SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

FACULTY OF ENGINEERING & TECHNOLOGY

(Formerly SRM University, Under section 3 of UGC Act, 1956)

S.R.M. NAGAR, KATTANKULATHUR –603 203, KANCHEEPURAM DISTRICT

SCHOOL OF COMPUTING

DEPARTMENT OF DATA SCIENCE AND BUSINESS SYSTEMS

Course Code: 18CSC303J

Course Name: Database Management System

LAB REPORT

NAME: YUVRAJ SINGH CHAUHAN
REG. NO.: RA1911027010058
SECTION: N1
CSE – Big Data Analytics

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Date: Ex No:1	**Title of the Lab** **BASIC SQL COMMANDS**	Name: **Yuvraj Singh Chauhan** **Registration Number:** **RA1911027010058** **Section:N1** **Lab Batch:2** **Day Order:1**

Aim:- To implement basic commands in SQL like insert, modify select etc.

Description about the problem:-

1. Create a table in SQL for patients and add patient details.
2. Display the inserted table.
3. Select specific rows from the table
4. Altering the tables data
5. Updating the tables values with arithmetic operations
6. Deleting an entry in a table
7. These are the basic commands that are required to perform

Queries: -

```
create table myt2(id_no integer, cname varchar2(50), dob date,ra_nk integer, loc
varchar2(20), contact varchar2(10), section varchar2(5));

insert into myt2 values(1,'ab','9-jan-2000',1,'a','987654','A1');

insert into myt2 values(2,'cd','1-jun-2000',2,'b','23456','B1');

insert into myt2 values(4,'gh','8-mar-2000',4,'d','56432','D1');

insert into myt2 values(5,'ij','21-oct-2000',5,'e','4365656','E1');

insert into myt2 values(6,'kl','17-feb-2000',6,'f','7653','F1');

insert into myt2 values(7,'mn','3-oct-2000',7,'g','674564','G1');

insert into myt2 values(3,'ef','3-sep-2000',7,'c','7443','C1');


select * from myt2 ;

select cname,loc from myt2 ;

select cname,ra_nk from myt2 where ra_nk>5;

select * from myt2 where ra_nk<5;

select * from myt2 where ra_nk<5 and id_no=4;


alter table myt2 add(gender char);

update myt2  set  gender='M';

select * from myt2;

update myt2 set gender='F' where id_no=2;
```

```
select * from myt2;


alter table myt2 drop column section;

alter table myt2 modify cname varchar(25);


desc myt2
```

Output:-

create table myt2(id_no integer, cname varchar2(50), dob date,ra_nk integer, loc varchar2(20), contact varchar2(10), section varchar2(5))

Table created.

insert into myt2 values(1,'ab','9-jan-2000',1,'a','987654','A1')

1 row(s) inserted.

insert into myt2 values(2,'cd','1-jun-2000',2,'b','23456','B1')

1 row(s) inserted.

insert into myt2 values(4,'gh','8-mar-2000',4,'d','56432','D1')

1 row(s) inserted.

select * from myt2

ID_NO	CNAME	DOB	RA_NK	LOC	CONTACT	SECTION
5	ij	21-OCT-00	5	e	4365656	E1
6	kl	17-FEB-00	6	f	7653	F1
1	ab	09-JAN-00	1	a	987654	A1
3	ef	03-SEP-00	7	c	7443	C1
2	cd	01-JUN-00	2	b	23456	B1
4	gh	08-MAR-00	4	d	56432	D1
7	mn	03-OCT-00	7	g	674564	G1

7 rows selected.

select * from myt2 where ra_nk<5

ID_NO	CNAME	DOB	RA_NK	LOC	CONTACT	SECTION
1	ab	09-JAN-00	1	a	987654	A1
2	cd	01-JUN-00	2	b	23456	B1
4	gh	08-MAR-00	4	d	56432	D1

3 rows selected.

```
select cname,loc from myt2
```

CNAME	LOC
ij	e
kl	f
ab	a
ef	c
cd	b
gh	d
mn	g

7 rows selected.

```
select cname,ra_nk from myt2 where ra_nk>5
```

CNAME	RA_NK
kl	6
ef	7
mn	7

3 rows selected.

```
select * from myt2 where ra_nk<5
```

ID_NO	CNAME	DOB	RA_NK	LOC	CONTACT	SECTION
1	ab	09-JAN-00	1	a	987654	A1
2	cd	01-JUN-00	2	b	23456	B1
4	gh	08-MAR-00	4	d	56432	D1

3 rows selected.

```
select * from myt2 where ra_nk<5 and id_no=4
```

ID_NO	CNAME	DOB	RA_NK	LOC	CONTACT	SECTION
4	gh	08-MAR-00	4	d	56432	D1

```
alter table myt2 add(gender char)
```

```
update myt2 set gender='F' where id_no=2
```

1 row(s) updated.

Result: Successfully implemented the commands for insert, create, update, delete and alter.

Date: Ex No:2	**Title of the Lab** **CONSTRAINTS FOR HOSPITAL MANAGEMENT SYSTEMS**	**Name: Yuvraj Singh Chauhan** **Registration Number:** **RA1911027010058** **Section:N1** **Lab Batch:2** **Day Order:1**

Aim:- Creating a hospital database where patient details are added in a table and modified as required.

Description about the problem:-

-Create a table in SQL for patients and add patient details.

-Display the inserted table.

-Select specific rows from the table

-Altering the tables data

-Updating the tables values with arithmetic operations

-Deleting an entry in a table

These are the basic commands that are required to perform

Queries:-

```
create table hosp(p_id int NOT NULL PRIMARY KEY,p_name varchar(25),gender char,amount int NOT
NULL,due_amount int ,CHECK (amount>=500));


insert into hosp values(1,'absa','M',10000,2000);

insert into hosp values(2,'bbb','F',2090,0);


alter table hosp add (account_no  int,UNIQUE(account_no));


update hosp set account_no=132435 where p_id=1;

update hosp set account_no=132435 where p_id=2;




select * from hosp;

update hosp set account_no=232435 where p_id=2;
```

Output:-

```
create table hosp(p_id int NOT NULL PRIMARY KEY,p_name varchar(25),gender char,amount int NOT NULL,due_amount int ,CHECK (amount>=500))
```

```
Table created.
```

```
insert into hosp values(1,'absa','M',10000,2000)
```

```
1 row(s) inserted.
```

```
insert into hosp values(2,'bbb','F',2090,0)
```

```
alter table hosp add (account_no  int,UNIQUE(account_no))
```

```
Table altered.
```

```
update hosp set account_no=132435 where p_id=1
```

```
1 row(s) updated.
```

```
update hosp set account_no=232435 where p_id=2
```

```
1 row(s) updated.
```

```
select * from hosp
```

P_ID	P_NAME	GENDER	AMOUNT	DUE_AMOUNT	ACCOUNT_NO
1	absa	M	10000	2000	132435
2	bbb	F	2090	0	232435

Download CSV
2 rows selected.

Result:- Successfully implemented the commands for a hospital database where patients data can be added and modified

Date: Ex No:3	**Title of the Lab** **DATABASE FOR A CAR INSURANCE COMPANY**	**Name: Yuvraj Singh Chauhan** **Registration Number:** **RA1911027010058** **Section:N1** **Lab Batch:2** **Day Order:1**

Aim:- To implement commands to create and find data from the table as required below.

Description about the problem:

Consider the insurance database given below.

1. PERSON (driver_id, name, address) CAR (regno, model,year)

2. PARTICIPATED (driver_id,regno,report_number,damage_amount)

3.Create the above tables by properly specifying the primary keys and foreign keys and enter atleast five tuples for each relation.

4. Update the damage amount for the car with specific regno in the accident with reportnumber 12 to 25000.

5.Add a new car to the database.

6. Find the total number of people who owned BMW cars before 2009

7. List the names of the person whose name contain substring 'LA'.

8. List the driver details who damage amount is between 10000-20000

9. list the person belongs to 'chennai' and 'mumbai'

10 .list the year of the car in descending order

11. list the car regno, model, driver id.

12. remove the car with year of manufacture is <2000

Queries:-

```
create table person(driver_id int primary key, d_name varchar(20) not null, address varchar(50) not null);

create table car(reg_no int primary key, model_name varchar(20) not null, year_p int not null,color varchar(10));

create table participated(driver_id int not null,reg_no int not null,

                    rep_no int not null, damage_no int not null,

                    foreign key (driver_id) references person(driver_id),
```

```
                              foreign key (reg_no) references car(reg_no));



insert into person values(100,'LAbhsd','Bangalore');

insert into person values(200,'ddvLA','Mumbai');

insert into person values(300,'ddLAd','Chennai');

insert into person values(400,'abcd','Chennai');

insert into person values(500,'ablacd','Bangalore');


insert into car values(001,'BMW',2000,'Red');

insert into car values(002,'AUDI',2001,'Blue');

insert into car values(003,'FORD',1999,'Yellow');

insert into car values(004,'BMW',2005,'White');

insert into car values(005,'BMW',2003,'Black');


insert into participated values(100,001,11,14000) ;

insert into participated values(200,002,12,11000)

insert into participated values(300,03,13,21000)

insert into participated values(400,05,45,17000)

insert into participated values(500,05,63,30000)

insert into participated values(500,04,54,25000)


update participated set damage_no=25 where rep_no=12;

SELECT * FROM participated;


update participated set damage_no=25000 where rep_no=12;


select count(year_p) from car where model_name in ('BMW');

update car SET year_p=2021 where reg_no=2005;

update car SET year_p=2021 where reg_no=4;


select count(year_p) from car where model_name='BMW' and year_p<2009;

alter table car modify year_p int null;
```

Output:-

Statement 1	create table person(driver_id int primary key, d_name varchar(20) not null, address varchar(50) not null)
	Table created.
Statement 2	create table car(reg_no int primary key, model_name varchar(20) not null, year_p int not null,color varchar(10))
	Table created.

Statement 20

SELECT * FROM person

DRIVER_ID	D_NAME	ADDRESS
200	ddvLA	Mumbai
500	ablacd	Bangalore
100	LAbhsd	Bangalore
400	abcd	Chennai
300	ddLAd	Chennai

5 rows selected.

Statement 21

SELECT * FROM car

REG_NO	MODEL_NAME	YEAR_P	COLOR
1	BMW	2000	Red
2	AUDI	2001	Blue
4	BMW	2005	White
3	FORD	1999	Yellow
5	BMW	2003	Black

5 rows selected.

select count(year_p) from car where model_name in ('BMW')

COUNT(YEAR_P)

update car SET year_p=2021 where reg_no=4

1 row(s) updated.

Statement 34

update participated set damage_no=25 where rep_no=12

1 row(s) updated.

Statement 64

alter table car modify year_p int null

Table altered.

Result:- Successfully implemented the commands for the given situation of car insurance company.

| Date: Ex No:4	**Title of the Lab** **USE OF FUNCTIONS LIKE SUM AND COUNT**	Name: Yuvraj Singh Chauhan Registration Number: RA1911027010058 Section:N1 Lab Batch:2 Day Order:1

Aim:- To implement commands to create and find data from the table as required below and use function like SUM, COUNT In the commands

Description about the problem:

1. Create a Product and sales table

2. Find the product which is sold maximum in the year 2020

3. Find the minimum cost of a particular product

4. what is the total sale of a product in a particular year

5. what is average sale of the product in a year?

6. list the number of products available with their name

7. what is the total sales amount done for a particular product?

Queries:-

```
CREATE TABLE p_s1(prod_name varchar(25), sale_year int, total_sales int,co_st int);

CREATE TABLE p_s2(prod_name varchar(25), sale_year int, total_sales int,co_st int);


INSERT INTO p_s1 VALUES('p1',2017,900,2000);

INSERT INTO p_s1 VALUES('p2',2017,500,1500);

INSERT INTO p_s1 VALUES('p3',2017,700,2100);

INSERT INTO p_s1 VALUES('p1',2019,1000,2100);

INSERT INTO p_s1 VALUES('p2',2019,300,1700);

INSERT INTO p_s1 VALUES('p3',2019,400,2500);


SELECT * FROM p_s1 WHERE total_sales=(SELECT MAX(total_sales) FROM p_s1 WHERE
sale_year=2020);

SELECT * FROM p_s1 WHERE co_st=(SELECT MIN(co_st) FROM p_s1 WHERE prod_name='p3');

SELECT MIN(co_st) FROM p_s1 WHERE prod_name='p3';

SELECT prod_name,MIN(co_st) FROM p_s1 WHERE prod_name='p3';

SELECT SUM(total_sales) FROM p_s1 WHERE prod_name='p3' AND sale_year=2017;

SELECT AVG(total_sales) FROM p_s1 WHERE prod_name='p1' AND sale_year=2021;

SELECT * FROM p_s1;
```

```
SELECT DISTINCT prod_name FROM p_s1;

SELECT SUM(total_sales) FROM p_s1 WHERE prod_name='p2';

SELECT SUM(co_st ) FROM p_s1 WHERE prod_name='p2';

SELECT SUM(co_st) FROM p_s1 WHERE prod_name='p3' AND sale_year=2017;
```

Output:-

SELECT * FROM p_s1 WHERE total_sales=(SELECT MAX(total_sales) FROM p_s1 WHERE sale_year=2020)

PROD_NAME	SALE_YEAR	TOTAL_SALES	CO_ST
p1	2020	1400	1800

SELECT * FROM p_s1 WHERE co_st=(SELECT MIN(co_st) FROM p_s1 WHERE prod_name='p3')

PROD_NAME	SALE_YEAR	TOTAL_SALES	CO_ST
p1	2017	900	2000
p3	2020	700	2000
p2	2021	700	2000

3 rows selected.

SELECT * FROM p_s1 WHERE total_sales =(SELECT MIN(total_sales) FROM p_s1 WHERE prod_name='p3')

PROD_NAME	SALE_YEAR	TOTAL_SALES	CO_ST
p3	2019	400	2500

SELECT AVG(total_sales) FROM p_s1 WHERE prod_name='p1' AND sale_year=2021

AVG(TOTAL_SALES)
1250

SELECT DISTINCT prod_name FROM p_s1

PROD_NAME
p1
p2
p3

3 rows selected.

SELECT SUM(total_sales) FROM p_s1 WHERE prod_name='p2'

SUM(TOTAL_SALES)
2500

Result:- Successfully implemented the commands by including functions like SUM and COUNT in the commands

Date: Ex No:5	**Title of the Lab** **USE OF DIFFERENT TYPE OF FUNCTIONS IN SQL**	**Name: Yuvraj Singh Chauhan** **Registration Number:** **RA1911027010058** **Section:N1** **Lab Batch:2** **Day Order:1**

Aim:- To implement commands to create and find data from the table using the Functions like Numeric, Conversion, Characters etc

Description about the problem:

- Use of functions like last_day(d),next_day(d,day) etc
- Character Function usage where quarries like replace translate are performed
- Conversion Functions like to_char, to_number on a table
- Numeric Functions like Abs(n), Exp(n), Power(m,n) and other
- arithmetic functions as well.

Queries:-

- select abs(-750) from dual
- select ceil(254.559) from dual
- select cos(45) from dual
- select exp(6) from dual
- select power(25,2) from dual
- select sqrt(256) from dual
- select trunc(to_date('03-sept-2000','dd-mon-yy')) from dual
- select to_date('21-oct-2001','dd-mm-yy') from dual
- select to_char(sysdate, 'DL') from dual
- select initcap('dmbs') from dual
- select ltrim('34570DBMS', '34570') from dual
- select replace('Computer science AI and ML', 'science', 'Science and Engineering') from dual
- select add_months(DATE'1972-01-09', 5) from dual
- select last_day(sysdate) from dual
- select next_day(sysdate,2) from dual
- select months_between(DATE '2022-01-09', DATE '2017-06-01') from dual

Output:-

Statement 5

```
select abs(-750) from dual
```

ABS(-750)
750

Download CSV

Statement 6

```
select ceil(254.559) from dual
```

CEIL(254.559)
255

Download CSV

Statement 7

```
select cos(45) from dual
```

COS(45)
.525321988817729696047464404823562918925

Download CSV

Statement 8

```
select exp(6) from dual
```

EXP(6)
403.42879349273512260838718054338827960

Statement 9

```
select power(25,2) from dual
```

POWER(25,2)
625

Download CSV

Statement 10

```
select sqrt(256) from dual
```

SQRT(256)
16

Download CSV

Statement 11

```
select trunc(to_date('03-sep-2000','dd-mon-yy')) from dual
```

TRUNC(TO_DATE('03-SEP-2000','DD-MON-YY'))
03-SEP-00

Download CSV

Statement 12

```
select to_date('21-oct-2001','dd-mm-yy') from dual
```

TO_DATE('21-OCT-2001','DD-MM-YY')
21-OCT-01

Download CSV

Statement 13

```
select initcap('dmbs') from dual
```

INITCAP('DMBS')
Dmbs

Statement 14
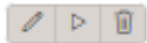
```
select ltrim( '34570DBMS', '34570' ) from dual
```

LTRIM('34570DBMS','34570')
DBMS

Download CSV

Statement 15
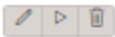
```
select replace( 'Computer science AI and ML', 'science', 'Science and Engineering' ) from dual
```

REPLACE('COMPUTERSCIENCEAIANDML','SCIENCE','SCIENCEANDENGINEERING')
Computer Science and Engineering AI and ML

Download CSV

Statement 16

```
select add_months(DATE'1972-01-09', 5 ) from dual
```

ADD_MONTHS(DATE'1972-01-09',5)
09-JUN-72

Download CSV

Statement 17

```
select last_day(sysdate) from dual
```

LAST_DAY(SYSDATE)
31-MAY-22

Download CSV

Statement 18

```
select next_day(sysdate,2) from dual
```

NEXT_DAY(SYSDATE,2)
09-MAY-22

Download CSV

Statement 19

```
select months_between(DATE '2022-01-09', DATE '2017-06-01' ) from dual
```

MONTHS_BETWEEN(DATE'2022-01-09',DATE'2017-06-01')
55.2580645161290322580645161290322580645

Result:- Successfully implemented the commands by using the Functions like Numeric, Conversion, Characters etc

Date: Ex No:6	**Title of the Lab** **MODIFICATION AND DELETION OF TABLE VALUES**	**Name: Yuvraj Singh Chauhan** **Registration Number:** 　　　　　　**RA1911027010058** **Section:N1** **Lab Batch:2** **Day Order:1**

Aim: To implement commands to create and find data from the table for the below quires where modification and deletions are performed.

Description about the problem:

- Update the view empv10 by increasing 10% salary of the employees who work as 'CLERK'. Also confirm the modifications in emp table.
- Modify the view empv10 which contains the data empno, ename, job, sal. Add an alias for each column name.
- Using emp table, create a view pay which contains ename, monthly_sal, annual_sal, deptno.
- Create a view dept_stat which contains department no., department name, minimum salary, maximum salary, total salary.
- Execute the following query and then try to delete the row with dept no 20. Now write in words that you understand

Queries:-

```
create table emp(empno int primary key , ename varchar(25),job varchar(25),salary int, depno int);


insert into emp values(1,'ABC','CLERK',300000,12);

insert into emp values(2,'DEF','JUDGE',1000000,22);

insert into emp values(3,'GHI','DOCTOR',1500000,10);

insert into emp values(4,'JKL','POLICE',800000,9);

insert into emp values(5,'MNO','ACTOR',2000000,4);

insert into emp values(5,'PQR','DRIVER',400000,8);

insert into emp values(6,'PQR','DRIVER',400000,8);

insert into emp values(7,'STU','ACCOUNTANT',600000,13);

insert into emp values(8,'VWX','COOK',500000,16);

insert into emp values(9,'YZA','MANAGER',1100000,11);

insert into emp values(10,'BCD','HR',2100000,14);
```

```
create table dept(dno int PRIMARY KEY ,dname varchar(25),min_sal int,max_sal int);


insert into dept values(1,'ABC',10000,100000);

insert into dept values(2,'DEF',100000,500000);

insert into dept values(3,'GHI',50000,250000);

insert into dept values(4,'JKL',200000,700000);

insert into dept values(5,'MNO',500000,1000000);

insert into dept values(6,'PQR',100000,600000);

insert into dept values(7,'STU',700000,1400000);

insert into dept values(8,'VWX',100000,350000);

insert into dept values(9,'YZA',50000,200000);

insert into dept values(10,'BCD',500000,700000);



update emp10

set salary=salary+(10*salary)

where job='CLERK';


create or replace view emp10 as

select empno as eno,ename as en,job as j,salary as sal

from emp;


select * from emp10;


alter view emp10

add monthly_sal;


alter table emp

add monthly_sal int;


update emp

set monthly_sal=salary/12;


select * from emp;


create or replace view emp10 as
```

```
select ename,monthly_sal,salary as annual_salary,depno as deptno

from emp;


select * from emp10;


create view dept_stat as

select dno as department_no, dname as department_name, min_sal as minimum_salary, max_sal as
maximun_salary

from dept;


alter  table  dept

add total_salary int

;


update dept

set total_salary=(min_sal+max_sal)/2;


select * from dept;


create or replace view dept_stat as

select dno as department_no, dname as department_name, min_sal as minimum_salary, max_sal as
maximun_salary,total_salary

from dept;
```

Output:-

```
create table emp(empno int primary key , ename varchar(25),job varchar(25),salary int, depno int)

Table created.

insert into emp values(1,'ABC','CLERK',300000,12)

1 row(s) inserted.

insert into emp values(2,'DEF','JUDGE',1000000,22)

1 row(s) inserted.

insert into emp values(3,'GHI','DOCTOR',1500000,10)
```

```
select * from emp10
```

EMPNO	ENAME	JOB	SALARY	DEPNO
2	DEF	JUDGE	1000000	22
7	STU	ACCOUNTANT	600000	13
9	YZA	MANAGER	1100000	11
1	ABC	CLERK	300000	12
8	VWX	COOK	500000	16
3	GHI	DOCTOR	1500000	10
4	JKL	POLICE	800000	9
5	MNO	ACTOR	2000000	4
6	PQR	DRIVER	400000	8
10	BCD	HR	2100000	14

10 rows selected.

```
update emp10
set salary=salary+(10*salary)
where job='CLERK'
```

1 row(s) updated.

```
select * from emp10 where job='CLERK'
```

EMPNO	ENAME	JOB	SALARY	DEPNO
1	ABC	CLERK	3300000	12

```
update emp10
set salary=salary+(10*salary)
where job='CLERK'
```

1 row(s) updated.

```
select * from emp10 where job='CLERK'
```

EMPNO	ENAME	JOB	SALARY	DEPNO
1	ABC	CLERK	3300000	12

```
create or replace view emp10 as
select empno as eno,ename as en,job as j,salary as sal
from emp
```

View created.

```
alter table emp
add monthly_sal int
```

Table altered.

```
update emp
set monthly_sal=salary/12
```

10 row(s) updated.

```
select * from emp
```

```
alter table dept
add total_salary int
```

Table altered.

```
update dept
set total_salary=(min_sal+max_sal)/2
```

12 row(s) updated.

```
create view dept_stat as
select dno as department_no, dname as department_name, min_sal as minimum_salary, max_sal as maximun_salary
from dept
```

View created.

```
alter table dept
add total_salary int
```

Table altered.

```
update dept
set total_salary=(min_sal+max_sal)/2
```

12 row(s) updated.

Result:- Successfully implemented commands to create and find data from the table for the below quires where modification and deletions are performed

Date: Ex No:7	**Title of the Lab** **IMPLEMENTATION OF JOINS IN SQL**	**Name: Yuvraj Singh Chauhan** **Registration Number:** **RA1911027010058** **Section:N1** **Lab Batch:2** **Day Order:1**

Aim:- To practice all joins using emp and dept table simple joins self joins equ joins inner joins outer joins left & right union intersect minus set difference

Description about the problem:

- Create 2 different tables and enter values
- Select some rows only from the table of entered data
- Use Order by function
- Use all kind of join functions starting inner, outer, self-etc
- Joins where we add tables at left or right side of the table
- Union function and intersection too

Queries:-

```
create  table  employee(empno  int  primary  key,na_me  varchar(20),age  int  ,job_role
varchar(20),officecode int);


insert into employee values (12,'abc',25,'manager',9);

insert into employee values (11,'def',22,'helper',9);

insert into employee values (21,'ghi',21,'hr',7);

insert into employee values (28,'jjk',28,'hr',7);

insert into employee values (15,'fdf',26,'sales',6);

insert into employee values (18,'bgfbg',31,'marketing',9);

insert into employee values (17,'bgdbg',29,'pr',8);


create  table  office(officeno  int  primary  key,officecode  int,na__me  varchar(15),loc
varchar(10),pincode int);


insert into office values (1,7,'ggk','B',001)

insert into office values (2,7,'fgfd','C',002)

insert into office values (3,7,'dfdfe','A',003)

insert into office values (4,7,'ddscd','B',003)

insert into office values (5,6,'dvdsv','C',004)

insert into office values (6,6,'dsvdsv','A',004)

insert into office values (7,6,'dsvdsv','B',005)
```

```
SELECT employee.na_me AS EmployeeName, office.loc AS Location_, office.pincode
FROM employee,office
WHERE employee.officecode= office.officecode
ORDER BY employee.empno;


SELECT A.job_role, B.na_me,B.age
FROM employee  A,employee  B
WHERE A.job_role <> B.job_role
AND A.officecode = B.officecode
ORDER BY A.empno;


SELECT A.empno, B.job_role,B.age
FROM employee  A,employee  B
WHERE A.job_role <> B.job_role
AND A.officecode = B.officecode
ORDER BY A.empno;


SELECT employee.NA_ME,employee.JOB_ROLE,office.PINCODE,office.LOC
FROM employee,office
WHERE employee.EMPNO=office.OFFICENO;


SELECT employee.NA_ME,employee.AGE,employee.JOB_ROLE,office.LOC,office.PINCODE
FROM employee
INNER JOIN office ON employee.OFFICECODE=office.OFFICECODE;


SELECT employee.NA_ME,employee.JOB_ROLE,office.PINCODE,office.LOC
FROM employee
FULL OUTER JOIN office ON employee.OFFICECODE=office.OFFICECODE;


SELECT employee.NA_ME,employee.AGE,employee.JOB_ROLE,office.LOC,office.PINCODE
FROM employee
LEFT JOIN office ON employee.OFFICECODE=office.OFFICECODE;


SELECT employee.NA_ME,employee.JOB_ROLE,office.PINCODE,office.LOC
FROM employee
```

```
RIGHT JOIN office ON employee.OFFICECODE=office.OFFICECODE;


SELECT OFFICECODE FROM employee

UNION

SELECT OFFICECODE FROM office

ORDER BY OFFICECODE;


SELECT EMPNO FROM employee

INTERSECT

SELECT OFFICENO FROM office;


SELECT EMPNO FROM employee

MINUS

SELECT OFFICENO FROM office;
```

Output:-

```
create table employee(empno int primary key,na_me varchar(20),age int ,job_role varchar(20),officecode int)
```

Table created.

```
create table office(officeno int primary key,officecode int,na__me varchar(15),loc varchar(10),pincode int)
```

Table created.

```
SELECT employee.na_me AS EmployeeName, office.loc AS Location_, office.pincode
FROM employee,office
WHERE employee.officecode= office.officecode
ORDER BY employee.empno
```

EMPLOYEENAME	LOCATION_	PINCODE
nhgr	A	6
nhgr	C	5
nhgr	B	6
nhgr	B	3
def	B	6
def	A	6
def	C	5

```
SELECT A.job_role, B.na_me,B.age
FROM employee A,employee B
WHERE A.job_role <> B.job_role
AND A.officecode = B.officecode
ORDER BY A.empno
```

JOB_ROLE	NA_ME	AGE
pr	def	22
pr	abc	25
pr	bgfbg	31
helper	nhgr	25
helper	abc	25
helper	bgfbg	31

```
SELECT A.empno, B.job_role,B.age
FROM employee A,employee B
WHERE A.job_role <> B.job_role
AND A.officecode = B.officecode
ORDER BY A.empno
```

EMPNO	JOB_ROLE	AGE
10	helper	22
10	manager	25
10	marketing	31
11	pr	25
11	manager	25

```
SELECT employee.NA_ME,employee.JOB_ROLE,office.PINCODE,office.LOC
FROM employee,office
WHERE employee.EMPNO=office.OFFICENO
```

NA_ME	JOB_ROLE	PINCODE	LOC
nhgr	pr	6	B
def	helper	3	A
abc	manager	3	B
sgs	advertising	7	C

4 rows selected.

```
SELECT employee.NA_ME,employee.AGE,employee.JOB_ROLE,office.LOC,office.PINCODE
FROM employee
INNER JOIN office ON employee.OFFICECODE=office.OFFICECODE
```

NA_ME	AGE	JOB_ROLE	LOC	PINCODE
ghi	21	hr	B	1
jjk	28	hr	B	1
tew	30	hr	B	1
aaa	21	manager	B	1
ghi	21	hr	C	2
jjk	28	hr	C	2
tew	30	hr	C	2
aaa	21	manager	C	2

```
SELECT employee.NA_ME,employee.JOB_ROLE,office.PINCODE,office.LOC
FROM employee
RIGHT JOIN office ON employee.OFFICECODE=office.OFFICECODE
```

NA_ME	JOB_ROLE	PINCODE	LOC
abc	manager	5	C
abc	manager	6	A
abc	manager	6	B
abc	manager	3	B
def	helper	5	C

```
SELECT OFFICECODE FROM employee
UNION
SELECT OFFICECODE FROM office
ORDER BY OFFICECODE
```

OFFICECODE
6
7
8
9

4 rows selected.

```
SELECT EMPNO FROM employee
INTERSECT
SELECT OFFICENO FROM office
```

EMPNO
10
11
12
13

4 rows selected.

```
SELECT EMPNO FROM employee
MINUS
SELECT OFFICENO FROM office
```

EMPNO
15
16
17
18
20
21

Result:- Successfully practiced all joins using emp and dept table simple joins self joins equ joins inner joins outer joins left & right union intersect minus set difference.

Date: Ex No:8	**Title of the Lab** **INTRODUCTION TO PL/SQL CODES**	**Name: Yuvraj Singh Chauhan** **Registration Number:** **RA1911027010058** **Section:N1** **Lab Batch:2** **Day Order:1**

Aim: - Implement the given PL/SQL codes in SQL.

Description about the problem:

- Get the data for specific conditions
- Implement Maximum code
- Compare the values of variables and print the maximum variable

Queries:-

```
Declare
a number;
b number;
c number;
Begin
dbms_output.put_line('Enter a:');
a:=&a;
dbms_output.put_line('Enter b:');
b:=&b;
dbms_output.put_line('Enter c:');
c:=&c;
if (a>b) and (a>c) then
dbms_output.putline('A is Maximum');
elsif (b>a) and (b>c) then
dbms_output.putline('B is Maximum');
else
dbms_output.putline('C is Maximum');
end if;
End;
```

Output:-

```
Declare
    a number;
    b number;
    c number;
Begin
    dbms_output.put_line('Enter a:');
    a:=21;
    dbms_output.put_line('Enter b:');
    b:=4;
    dbms_output.put_line('Enter c:');
    c:=7;
    if (a>b) and (a>c) then
        dbms_output.put_line('A is Maximum');
    elsif (b>a) and (b>c) then
        dbms_output.put_line('B is Maximum');
    else
        dbms_output.put_line('C is Maximum');
    end if;
End;
```

```
Statement processed.
Enter a:
Enter b:
Enter c:
A is Maximum
```

Result:- Successfully implemented Pl/SQL for given codes.

Date: Ex No:9	**Title of the Lab** **FACTORIAL IN PL/SQL**	**Name: Yuvraj Singh Chauhan** **Registration Number:** **RA1911027010058** **Section:N1** **Lab Batch:2** **Day Order:1**

Aim: To implement commands to create and find data from the table as required below.

Description about the problem:

- Write a pl/SQL program for finding the factorial of a number
- The factorial of a number is the product of all the integers from 1 to that number. For example, the factorial of 7 is 1*2*3*4*5*6*7 = 5040.
- Factorial is not defined for negative numbers, and the factorial of zero
- is one, 0! = 1

Queries:-

```sql
declare

n number := 7;
fact number := 1;
temp number;

begin
temp :=n;

while( temp>0 )
loop
fact := fact*temp;
temp := temp-1;
end loop;

dbms_output.put_line('factorial of the '|| n || ' is ' || fact);
 end;
```

Output:-

```
declare
n number := 7;
fact number := 1;
temp number;

begin

temp :=n;

while( temp>0 )
loop
fact := fact*temp;
temp := temp-1;
end loop;

dbms_output.put_line('factorial of the '|| n ||' is ' || fact);
end;
```

Statement processed.
factorial of the 7 is 5040

Result:- Successfully implemented Pl/SQL code to find factorial of a number.

Date: Ex No:10	**Title of the Lab** **EXECUTE PL/SQL COMMAND TO GIVEN CONDITION**	**Name: Yuvraj Singh Chauhan** **Registration Number:** **RA1911027010058** **Section:N1** **Lab Batch:2** **Day Order:1**

Aim:- Write PL/SQL program for the given condition.

Description about the problem:

Write a PL/SQL procedure to fetch the employee salary details and update 10% allowances for employees' salaries>20000 and < 50000.

Queries:-

```
create table emp_sal( emp_id number(6),emp_name varchar(20), dept varchar(20),salary int);


insert into emp_sal values (10,'Seb','HR',50000);

insert into emp_sal values (11,'Lance','Sales',30000);

insert into emp_sal values (12,'Lawrence','Admins',90000);

insert into emp_sal values (13,'George','HR',40000);

insert into emp_sal values (14,'Toto','Admins',33000);

insert into emp_sal values (15,'Lewis','Marketing',35000);

insert into emp_sal values (16,'Valterri','Sales',29000);

select * from emp_sal;


DECLARE

    CURSOR employee_cur IS

      SELECT emp_id,salary

      FROM  emp_sal

      FOR UPDATE;

    incr_sal NUMBER;

BEGIN

    FOR employee_rec IN employee_cur LOOP

        IF employee_rec.salary < 50000 AND employee_rec.salary> 20000 THEN

          incr_sal := .10;
```

```
        ELSE

          incr_sal := 0;

        END IF;


        UPDATE emp_sal

        SET    salary = salary + salary * incr_sal

        WHERE  CURRENT OF employee_cur;

    END LOOP;

END;


/

select * from emp_sal;
```

Output:-

```
create table emp_sal( emp_id number(6),emp_name varchar(20), dept varchar(20),salary int)


Table created.



desc emp_sal


TABLE EMP_SAL
```

Column	Null?	Type
EMP_ID	-	NUMBER(6,0)
EMP_NAME	-	VARCHAR2(20)
DEPT	-	VARCHAR2(20)
SALARY	-	NUMBER

Download CSV
4 rows selected.

```
select * from emp_sal
```

EMP_ID	EMP_NAME	DEPT	SALARY
10	Seb	HR	50000
11	Lance	Sales	33000
12	Lawrence	Admins	90000
13	George	HR	44000
14	Toto	Admins	36300
15	Lewis	Marketing	38500
16	Valterri	Sales	31900

Download CSV
7 rows selected.

Result:- Successfully implemented Pl/SQL code an found the output.

SRM INSTITUTE OF SCIENCE AND

TECHNOLOGY

SCHOOL OF COMPUTING

DEPARTMENT OF DATASCIENCE AND

BUSINESS SYSTEMS

18CSC303J DATABASE MANAGEMENT

SYSTEMS

MINI PROJECT REPORT
<u>Title</u> – Telephone Billing System

NAME: YUVRAJ SINGH CHAUHAN, ARNAV KUMAR

REGISTER NUMBER: RA19110270100058,

RA1911027010040

DEPARTMENT: B.TECH

SPECIALIZATION: CSE BIG DATA ANALYTICS

SEMESTER: VI

CONTENT PAGE

INTRODUCTION

The purpose of the project is to present the requirement ofthe Computerization of TelephoneBilling System. The project thus calculates the telephone bills automatically. It does almostevery work which is related to automatic telephone billing connection system via- newconnection , customer record modification, viewing customer records &all works related to
rate of bills, meter readings in addition to bill calculationand bill generation. "TelephoneBilling System " is developed as per seeing the increasing requirement
to speed up the work
and incorporate a new work culture. Thus a new software has been proposed to reduce manualwork, improving work efficiency, saving time and to provide greater flexibility and

user-friendliness as the system previously followed was totally manual one with lots of errors.

SYNOPSIS

The purpose of this project is to help the customers to use the Computerization of Telephone Billing System. It does almost every work which is related to automatic telephone billingconnection system via new connection, customer registration, viewing customer details, modifications to customer details and all works related to rate of bills, in addition to bill calculation and bill generation.

Telephone Billing System is developed as per seeing the increasing requirement to speed up thework and incorporate a new work culture. Thus a new program has been proposed to reduce manual work, improving work efficiency, saving time and to provide greater flexibility and user friendliness.

DESIGN AND ARCHITECTURE

- Python
- Mysql
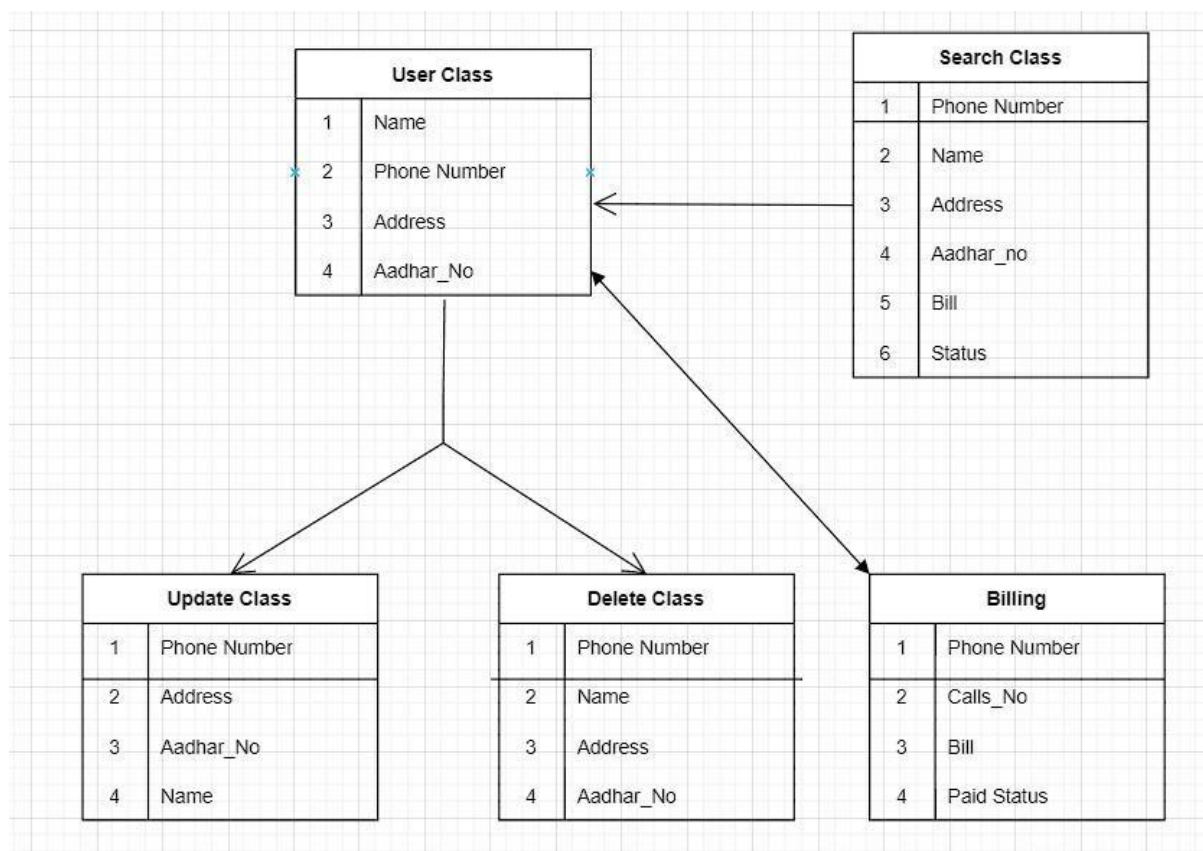
COMPONENTS OF THE TELEPHONE TABLE USING CLASS
DIAGRAM

OUTPUT

#registering customer

```
                        ONLINE TELEPHONE BILLING SYSTEM
                        ===============================

                                MAIN MENU
                                =========

            1. Register User        2. Search customer

            3. Update Customer       4. Generate Bill

            5. Delete Customer       6. Display records

            7. Help                  8. Exit

Enter your choice:1

                        New Customer Registration.....
                        =============================

Details of the customer are phone_no, name, address, aadhar_no respectively:
Enter your Phone number:9798623217
Enter your Name:Anjali Vaish
Enter your Address:Goa
Enter your 12-digit Aadhar Card number:678924351278

Successfully Registered the user.....


Press y to continue and any other key to exit:y
```

MySQL 8.0 Command Line Client

```
mysql> select * from customer;
+------------+----------------+-----------+--------------+------+--------+-----+
| phno       | name           | address   | aadhar_no    | bill | status | ftp |
+------------+----------------+-----------+--------------+------+--------+-----+
| 9999847323 | Shaurya Srinet | Delhi     | 123456781234 |    0 | N.A.   |   0 |
| 9757301623 | Madhav Gautam  | Bangalore | 123412345678 |    0 | N.A.   |   0 |
| 9999071623 | Arnav Neil     | Noida     | 567812345678 |    0 | N.A.   |   0 |
| 9831200841 | Surabhi Tiwari | Hyderabad | 567842316753 |    0 | N.A.   |   0 |
| 9798623217 | Anjali Vaish   | Goa       | 678924351278 |    0 | N.A.   |   0 |
+------------+----------------+-----------+--------------+------+--------+-----+
5 rows in set (0.00 sec)

mysql>
```

#searching customer

```
                        ONLINE TELEPHONE BILLING SYSTEM
                        ===============================

                                MAIN MENU
                                =========

                1. Register User        2. Search customer

                3. Update Customer      4. Generate Bill

                5. Delete Customer      6. Display records

                7. Help                 8. Exit

Enter your choice:2

                        Search Customer.....
                        ====================

Details of the customer are phone_no,name,address,aadhar_no,bill,status(paid or unpaid),
first time payer(yes:0/no:1) respectively:

Enter your phone number:9757301623
[('9757301623', 'Madhav Gautam', 'Bangalore', '123412345678', 0, 'N.A.', 0)]


Press y to continue and any other key to exit:y
```

#updating customer

```
                              MAIN MENU
                              =========

            1. Register User          2. Search customer

            3. Update Customer        4. Generate Bill

            5. Delete Customer        6. Display records

            7. Help                   8. Exit

Enter your choice:3

                       Update Customer Data.....
                       =========================


Enter your phone number:9831200841
1. Name
2. Address
3. Aadhar_no
Enter choice to update:2
Enter new address:Gurugram
Successfully updated address.....


Press y to continue and any other key to exit:y
```

MySQL 8.0 Command Line Client

```
mysql> select * from customer;
+------------+----------------+-----------+--------------+------+--------+------+
| phno       | name           | address   | aadhar_no    | bill | status | ftp  |
+------------+----------------+-----------+--------------+------+--------+------+
| 9999847323 | Shaurya Srinet | Delhi     | 123456781234 |    0 | N.A.   |    0 |
| 9757301623 | Madhav Gautam  | Bangalore | 123412345678 |    0 | N.A.   |    0 |
| 9999071623 | Arnav Neil     | Noida     | 567812345678 |    0 | N.A.   |    0 |
| 9831200841 | Surabhi Tiwari | Gurugram  | 567842316753 |    0 | N.A.   |    0 |
| 9798623217 | Anjali Vaish   | Goa       | 678924351278 |    0 | N.A.   |    0 |
+------------+----------------+-----------+--------------+------+--------+------+
5 rows in set (0.00 sec)
```

#generating bill for a first time payer(1st 50 calls free offer applicable)

```
Enter your choice:4
                        Billing.....
                        ============



Enter your phone number:9999847323
Enter number of calls:213
                        Billing.....
                        ============


            Pending bill amount: 0

            First 50 free calls: 0

            Next 51-100 calls@1.0Rs/call: 50

            Next 100-150 calls@2.0Rs/call: 100

            Next over 150 calls@3.0Rs/call: 189

            New bill amount:     339

            =========================
            Total amount to pay:    339
            =========================

Press Y to pay the bill now or any other key to pay later:y
Successfully paid the bill.....


Press y to continue and any other key to exit:y
```

```
mysql> select * from customer;
+------------+----------------+-----------+--------------+------+--------+-----+
| phno       | name           | address   | aadhar_no    | bill | status | ftp |
+------------+----------------+-----------+--------------+------+--------+-----+
| 9999847323 | Shaurya Srinet | Delhi     | 123456781234 |  339 | Paid   |   1 |
| 9757301623 | Madhav Gautam  | Bangalore | 123412345678 |    0 | N.A.   |   0 |
| 9999071623 | Arnav Neil     | Noida     | 567812345678 |    0 | N.A.   |   0 |
| 9831200841 | Surabhi Tiwari | Gurugram  | 567842316753 |    0 | N.A.   |   0 |
| 9798623217 | Anjali Vaish   | Goa       | 678924351278 |    0 | N.A.   |   0 |
+------------+----------------+-----------+--------------+------+--------+-----+
5 rows in set (0.00 sec)
```

#generating bill for same customer again(1ˢᵗ 50calls free offer NOT applicable)

```
Enter your choice:4
                        Billing.....
                        ===========


Enter your phone number:9999847323
Enter number of calls:32
                        Billing.....
                        ===========


             Last paid bill amount 339

             Total calls 32

             below 100 calls is Rs1.0/call = 32

             New bill amount:      32

             ========================
             Total bill amount:     32
             ========================

Press Y to pay the bill now or any other key to pay later:y
Successfully paid the bill.....


Press y to continue and any other key to exit:y
```

```
mysql> select * from customer;
+------------+----------------+-----------+--------------+------+--------+------+
| phno       | name           | address   | aadhar_no    | bill | status | ftp  |
+------------+----------------+-----------+--------------+------+--------+------+
| 9999847323 | Shaurya Srinet | Delhi     | 123456781234 |   32 | Paid   |    1 |
| 9757301623 | Madhav Gautam  | Bangalore | 123412345678 |    0 | N.A.   |    0 |
| 9999071623 | Arnav Neil     | Noida     | 567812345678 |    0 | N.A.   |    0 |
| 9831200841 | Surabhi Tiwari | Gurugram  | 567842316753 |    0 | N.A.   |    0 |
| 9798623217 | Anjali Vaish   | Goa       | 678924351278 |    0 | N.A.   |    0 |
+------------+----------------+-----------+--------------+------+--------+------+
5 rows in set (0.00 sec)
```

#refusing to pay bill generated for first time payer

```
Enter your choice:4
                        Billing.....
                        ============


Enter your phone number:9757301623
Enter number of calls:189
                        Billing.....
                        ============


            Pending bill amount: 0

            First 50 free calls: 0

            Next 51-100 calls@1.0Rs/call: 50

            Next 100-150 calls@2.0Rs/call: 100

            Next over 150 calls@3.0Rs/call: 117

            New bill amount:      267


            ==========================
            Total amount to pay:    267
            ==========================

Press Y to pay the bill now or any other key to pay later:n
Please make payment as soon as possible.....


Press y to continue and any other key to exit:y
```

```
mysql> select * from customer;
+------------+----------------+-----------+--------------+------+--------+------+
| phno       | name           | address   | aadhar_no    | bill | status | ftp  |
+------------+----------------+-----------+--------------+------+--------+------+
| 9999847323 | Shaurya Srinet | Delhi     | 123456781234 |   32 | Paid   |    1 |
| 9757301623 | Madhav Gautam  | Bangalore | 123412345678 |  267 | Unpaid |    1 |
| 9999071623 | Arnav Neil     | Noida     | 567812345678 |    0 | N.A.   |    0 |
| 9831200841 | Surabhi Tiwari | Gurugram  | 567842316753 |    0 | N.A.   |    0 |
| 9798623217 | Anjali Vaish   | Goa       | 678924351278 |    0 | N.A.   |    0 |
+------------+----------------+-----------+--------------+------+--------+------+
5 rows in set (0.00 sec)
```

#finally paying total bill for customer who refused to pay before

```
Enter your choice:4
                        Billing.....
                        ============


Enter your phone number:9757301623
Enter number of calls:43
                        Billing.....
                        ============


            Pending bill amount: 267

            Total calls 43

            below 100 calls is Rs1.0/call = 43

            New bill amount:      43

            =========================
            Total amount to pay:    310
            =========================

Press Y to pay the bill now or any other key to pay later:y
Successfully paid the bill.....


Press y to continue and any other key to exit:y
```

```
mysql> select * from customer;
+------------+----------------+----------+--------------+------+--------+-----+
| phno       | name           | address  | aadhar_no    | bill | status | ftp |
+------------+----------------+----------+--------------+------+--------+-----+
| 9999847323 | Shaurya Srinet | Delhi    | 123456781234 |   32 | Paid   |   1 |
| 9757301623 | Madhav Gautam  | Bangalore| 123412345678 |  310 | Paid   |   1 |
| 9999071623 | Arnav Neil     | Noida    | 567812345678 |    0 | N.A.   |   0 |
| 9831200841 | Surabhi Tiwari | Gurugram | 567842316753 |    0 | N.A.   |   0 |
| 9798623217 | Anjali Vaish   | Goa      | 678924351278 |    0 | N.A.   |   0 |
+------------+----------------+----------+--------------+------+--------+-----+
5 rows in set (0.00 sec)
```

#deleting customer

```
                              ONLINE TELEPHONE BILLING SYSTEM
                              ================================

                                      MAIN MENU
                                      =========

              1. Register User          2. Search customer

              3. Update Customer        4. Generate Bill

              5. Delete Customer        6. Display records

              7. Help                   8. Exit

Enter your choice:5

Enter your phone number:9999071623
Are you sure to delete the customer.....Yes/No:y
Successfully deleted from database.....


Press y to continue and any other key to exit:y
```

```
mysql> select * from customer;
+------------+----------------+------------+--------------+------+--------+------+
| phno       | name           | address    | aadhar_no    | bill | status | ftp  |
+------------+----------------+------------+--------------+------+--------+------+
| 9999847323 | Shaurya Srinet | Delhi      | 123456781234 |   32 | Paid   |    1 |
| 9757301623 | Madhav Gautam  | Bangalore  | 123412345678 |  310 | Paid   |    1 |
| 9831200841 | Surabhi Tiwari | Gurugram   | 567842316753 |    0 | N.A.   |    0 |
| 9798623217 | Anjali Vaish   | Goa        | 678924351278 |    0 | N.A.   |    0 |
+------------+----------------+------------+--------------+------+--------+------+
4 rows in set (0.00 sec)
```

#displaying records from file

```
                    ONLINE TELEPHONE BILLING SYSTEM
                    ===============================

                              MAIN MENU
                              =========

          1. Register User          2. Search customer

          3. Update Customer         4. Generate Bill

          5. Delete Customer         6. Display records

          7. Help                    8. Exit

Enter your choice:6
('9999847323', 'Shaurya Srinet', 'Delhi', '123456781234', 32, 'Paid', 1)
('9757301623', 'Madhav Gautam', 'Bangalore', '123412345678', 310, 'Paid', 1)
('9831200841', 'Surabhi Tiwari', 'Gurugram', '567842316753', 0, 'N.A.', 0)
('9798623217', 'Anjali Vaish', 'Goa', '678924351278', 0, 'N.A.', 0)


Press y to continue and any other key to exit:y
```

MySQL 8.0 Command Line Client

```
mysql> select * from customer;
+------------+----------------+-----------+--------------+------+--------+-----+
| phno       | name           | address   | aadhar_no    | bill | status | ftp |
+------------+----------------+-----------+--------------+------+--------+-----+
| 9999847323 | Shaurya Srinet | Delhi     | 123456781234 |   32 | Paid   |   1 |
| 9757301623 | Madhav Gautam  | Bangalore | 123412345678 |  310 | Paid   |   1 |
| 9831200841 | Surabhi Tiwari | Gurugram  | 567842316753 |    0 | N.A.   |   0 |
| 9798623217 | Anjali Vaish   | Goa       | 678924351278 |    0 | N.A.   |   0 |
+------------+----------------+-----------+--------------+------+--------+-----+
4 rows in set (0.00 sec)

mysql> _
```

#help

```
                    ONLINE  TELEPHONE  BILLING  SYSTEM
                    =================================

                            MAIN MENU
                            =========


        1. Register User          2. Search customer

        3. Update Customer        4. Generate Bill

        5. Delete Customer        6. Display records

        7. Help                   8. Exit

Enter your choice:7
                        Help
                        ====
First 50 calls are free
51-100 calls are 1.0 Rs per call
101-150 calls are 2.0 Rs per call
Above 150 calls are 3.0 Rs per call


Press y to continue and any other key to exit:y
```

 # exit

<pre>
          ONLINE TELEPHONE BILLING SYSTEM
          ================================

                    MAIN MENU
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        1. Register User   2. Search customer

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Enter your choice:8
>>>
</pre>

CONCLUSION

A phone billing system is a process of gathering consumption data, calculating billing and charging information, availing customer bills, processing the customer payments as well as managing collection of debts.
So, with the help of a telephone billing software, the phone billing system is automated helping you to not only improve accuracy but also significantly reduce costs.

Consequently, it assists us to manage our billing operations.