
mysql> SELECT s.STU_NAME AS STUDENT,t.T_NAME AS TEACHER FROM STUDENT s CROSS JOIN TEACHER t ON s.T_ID=t.T_ID;
+-----------+---------+
| STUDENT   | TEACHER |
+-----------+---------+
| pratiksha | smita   |
| rutuja    | Kirti   |
| Shruti    | varsha  |
| Prajwal   | rakesh  |
| Vishant   | vaibhav |
| Sahil     | ashok   |
| Kashish   | dipali  |
+-----------+---------+
```

- **SELF JOIN:**

SELECT S1.STU_NAME,S2.STU_NAME AS NAME FROM STUDENT S1 INNER JOIN STUDENT S2 ON S1.T_ID=S2.T_ID;

```
mysql> SELECT S1.STU_NAME,S2.STU_NAME AS NAME FROM STUDENT S1 INNER JOIN STUDENT S2 ON S1.T_ID=S2.T_ID;
+-----------+-----------+
| STU_NAME  | NAME      |
+-----------+-----------+
| pratiksha | pratiksha |
| rutuja    | rutuja    |
| Shruti    | Shruti    |
| Prajwal   | Prajwal   |
| Vishant   | Vishant   |
| Sahil     | Sahil     |
| Kashish   | Kashish   |
+-----------+-----------+
```

- PRATIKSHA BALARAM PATIL

THANK YOU
