DBMS MINI PROJECT

PAYROLL MANAGEMENT SYSTEM

SUBMITTED BY:

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ROLL NO.22

SECTION : H

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1. DESCRIPTION AND SCOPE OF PROJECT

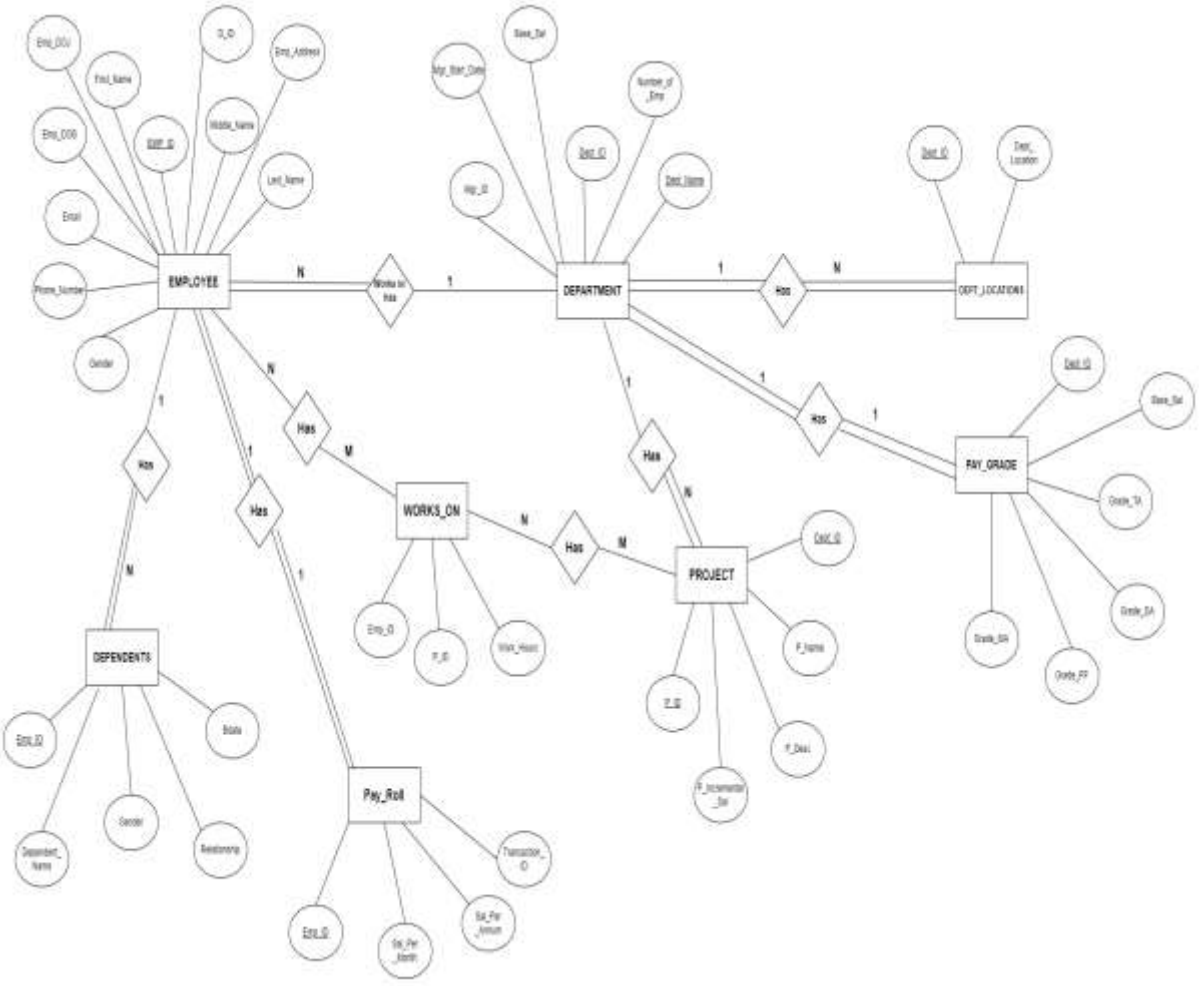
No organization can take risk when it comes to financial, accounting, bookkeeping and payroll issues. Any errors in monetary records may lead to legal consequences as well as financial loss. So here Payroll management system becomes instrumental. Payroll management system is computer-operated system designed to record monitor and manage employee's pay- roll matters in any Organization. With an increase in the number of Employees and organizations, the financial management of the organization is becoming a complex issue. Also, there is a great deal of strain on top management in the Organization.

Other advantages of Payroll management system are as follows.

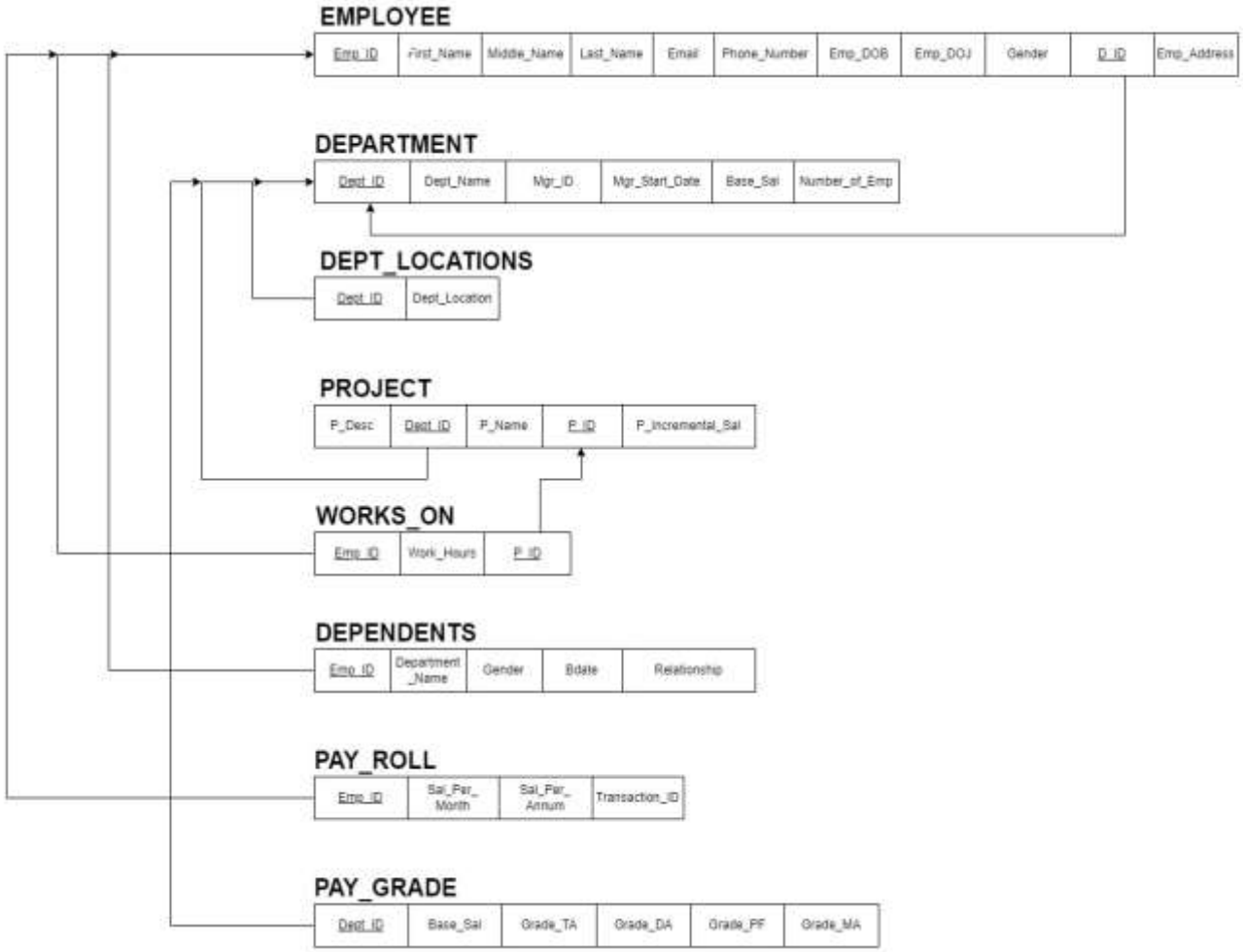
- Easy payroll record-keeping of Employees
- Help management employee related decisions
- Minimize financial loss due to errors
- Data consistency and Back-up
- Overcome the old procedures
- Easy information refreshing

Payroll management system will work and update the Employee's payroll records, salary records, wages records, tax expenses, job duration records, attendance record, experience record, duty hour's record, and other accounting details related to payrolls. It deals with the recording and processing Employee's payroll data so that the executives can easily manage the organizational operations.

2. ER DIAGRAM


EMPLOYEE
DEPARTMENT
DEPT_LOCATIONS
PAY_GRADE
PROJECT
WORKS_ON
DEPENDENTS
Pay_Roll
Has
N
1
M

3. RELATION SCHEMA



4. DDL STATEMENTS TO BUILD DATABASE

```
MariaDB [sukruth_payroll_management_system]> CREATE TABLE EMPLOYEE
    -> (         Emp_ID INT NOT NULL,
    ->      First_Name VARCHAR(255) NOT NULL,
    ->   Middle_Name VARCHAR(255) ,
    ->   Last_Name VARCHAR(255) NOT NULL,
    ->      Email VARCHAR(255) NOT NULL,
    ->      Phone_Number VARCHAR(10) NOT NULL,
    ->   Emp_DOB DATE NOT NULL,
    ->      Emp_DOJ DATE NOT NULL,
    ->   Gender CHAR NOT NULL,
    ->   D_ID INT NOT NULL,
    ->      Emp_Address VARCHAR(255) NOT NULL,
    ->   PRIMARY KEY (Emp_ID));
Query OK, 0 rows affected (0.023 sec)
```

Fig 4.1 : Creating Table employee

```
MariaDB [sukruth_payroll_management_system]> CREATE TABLE DEPARTMENT
    -> (         Dept_ID INT NOT NULL,
    ->      Dept_Name VARCHAR(255) NOT NULL,
    ->   Mgr_ID INT NOT NULL,
    ->   Mgr_Start_Date DATE NOT NULL,
    ->      Base_Sal DECIMAL(10, 3) NOT NULL,
    ->      Number_of_Emp INT NOT NULL DEFAULT 0,
    ->   PRIMARY KEY (Dept_ID),
    ->   UNIQUE (Dept_Name),
    ->   FOREIGN KEY (Mgr_ID) REFERENCES  EMPLOYEE(Emp_ID) );
Query OK, 0 rows affected (0.024 sec)
```

Fig 4.2: Creating Table Department

```
MariaDB [sukruth_payroll_management_system]> CREATE TABLE DEPT_LOCATIONS
    -> (         Dept_ID INT NOT NULL,
    ->   Dept_Location VARCHAR(255) NOT NULL,
    ->   PRIMARY KEY (Dept_ID),
    ->   FOREIGN KEY (Dept_ID) REFERENCES  DEPARTMENT(Dept_ID) );
Query OK, 0 rows affected (0.023 sec)
```

Fig 4.3 : Creating Table Dept_Locations

```
MariaDB [sukruth_payroll_management_system]> CREATE TABLE PROJECT
    -> (         P_ID INT NOT NULL,
    ->      Dept_ID INT NOT NULL,
    ->      P_Name VARCHAR(255) NOT NULL,
    ->      P_Desc VARCHAR(255),
    ->      P_Incremental_Sal DECIMAL(10, 2) NOT NULL,
    ->   PRIMARY KEY (P_ID),
    ->   UNIQUE(P_Name),
    ->   FOREIGN KEY (Dept_ID) REFERENCES DEPARTMENT(Dept_ID) );
Query OK, 0 rows affected (0.025 sec)
```

Fig 4.4 : Creating Project Table

```
MariaDB [sukruth_payroll_management_system]> CREATE TABLE WORKS_ON
    -> (         Emp_ID INT NOT NULL,
    ->   P_ID INT NOT NULL,
    ->   Work_Hours DECIMAL(6,2) NOT NULL,
    ->   PRIMARY KEY (Emp_ID, P_ID),
    ->   FOREIGN KEY (Emp_ID) REFERENCES EMPLOYEE(Emp_ID) ,
    ->   FOREIGN KEY(P_ID) REFERENCES PROJECT(P_ID) );
Query OK, 0 rows affected (0.022 sec)
```

Fig 4.5 : Creating Works_On Table

```
MariaDB [sukruth_payroll_management_system]> CREATE TABLE DEPENDENTS
    -> (        Emp_ID INT NOT NULL,
    ->  Dependent_Name VARCHAR(255) NOT NULL,
    ->  Gender CHAR,
    ->  Bdate DATE,
    ->  Relationship VARCHAR(8),
    ->  PRIMARY KEY (Emp_ID, Dependent_Name),
    ->  FOREIGN KEY (Emp_ID) REFERENCES EMPLOYEE(Emp_ID)) ;
Query OK, 0 rows affected (0.021 sec)
```

Fig 4.6 : Creating Dependents Table

```
MariaDB [sukruth_payroll_management_system]> CREATE TABLE PAY_ROLL
    -> (        Emp_ID INT NOT NULL,
    ->     Sal_Per_Month DECIMAL(10, 2) NOT NULL,
    ->  Sal_Per_Annum DECIMAL(10, 2) NOT NULL,
    ->  Transaction_ID VARCHAR(10) NOT NULL,
    ->  PRIMARY KEY (Emp_ID),
    ->  FOREIGN KEY (Emp_ID) REFERENCES EMPLOYEE(Emp_ID) );
Query OK, 0 rows affected (0.021 sec)
```

Fig 4.7: Creating Pay_Roll Table

```
MariaDB [sukruth_payroll_management_system]> CREATE TABLE PAY_GRADE
    -> (        Dept_ID INT NOT NULL,
    ->  Base_Sal DECIMAL(10, 2) NOT NULL,
    ->  Grade_TA DECIMAL(10, 2),
    ->  Grade_DA DECIMAL(10, 2),
    ->  Grade_PF DECIMAL(10, 2),
    ->     Grade_MA DECIMAL(10, 2),
    ->  PRIMARY KEY (Dept_ID),
    ->  FOREIGN KEY (Dept_ID) REFERENCES DEPARTMENT(Dept_ID) );
Query OK, 0 rows affected (0.021 sec)
```

Fig 4.8 : Creating Pay_GradeTable

5.POPULATING DATABASE

5.1. Passing values through Command Prompt

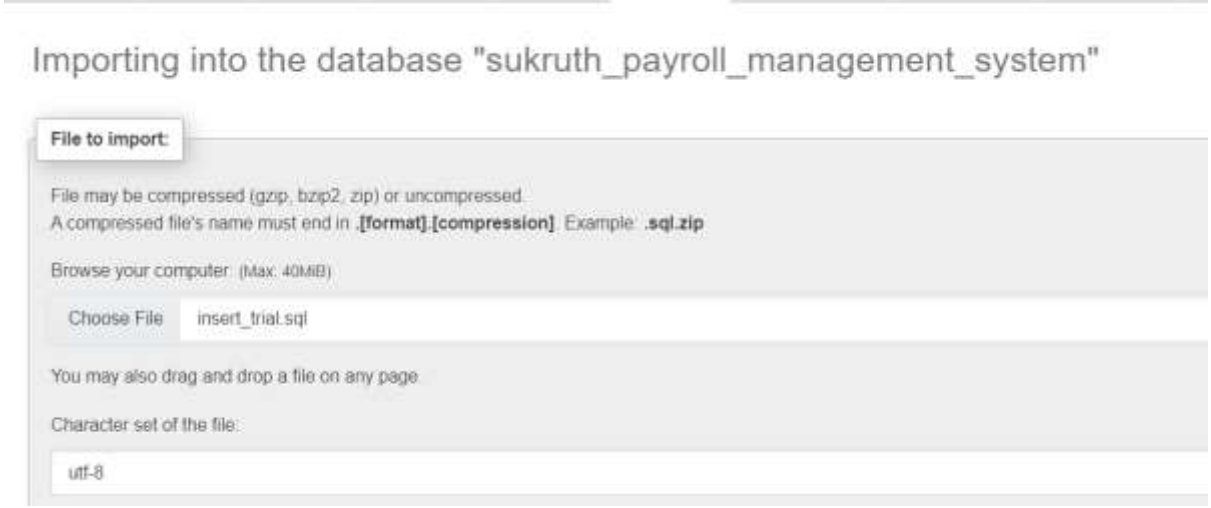
```
MariaDB [sukruth_payroll_management_system]> INSERT INTO EMPLOYEE VALUES(1,'Monin','h','Virk','uma@hotmail.com','9781322868','1994-09-23','2020-08-12','M',1,'225G
odavari,Jekegram');
Query OK, 1 row affected (0.005 sec)

MariaDB [sukruth_payroll_management_system]> INSERT INTO EMPLOYEE VALUES(2,'Aarif','k','Kapadia','kapadia@gmail.com','9176386378','1984-05-30','2015-09-18','M',2,
'Houston,tx stone450');
Query OK, 1 row affected (0.004 sec)

MariaDB [sukruth_payroll_management_system]> INSERT INTO EMPLOYEE VALUES(3,'Julie','Sharaf','u','sharf@gmail.com','9398856983','1988-06-14','2012-09-25','F',3,'65
, Neerendra Heights, Neela Chowk');
Query OK, 1 row affected (0.005 sec)

MariaDB [sukruth_payroll_management_system]> select * from EMPLOYEE;
+--------+------------+-------------+-----------+-------------------+--------------+------------+------------+--------+------+-----------------------------------------+
| Emp_ID | First_Name | Middle_Name | Last_Name | Email             | Phone_Number | Emp_DOB    | Emp_DOJ    | Gender | D_ID | Emp_Address                             |
+--------+------------+-------------+-----------+-------------------+--------------+------------+------------+--------+------+-----------------------------------------+
|      1 | Monin      | h           | Virk      | uma@hotmail.com   | 9781322868   | 1994-09-23 | 2020-08-12 | M      |    1 | 225Godavari,Jekegram                    |
|      2 | Aarif      | k           | Kapadia   | kapadia@gmail.com | 9176386378   | 1984-05-30 | 2015-09-18 | M      |    2 | Houston,tx stone450                     |
|      3 | Julie      | Sharaf      | u         | sharf@gmail.com   | 9398856983   | 1988-06-14 | 2012-09-25 | F      |    3 | 65, Neerendra Heights, Neela Chowk      |
+--------+------------+-------------+-----------+-------------------+--------------+------------+------------+--------+------+-----------------------------------------+
3 rows in set (0.000 sec)
```

5.2. Importing SQL file containing values



Import has been successfully finished, 14 queries executed. (insert_trial.sql)

1 row inserted. (Query took 0.0025 seconds.)

```
INSERT INTO EMPLOYEE VALUES(4,'Prabhat','s','Sani','sani@gmail.com','6317927970','1988-03-12','2005-10-19','M',4,'34, Deccan Gymkhana, Pondicherry');
```

[Edit inline] [Edit] [Create PHP code]

1 row inserted. (Query took 0.0020 seconds.)

```
INSERT INTO EMPLOYEE VALUES(5,'Hema','A','Kapur','kapur@gmail.com','61990259439','1985-11-15','2006-05-16','F',5,'14, Deepesh Society, Samir Chowk');
```

[Edit inline] [Edit] [Create PHP code]

```
MariaDB [sukruth_payroll_management_system]> select * from employee;
+--------+------------+-------------+-----------+-------------------+--------------+------------+------------+--------+------+-----------------------------------------+
| Emp_ID | First_Name | Middle_Name | Last_Name | Email             | Phone_Number | Emp_DOB    | Emp_DOJ    | Gender | D_ID | Emp_Address                             |
+--------+------------+-------------+-----------+-------------------+--------------+------------+------------+--------+------+-----------------------------------------+
|      1 | Monin      | h           | Virk      | uma@hotmail.com   | 9781322868   | 1994-09-23 | 2020-08-12 | M      |    1 | 225Godavari,Jekegram                    |
|      2 | Aarif      | k           | Kapadia   | kapadia@gmail.com | 9176386378   | 1984-05-30 | 2015-09-18 | M      |    2 | Houston,tx stone450                     |
|      3 | Julie      | Sharaf      | u         | sharf@gmail.com   | 9398856983   | 1988-06-14 | 2012-09-25 | F      |    3 | 65, Neerendra Heights, Neela Chowk      |
|      4 | Prabhat    | s           | Sani      | sani@gmail.com    | 6317927970   | 1988-03-12 | 2005-10-19 | M      |    4 | 34, Deccan Gymkhana, Pondicherry        |
|      5 | Hema       | A           | Kapur     | kapur@gmail.com   | 61990259439  | 1985-11-15 | 2006-05-16 | F      |    5 | 14, Deepesh Society, Samir Chowk        |
|      6 | Meghana    | NULL        | Persad    | persad@gmail.com  | 6389474988   | 2001-04-23 | 2021-12-11 | F      |    6 | 49, Ishat Nagar, Pilani                 |
|      7 | Naval      | l           | Soman     | soman@gmail.com   | 9457757869   | 1991-11-14 | 2016-11-09 | M      |    1 | 93, Sharad Society,JuhiPur              |
|      8 | Jiya       | NULL        | Sampath   | sampath@gmail.com | 9836732876   | 1992-12-15 | 2019-09-10 | F      |    2 | 97, Dadar,Mumbai                        |
|      9 | Mohanlal   | v           | Srinivas  | srinij@gmail.com  | 7923782582   | 1999-02-19 | 2021-02-05 | M      |    3 | 71, BinoyaGarh,Kolkata                  |
|     10 | Bahadur    | p           | Raval     | raval@gmail.com   | 9732586399   | 1986-09-15 | 2018-09-17 | M      |    4 | 23, Yeshwanthpur,bengaluru              |
|     11 | Jasmin     | NULL        | Bhat      | bhat@gmail.com    | 6360758879   | 1979-07-06 | 2008-10-15 | F      |    5 | 36, CharandeepGarh,Kolkata              |
|     12 | Qabeel     | l           | Mathew    | meth@gmail.com    | 9764321987   | 1986-03-13 | 2009-05-19 | M      |    6 | 89, KiranSociety,VirarAhmedabad         |
|     13 | John       | a           | cena      | heisjohncena@gmail.com | 9998899988 | 1980-08-08 | 2010-01-01 | M      |    1 | 450 Stone, Houston,TX                   |
```

5.3. Passing Values through CSV File

```
MariaDB [sukruth_payroll_management_system]> LOAD DATA INFILE 'C:\\Users\\Sukruth Gowda\\OneDrive\\Desktop\\5TH SEM\\DBMS\\test-insert.csv' INTO TABLE EMPLOYEE
    -> FIELDS TERMINATED BY ','
    -> LINES TERMINATED BY '\n';
Query OK, 1 row affected, 2 warnings (0.005 sec)
Records: 1  Deleted: 0  Skipped: 0  Warnings: 2
```

```
MariaDB [sukruth_payroll_management_system]> select * from employee;
+--------+------------+-------------+-----------+-----------------------+--------------+------------+------------+--------+------+-----------------------------------------+
| Emp_ID | First_Name | Middle_Name | Last_Name | Email                 | Phone_Number | Emp_DOB    | Emp_DOJ    | Gender | D_ID | Emp_Address                             |
+--------+------------+-------------+-----------+-----------------------+--------------+------------+------------+--------+------+-----------------------------------------+
|      1 | Manin      | h           | Virk      | uma@hotmail.com       | 9781322868   | 1990-09-23 | 2020-08-12 | M      |    1 | 220Godavari,Jekegram                    |
|      2 | Aarif      | k           | Kapadia   | kapadia@gmail.com     | 9176386378   | 1984-06-30 | 2015-09-18 | M      |    2 | Houston,tx stone450                     |
|      3 | Julie      | Sharaf      | u         | sharf@gmail.com       | 9308856983   | 1988-08-14 | 2013-09-25 | F      |    3 | 65, Neerendra Heights, Neela Chowk      |
|      4 | Prabhat    | s           | Sani      | sani@gmail.com        | 6317927970   | 1988-03-12 | 2005-10-19 | M      |    4 | 30, Deccan Gymkhana, Pondicherry        |
|      5 | Hema       | A           | Kapur     | kapur@gmail.com       | 6199625439   | 1985-11-15 | 2006-05-16 | F      |    5 | 14, Deepesh Society, Samir Chowk        |
|      6 | Meghana    | NULL        | Persad    | persad@gmail.com      | 6389474988   | 2001-04-23 | 2021-12-11 | F      |    6 | 40, Ishat Nagar, Pilani                 |
|      7 | Naval      | l           | Soman     | soman@gmail.com       | 9453757869   | 1991-11-14 | 2016-11-09 | M      |    1 | 93, Sharad Society,JuhiPur              |
|      8 | Jiya       | NULL        | Sampath   | sampath@gmail.com     | 9838732876   | 1992-12-15 | 2019-09-10 | F      |    2 | 97, Dadar,Mumbai                        |
|      9 | Mahanlal   | v           | Srinivsa  | srinij@gmail.com      | 7925782582   | 1999-02-19 | 2021-02-05 | M      |    3 | 71, BinoyaGarh,Kolkata                  |
|     10 | Bahadur    | p           | Raval     | raval@gmail.com       | 9733586399   | 1986-09-15 | 2018-09-17 | M      |    4 | 23, Yeshwanthpur,bengaluru              |
|     11 | Jasmin     | NULL        | Bhat      | bhat@gmail.com        | 6364758879   | 1979-07-06 | 2008-10-15 | F      |    5 | 38, CharandeepGarh,Kolkata              |
|     12 | Qabeel     | l           | Mathew    | meth@gmail.com        | 9784321987   | 1988-03-13 | 2009-05-19 | M      |    6 | 89, KiranSociety,VirarAhmedabad         |
|     13 | John       | a           | cena      | heinjohncena@gmail.com | 9900899988   | 1986-08-08 | 2010-01-01 | M      |    1 | 450 Stone, Houston,TX                   |
+--------+------------+-------------+-----------+-----------------------+--------------+------------+------------+--------+------+-----------------------------------------+
```

5.4. Inserting Values in Each Table

```
MariaDB [sukruth_payroll_management_system]> INSERT INTO DEPARTMENT VALUES(1, 'Marketing Department',3,'2015-10-17', 32561.000, 2);
Query OK, 1 row affected (0.082 sec)

MariaDB [sukruth_payroll_management_system]> select * from department;
+---------+--------------------+--------+----------------+----------+---------------+
| Dept_ID | Dept_Name          | Mgr_ID | Mgr_Start_Date | Base_Sal | Number_of_Emp |
+---------+--------------------+--------+----------------+----------+---------------+
|       1 | Marketing Department |      3 | 2015-10-17     | 32561.000 |             2 |
+---------+--------------------+--------+----------------+----------+---------------+
1 row in set (0.000 sec)
```

Fig 5.4.1 : Inserting value into Department Table

```
MariaDB [sukruth_payroll_management_system]> INSERT INTO DEPT_LOCATIONS VALUES(1, 'bengaluru');
Query OK, 1 row affected (0.002 sec)

MariaDB [sukruth_payroll_management_system]> select * from dept_locations;
+---------+---------------+
| Dept_ID | Dept_Location |
+---------+---------------+
|       1 | bengaluru     |
+---------+---------------+
1 row in set (0.000 sec)
```

Fig 5.4.2 : Inserting value into Dept_Locations Table

```
MariaDB [sukruth_payroll_management_system]> INSERT INTO PROJECT VALUES(1,1,'Obscure Steamy','The Prometheus monitoring system and time series',25000.00);
Query OK, 1 row affected (0.004 sec)

MariaDB [sukruth_payroll_management_system]> select * from project;
+------+---------+---------------+-----------------------------------------+----------------+
| P_ID | Dept_ID | P_Name        | P_Desc                                  | P_Incremental_Sal |
+------+---------+---------------+-----------------------------------------+----------------+
|    1 |       1 | Obscure Steamy | The Prometheus monitoring system and time series |          25000.00 |
+------+---------+---------------+-----------------------------------------+----------------+
1 row in set (0.000 sec)
```

Fig 5.4.3 : Inserting value into Project Table

```
MariaDB [sukruth_payroll_management_system]> INSERT INTO WORKS_ON VALUES(1, 1, 32.5);
Query OK, 1 row affected (0.004 sec)

MariaDB [sukruth_payroll_management_system]> select * from works_on;
+----------+------+--------------+
| Emp_ID | P_ID | Work_Hours |
+----------+------+--------------+
|      1 |    1 |       32.50 |
+----------+------+--------------+
1 row in set (0.000 sec)
```

Fig 5.4.4 : Inserting value into Works_On Table

```
MariaDB [sukruth_payroll_management_system]> INSERT INTO DEPENDENTS VALUES(3,'shalini','M','1994-09-23','wife');
Query OK, 1 row affected (0.004 sec)

MariaDB [sukruth_payroll_management_system]> select * from dependents;
+--------+----------------+--------+------------+--------------+
| Emp_ID | Dependent_Name | Gender | Bdate      | Relationship |
+--------+----------------+--------+------------+--------------+
|      3 | shalini        | M      | 1994-09-23 | wife         |
+--------+----------------+--------+------------+--------------+
1 row in set (0.000 sec)
```

Fig 5.4.5 : Inserting value into Dependents Table

```
MariaDB [sukruth_payroll_management_system]> INSERT INTO PAY_GRADE VALUES(1, 32561.00, 1800.00, 1500.00, 1000.00, 1900.00);
Query OK, 1 row affected (0.003 sec)

MariaDB [sukruth_payroll_management_system]> select * from pay_grade;
+---------+----------+----------+----------+----------+----------+
| Dept_ID | Base_Sal | Grade_TA | Grade_DA | Grade_PF | Grade_MA |
+---------+----------+----------+----------+----------+----------+
|       1 | 32561.00 |  1800.00 |  1500.00 |  1000.00 |  1900.00 |
+---------+----------+----------+----------+----------+----------+
1 row in set (0.000 sec)
```

Fig 5.4.6 : Inserting value into Pay_Grade Table

6.JOIN QUERIES

1.Employees currently working on a project

```
MariaDB [sukruth_payroll_management_system]> select First_Name,Last_Name,D_ID from Employee join works_on on Employee.Emp_Id = works_on.Emp_ID;
+-------------+-------------+------+
| First_Name  | Last_Name   | D_ID |
+-------------+-------------+------+
| Monin       | Virk        |    1 |
| Monin       | Virk        |    1 |
| Aarif       | Kapadia     |    2 |
| Julie       | u           |    3 |
| Prabhat     | Sani        |    4 |
| Hema        | Kapur       |    5 |
| Hema        | Kapur       |    5 |
| Meghana     | Persad      |    6 |
| Naval       | Soman       |    1 |
| Jiya        | Sampath     |    2 |
| Jiya        | Sampath     |    2 |
| Mohanlal    | Srinivas    |    3 |
| Bahadur     | Raval       |    4 |
| Jasmin      | Bhat        |    5 |
| Jasmin      | Bhat        |    5 |
| Qabeel      | Mathew      |    6 |
| John        | cena        |    1 |
| James       | Borg        |    2 |
| James       | Borg        |    2 |
| John        | Smith       |    3 |
| Franklin    | Wong        |    4 |
| Alicia      | Zelaya      |    4 |
| Jennifer    | Wallace     |    5 |
| Ramesh      | Narayan     |    6 |
| Ahmed       | Jabbar      |    3 |
+-------------+-------------+------+
25 rows in set (0.000 sec)
```

2.Employees who have dependents

```
MariaDB [sukruth_payroll_management_system]> select First_Name,Last_Name,D_ID from Employee join dependents on Employee.Emp_Id = dependents.Emp_ID;
+-------------+-------------+------+
| First_Name  | Last_Name   | D_ID |
+-------------+-------------+------+
| Aarif       | Kapadia     |    2 |
| Julie       | u           |    3 |
| Prabhat     | Sani        |    4 |
| Meghana     | Persad      |    6 |
| Mohanlal    | Srinivas    |    3 |
| Jasmin      | Bhat        |    5 |
| Qabeel      | Mathew      |    6 |
| John        | cena        |    1 |
| John        | Smith       |    3 |
| Alicia      | Zelaya      |    4 |
| Jennifer    | Wallace     |    5 |
| Ramesh      | Narayan     |    6 |
+-------------+-------------+------+
12 rows in set (0.006 sec)
```

3.Departments who have projects

```
MariaDB [sukruth_payroll_management_system]> select Dept_Name,Number_of_Emp from Department join project on Department.Dept_ID = project.Dept_ID;
+-------------------------+---------------+
| Dept_Name               | Number_of_Emp |
+-------------------------+---------------+
| Marketing Department    |             2 |
| Marketing Department    |             2 |
| Operations Department   |             2 |
| Operations Department   |             2 |
| Finance Department      |             2 |
| Finance Department      |             2 |
| Sales Department        |             2 |
| Human Resource Department |           2 |
| Purchase Department     |             2 |
+-------------------------+---------------+
9 rows in set (0.008 sec)
```

4.Departments who have a location in Bengaluru

```
MariaDB [sukruth_payroll_management_system]> select Dept_Name,Number_of_Emp from Department join Dept_Locations on Department.Dept_ID = dept_locations.Dept_ID where Dept_
Locations.dept_location = 'Bengaluru';
+-------------------------+---------------+
| Dept_Name               | Number_of_Emp |
+-------------------------+---------------+
| Marketing Department    |             2 |
+-------------------------+---------------+
1 row in set (0.003 sec)
```

7.Aggregate Functions

1.Total number of employees working in all departments combined

```
MariaDB [sukruth_payroll_management_system]> select count(Number_of_Emp) from department;
+-----------------------+
| count(Number_of_Emp) |
+-----------------------+
|                     6 |
+-----------------------+
1 row in set (0.005 sec)
```

2.Employee who spend more hours in work compared to the average works spent by a employee

```
MariaDB [sukruth_payroll_management_system]> select * from works_on where works_on.work_hours > (select avg(work_hours) from works_on);
+--------+------+------------+
| Emp_ID | P_ID | Work_Hours |
+--------+------+------------+
|      1 |    1 |      32.50 |
|      2 |    2 |      18.60 |
|      3 |    3 |      22.50 |
|      4 |    4 |      19.80 |
|      5 |    7 |      16.30 |
|      9 |    5 |      16.20 |
|     10 |    7 |      16.90 |
|     11 |    2 |      19.40 |
|     14 |    5 |      19.70 |
|     19 |    8 |      18.50 |
+--------+------+------------+
10 rows in set (0.012 sec)
```

3.Employees having Annual Salary more than the average salary

```
MariaDB [sukruth_payroll_management_system]> select emp_id , Sal_per_annum from pay_roll where pay_roll.sal_per_annum > (select avg(sal_per_annum) from pay_roll);
+--------+---------------+
| emp_id | Sal_per_annum |
+--------+---------------+
|      1 |    1185132.00 |
|      2 |     941052.00 |
|      5 |    1236396.00 |
|      8 |    1181052.00 |
|     11 |    1308396.00 |
|     12 |     942672.00 |
|     13 |    1805132.00 |
|     14 |    1241052.00 |
|     19 |    1014672.00 |
+--------+---------------+
9 rows in set (0.008 sec)
```

4.Department having the highest base salary

```
MariaDB [sukruth_payroll_management_system]> select Dept_ID,max(base_sal) from pay_grade;
+----------+----------------+
| Dept_ID | max(base_sal) |
+----------+----------------+
|        1 |       36321.00 |
+----------+----------------+
1 row in set (0.001 sec)
```

8.SET OPERATORS

1.Employee Details who are male and work in Finance Department

```
MariaDB [sukruth_payroll_management_system]> SELECT Emp_ID,First_Name,Last_Name from Employee where Gender='M' INTERSECT SELECT Emp_ID,First_Name,Last_Name from Employee
where D_ID=3;
+--------+------------+-----------+
| Emp_ID | First_Name | Last_Name |
+--------+------------+-----------+
|      9 | Mohanlal   | Srinivas  |
|     15 | John       | Smith     |
|     20 | Ahmed      | Jabbar    |
|     21 | Sukruth    | Gowda     |
+--------+------------+-----------+
4 rows in set (0.001 sec)
```

2. Female Employees who have joined company after 2010.

```
MariaDB [sukruth_payroll_management_system]> SELECT Emp_ID,First_Name,Last_Name,Emp_DOJ from Employee where Gender='F' INTERSECT  SELECT Emp_ID,First_Name,Last_Name,Emp_D
OJ from Employee where year(Emp_DOJ)>=2010;
+--------+------------+-----------+------------+
| Emp_ID | First_Name | Last_Name | Emp_DOJ    |
+--------+------------+-----------+------------+
|      3 | Julie      | u         | 2012-09-25 |
|      6 | Meghana    | Persad    | 2021-12-11 |
|      8 | Jiya       | Sampath   | 2019-09-10 |
|     17 | Alicia     | Zelaya    | 2011-03-02 |
|     18 | Jennifer   | Wallace   | 2010-03-15 |
+--------+------------+-----------+------------+
5 rows in set (0.001 sec)
```

3.Employee Details who work more than 20 hours a week and have no dependents

```
MariaDB [sukruth_payroll_management_system]> SELECT Emp_ID from Works_On where Work_Hours >=20 EXCEPT SELECT Emp_ID from Dependents;
+--------+
| Emp_ID |
+--------+
|      1 |
+--------+
1 row in set (0.001 sec)
```

4. Employees who have female dependents and earn more than 70000 rupees per month

```
MariaDB [sukruth_payroll_management_system]> select Emp_ID from Dependents where Gender = 'F' INTERSECT SELECT Emp_ID from PAY_ROLL where Sal_Per_Month >=70000;
+--------+
| Emp_ID |
+--------+
|      2 |
|     11 |
|     15 |
|     19 |
+--------+
4 rows in set (0.001 sec)
```

9. FUNCTIONS AND PROCEDURE

9.1.Function

At max an employee can work in 1 projects at a time . I have created a function which informs whether the employee can work in the project depending on his workload(Number of projects he/she is working in).

```
MariaDB [sukruth_payroll_management_system]> DELIMITER $$
MariaDB [sukruth_payroll_management_system]> CREATE FUNCTION sf_no_of_projects(EmpID VARCHAR(100))
    -> RETURNS VARCHAR(50)
    -> DETERMINISTIC
    -> BEGIN
    ->  DECLARE sf_value VARCHAR(100);
    ->  DECLARE rt_value VARCHAR(100);
    ->  DECLARE cnt INT;
    ->
    -> SET cnt=(SELECT COUNT(Emp_ID)
    -> FROM Works_On
    -> WHERE Works_On.Emp_ID=EmpID );
    ->
    ->     IF cnt > 1 THEN
    ->  SET rt_value = 'Maximum project limit reached for a employee';
    ->     ELSEIF cnt <= 1 THEN
    ->  SET rt_value = 'Employee can Work in the project';
    ->  END IF;
    ->
    ->  RETURN rt_value;
    ->
    -> END; $$
Query OK, 0 rows affected (0.000 sec)

MariaDB [sukruth_payroll_management_system]>
MariaDB [sukruth_payroll_management_system]> DELIMITER ;
```

Fig 9.1.1 Executing function

```
MariaDB [sukruth_payroll_management_system]> select Emp_ID,count(P_ID),sf_no_of_projects(Emp_ID) from Works_on where Works_On.Emp_ID = Emp_ID GROUP BY Emp_ID;
+--------+-------------+-----------------------------------------+
| Emp_ID | count(P_ID) | sf_no_of_projects(Emp_ID)               |
+--------+-------------+-----------------------------------------+
|      1 |           2 | Maximum project limit reached for a employee |
|      2 |           1 | Employee can Work in the project        |
|      3 |           1 | Employee can Work in the project        |
|      4 |           1 | Employee can Work in the project        |
|      5 |           2 | Maximum project limit reached for a employee |
|      6 |           1 | Employee can Work in the project        |
|      7 |           1 | Employee can Work in the project        |
|      8 |           2 | Maximum project limit reached for a employee |
|      9 |           1 | Employee can Work in the project        |
|     10 |           1 | Employee can Work in the project        |
|     11 |           2 | Maximum project limit reached for a employee |
|     12 |           1 | Employee can Work in the project        |
|     13 |           1 | Employee can Work in the project        |
|     14 |           2 | Maximum project limit reached for a employee |
|     15 |           1 | Employee can Work in the project        |
|     16 |           1 | Employee can Work in the project        |
|     17 |           1 | Employee can Work in the project        |
|     18 |           1 | Employee can Work in the project        |
|     19 |           1 | Employee can Work in the project        |
|     20 |           1 | Employee can Work in the project        |
+--------+-------------+-----------------------------------------+
20 rows in set (0.002 sec)
```

Fig 9.1.2 Function Output

9.2.Procedure

Have created a procedure which takes input of Employee ID and Date of Joining of Employee and calculates the years of experience of the Employee.

```
MariaDB [sukruth_payroll_management_system]> select Years_of_Exp from Employee;
+---------------+
| Years_of_Exp  |
+---------------+
|             0 |
|             0 |
|             0 |
|             0 |
|             0 |
|             0 |
|             0 |
|             0 |
|             0 |
|             0 |
|             0 |
|             0 |
|             0 |
|             0 |
|             0 |
|             0 |
|             0 |
|             0 |
|             0 |
|             0 |
|             0 |
+---------------+
22 rows in set (0.000 sec)
```

Fig 9.2.1 Values before procedure calling

```
MariaDB [sukruth_payroll_management_system]> CREATE procedure cal_Years_of_Exp( Empid INT, DOJ date, msg varchar(100))
    -> BEGIN
    -> DECLARE yoe int;
    -> DECLARE val int;
    ->
    -> set yoe=(select (year(curdate())-year(DOJ)) from Employee where Emp_ID=Empid);
    ->
    ->
    -> set val=(SELECT Years_of_Exp from Employee WHERE Emp_ID=Empid);
    ->
    -> IF val=0 THEN
    ->    update Employee
    ->    set Years_of_Exp=yoe
    ->    where Emp_ID=Empid;
    ->    set msg=concat('Years of Experience of Employee is=',yoe) ;
    -> ELSE
    ->     set msg='Years of experience already calculated' ;
    -> END IF;
    ->
    -> END$$
Query OK, 0 rows affected (0.005 sec)
```

Fig 9.2.2 Executing Procedure

```
MariaDB [sukruth_payroll_management_system]> call cal_Years_of_exp(1,20200812,@M)
    -> ;
Query OK, 1 row affected (0.004 sec)

MariaDB [sukruth_payroll_management_system]> select * from Employee where Emp_ID=1;
+--------+------------+-------------+-----------+-----------------+--------------+------------+------------+--------+-------+-------------------+---------------+
| Emp_ID | First_Name | Middle_Name | Last_Name | Email           | Phone_Number | Emp_DOB    | Emp_DOJ    | Gender | D_ID  | Emp_Address       | Years_of_Exp  |
+--------+------------+-------------+-----------+-----------------+--------------+------------+------------+--------+-------+-------------------+---------------+
|      1 | Manin      | h           | Virk      | uma@hotmail.com | 9781322868   | 1994-09-23 | 2020-08-12 | M      |     1 | 225Godavari,Jekegram |             2 |
+--------+------------+-------------+-----------+-----------------+--------------+------------+------------+--------+-------+-------------------+---------------+
1 row in set (0.000 sec)

MariaDB [sukruth_payroll_management_system]>
```

Fig 9.2.3 Calling Procedure and getting desired output

10.Trigger and Cursor

10.1.Trigger

Working Hours for a employee cannot be greater than 50 hours . Have created a trigger which displays a warning message when working hours for a employee is updated for more than 50 hours .

```
MariaDB [sukruth_payroll_management_system]> DELIMITER $$
MariaDB [sukruth_payroll_management_system]> CREATE TRIGGER before_update_workson
    -> BEFORE UPDATE
    -> ON Works_On FOR EACH ROW
    -> BEGIN
    ->     DECLARE error_msg VARCHAR(255);
    ->     SET error_msg = ('The nworking hours  cannot be greater than 50 hours');
    ->     IF new.Work_Hours > 50 THEN
    ->     SIGNAL SQLSTATE '45000'
    ->     SET MESSAGE_TEXT = error_msg;
    ->     END IF;
    -> END $$
Query OK, 0 rows affected (0.010 sec)
```

Fig 10.1.1 Executing Trigger

```
MariaDB [sukruth_payroll_management_system]> update Works_On set Work_Hours = 56 where Emp_ID =3;
ERROR 1644 (45000): The nworking hours  cannot be greater than 50 hours
MariaDB [sukruth_payroll_management_system]>
```

Fig 10.1.2 Warning message when triggered

11. FRONTEND(STREAMLIT)

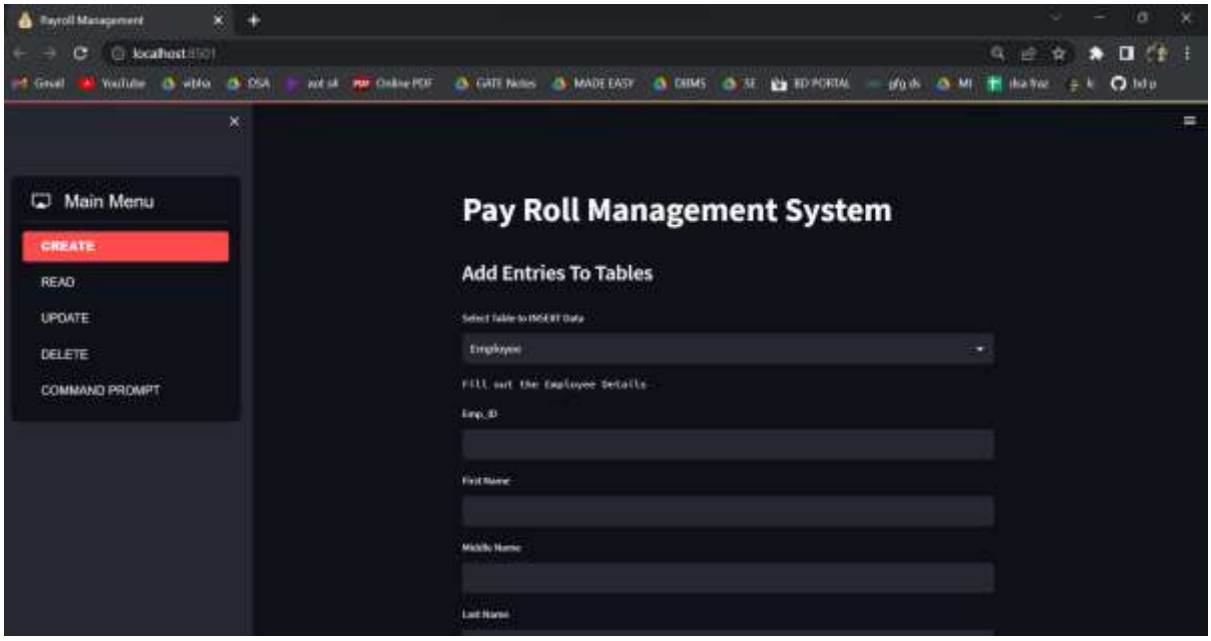


Fig 11.1 Frontend overview

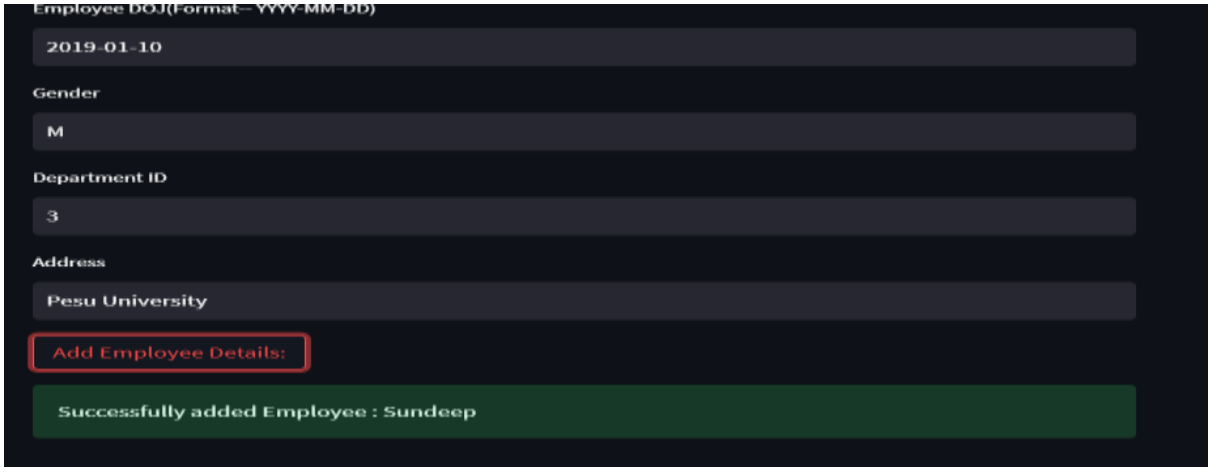


Fig 11.2 Inserting Value into Employee Table

20	20	Ahmed	V	Jabbar	ahmedjabbar@gmail.com	987987987
21	21	Sukruth	k	Gowda	sukruth.k.gowda.7@gmail.com	8660382953
22	22	Sundeep	A	B	sundeepanna01@gmail.com	1237894532

Fig 11.3 Inserting success

Fig 11.4 View Operation

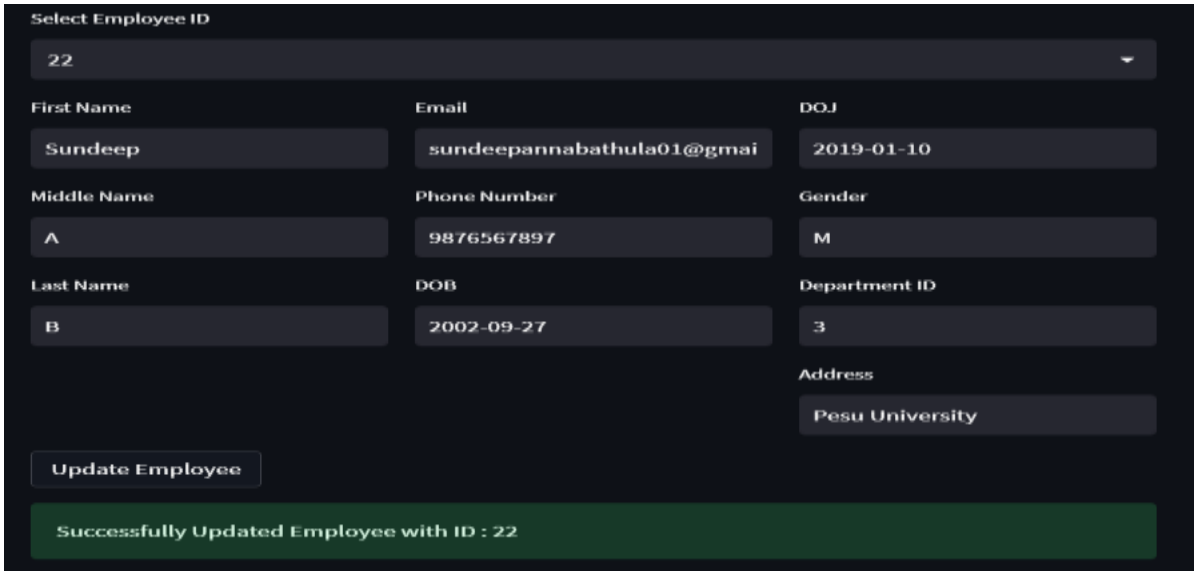


Fig 11.5 Updating EmailID and Phone Number of Employee

Fig 11.6 Updated Data

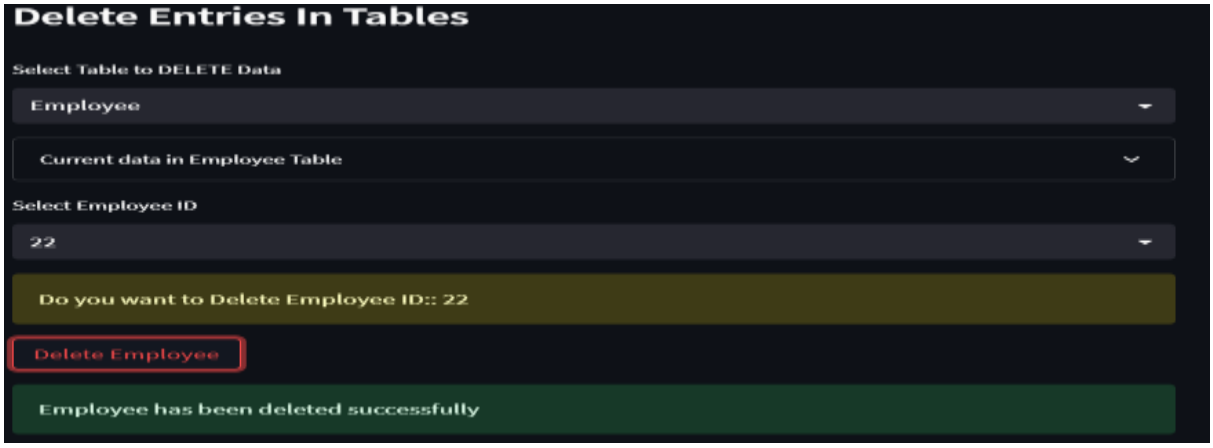


Fig 11.7 Deleting Employee

	Emp_ID	First_Name	Middle_Name	Last_Name	Email	Phone_Number
12	12	Qabeel	I	Mathew	meth@gmail.com	9764321987
13	13	John	a	cena	heisjohncena@gmail.com	9998899988
14	14	James	E	Borg	jamesborg@gmail.com	888665555
15	15	John		Smith	johnsmith@gmail.com	9997799977
16	16	Franklin	T	Wong	franwong@gmail.com	333445555
17	17	Alicia	J	Zelaya	aliciazels@gmail.com	999887777
18	18	Jennifer	M	Wallace	jenniferwallace@gmail.com	987654321
19	19	Ramesh	K	Narayan	rameshnarayan@gmail.com	666884444
20	20	Ahmed	V	Jabbar	ahmedjabbar@gmail.com	987987987
21	21	Sukruth	k	Gowda	sukruth.k.gowda.7@gmail.com	8660382953

Fig 11.8 Updated Data

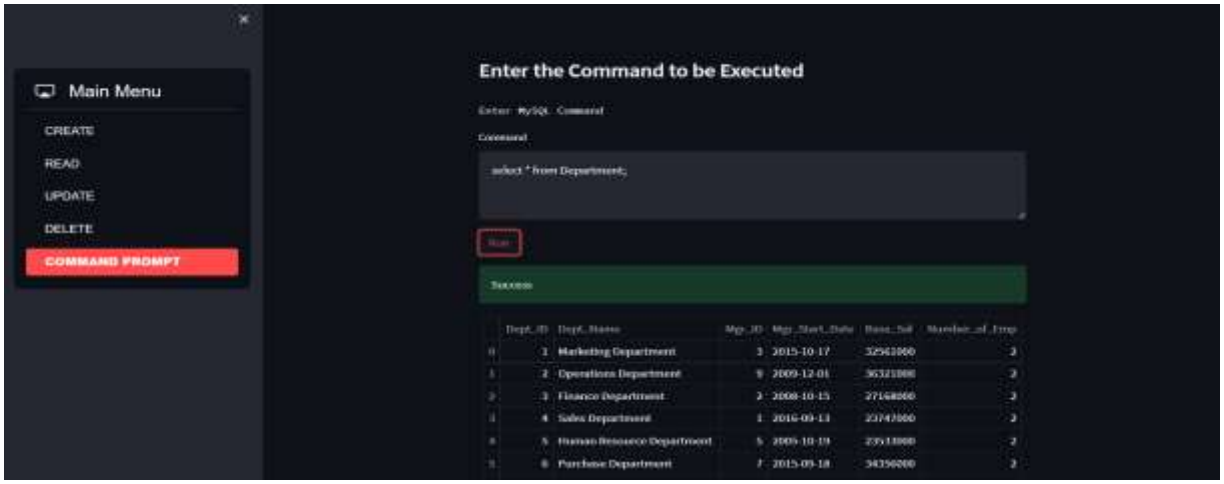


Fig 11.9 Command Prompt which allows Users to run commands and display output