VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"JnanaSangama", Belgaum -590014, Karnataka.

LAB REPORT

on

Database Management Systems (23CS3PCDBM)

Submitted by

MALLIKARJUN 1BM24CS160

in partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

in

COMPUTER SCIENCE AND ENGINEERING

B.M.S. COLLEGE OF ENGINEERING

(Autonomous Institution under VTU)

BENGALURU-560019

Sep-2024 to Jan-2025

B.M.S. College of Engineering,

Bull Temple Road, Bangalore 560019

(Affiliated To Visvesvaraya Technological University, Belgaum)

Department of Computer Science and Engineering

CERTIFICATE

This is to certify that the Lab work entitled "Database Management Systems (23CS3PCDBM)" carried out by **MALLIKARJUN (1BM24CS160),** who is bonafide student of **B.M.S. College of Engineering.** It is in partial fulfillment for the award of **Bachelor of Engineering in Computer Science and Engineering** of the Visvesvaraya Technological University, Belgaum. The Lab report has been approved as it satisfies the academic requirements in respect of a Database Management Systems (23CS3PCDBM) work prescribed for the said degree.

Lab faculty Incharge Name Assistant Professor Department of CSE, BMSCE	Dr. Rashmi H Professor & HOD Department of CSE, BMSCE

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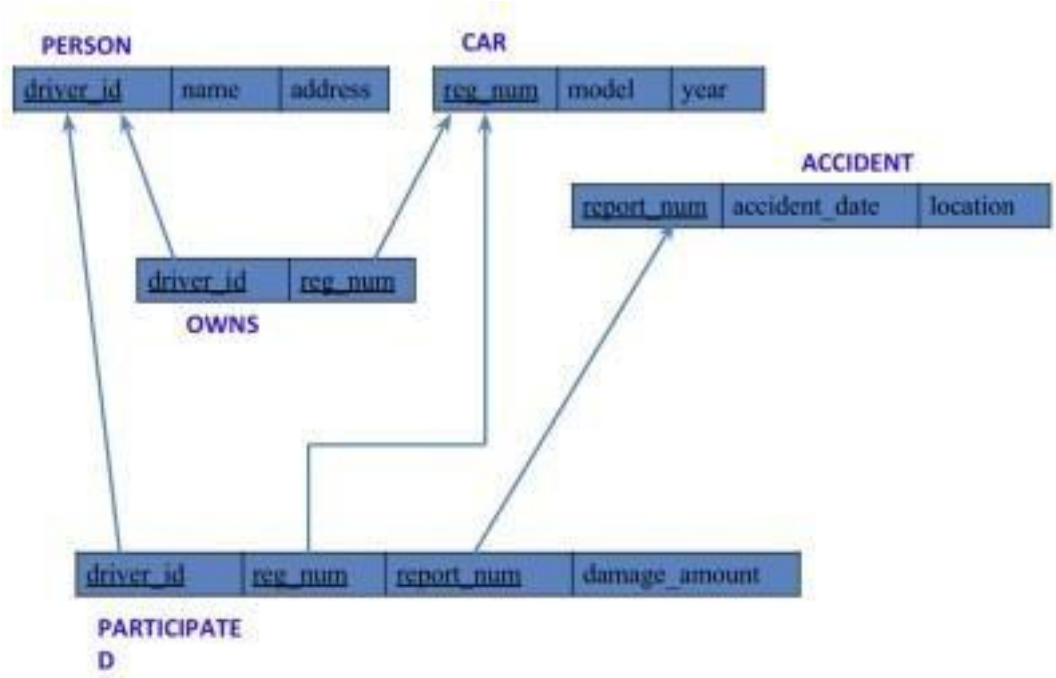
Insurance Database

Question (Week 1)

- PERSON (driver_id: String, name: String, address: String)
- CAR (reg_num: String, model: String, year: int)
- ACCIDENT (report_num: int, accident_date: date, location: String)
- OWNS (driver_id: String, reg_num: String)
- PARTICIPATED (driver_id: String,reg_num: String, report_num: int, damage_amount: int)
- Create the above tables by properly specifying the primary keys and the foreign keys. -
- Enter at least five tuples for each relation
- Display Accident date and location
- Update the damage amount to 25000 for the car with a specific reg_num (example 'K A053408') for which the accident report number was 12.
- Add a new accident to the database.

- Display driver id who did accident with damage amount greater than or equal to Rs. 25000.

Schema Diagram



Create database

```
create database insurance_dhiksha;  use
insurance_dhiksha;
```

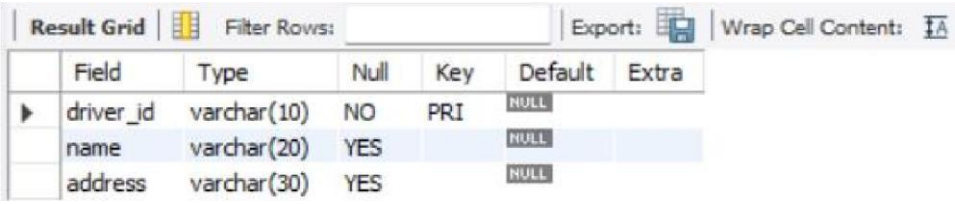
Create table

```
create                    table
insurance_dhiksha.person(  driver_id
varchar(20),      name    varchar(30),
address varchar(50),
```

```
PRIMARY KEY(driver_id)
);
create table insurance_dhiksha.car( reg_num
varchar(15),
model varchar(10), year
int,
PRIMARY KEY(reg_num)
);
create table insurance_dhiksha.owns(
driver_id varchar(20), reg_num
varchar(10),
PRIMARY KEY(driver_id, reg_num),
FOREIGN KEY(driver_id) REFERENCES person(driver_id),
FOREIGN KEY(reg_num) REFERENCES car(reg_num)
);
create table insurance_dhiksha.accident(
report_num int, accident_date date,
location varchar(50),
PRIMARY KEY(report_num)
);
create table
insurance_dhiksha.participated( driver_id
varchar(20), reg_num varchar(10),
report_num int, damage_amount int,
PRIMARY KEY(driver_id,reg_num,report_num),
FOREIGN KEY(driver_id) REFERENCES person(driver_id),
FOREIGN KEY(reg_num) REFERENCES car(reg_num),
FOREIGN KEY(report_num) REFERENCES accident(report_num)
);
```

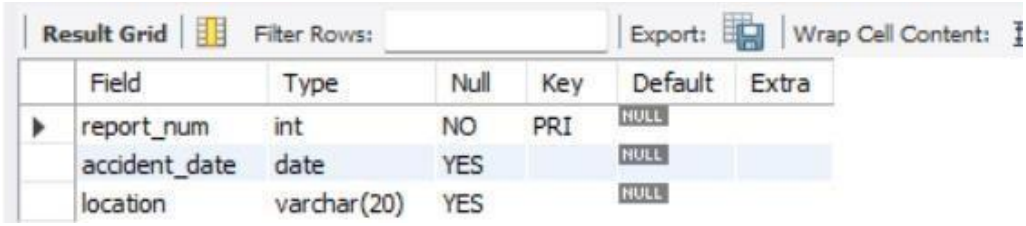
Structure of the table

desc person;



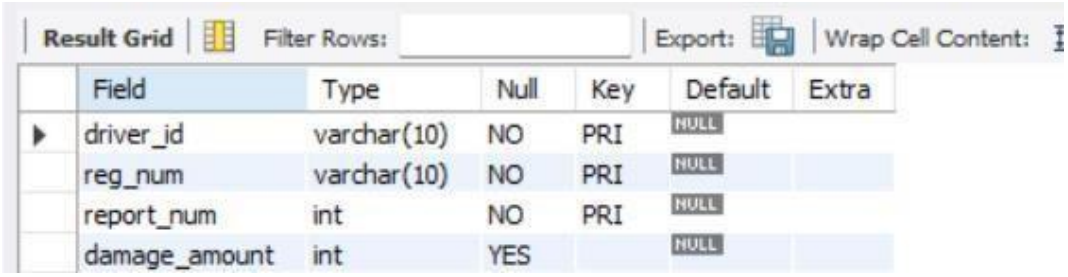
Field	Type	Null	Key	Default	Extra
driver_id	varchar(10)	NO	PRI	NULL	
name	varchar(20)	YES		NULL	
address	varchar(30)	YES		NULL	

desc accident;



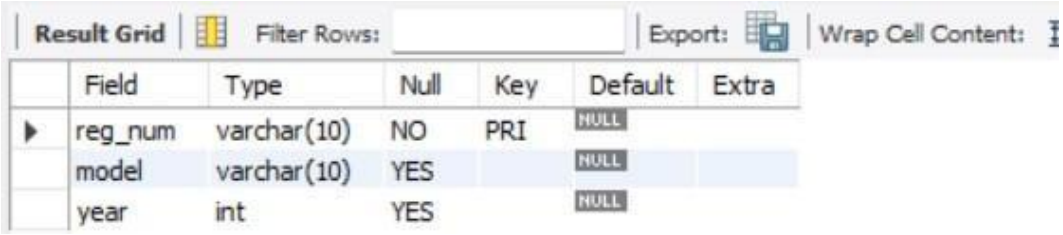
Field	Type	Null	Key	Default	Extra
report_num	int	NO	PRI	NULL	
accident_date	date	YES		NULL	
location	varchar(20)	YES		NULL	

desc participated;



Field	Type	Null	Key	Default	Extra
driver_id	varchar(10)	NO	PRI	NULL	
reg_num	varchar(10)	NO	PRI	NULL	
report_num	int	NO	PRI	NULL	
damage_amount	int	YES		NULL	

desc car;



Field	Type	Null	Key	Default	Extra
reg_num	varchar(10)	NO	PRI	NULL	
model	varchar(10)	YES		NULL	
year	int	YES		NULL	

desc owns;

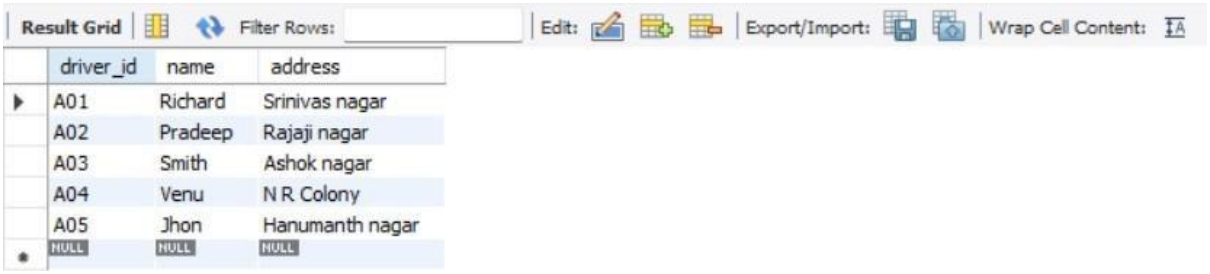
Field	Type	Null	Key	Default	Extra
driver_id	varchar(10)	NO	PRI	NULL	
reg_num	varchar(10)	NO	PRI	NULL	

Inserting Values to the table

insert into person values("A01","Richard", "Srinivas nagar");

insert into person values("A02","Pradeep", "Rajaji nagar");

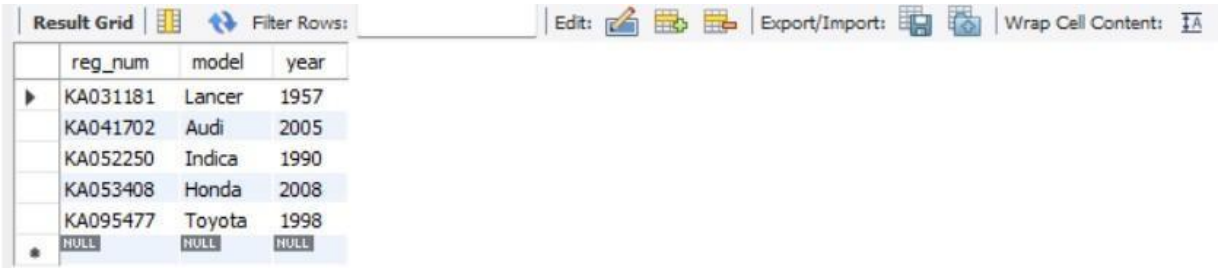
insert into person values("A03","Smith", "Ashok nagar"); insert into person values("A04","Venu", "N R Colony"); insert into person values("A05","Jhon", "Hanumanth nagar"); select * from person;



driver_id	name	address
A01	Richard	Srinivas nagar
A02	Pradeep	Rajaji nagar
A03	Smith	Ashok nagar
A04	Venu	N R Colony
A05	Jhon	Hanumanth nagar
NULL	NULL	NULL

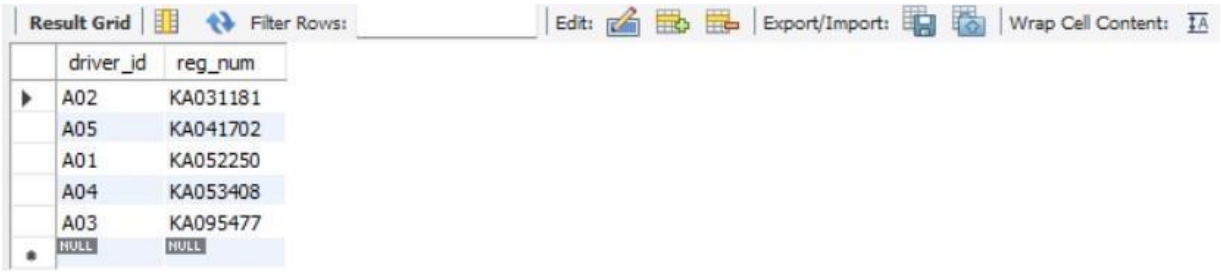
insert into car values("KA052250","Indica", "1990");

insert into car values("KA031181","Lancer", "1957"); insert into car values("KA095477","Toyota", "1998"); insert into car values("KA053408","Honda", "2008"); insert into car values("KA041702","Audi", "2005"); select * from car;



reg_num	model	year
KA031181	Lancer	1957
KA041702	Audi	2005
KA052250	Indica	1990
KA053408	Honda	2008
KA095477	Toyota	1998
NULL	NULL	NULL

insert into owns values("A01","KA052250"); insert into owns values("A02","KA031181"); insert into owns values("A03","KA095477"); insert into owns values("A04","KA053408"); insert into owns values("A05","KA041702"); select * from owns;



driver_id	reg_num
A02	KA031181
A05	KA041702
A01	KA052250
A04	KA053408
A03	KA095477
NULL	NULL

insert into accident values(11,'2003-01-01',"Mysore Road");

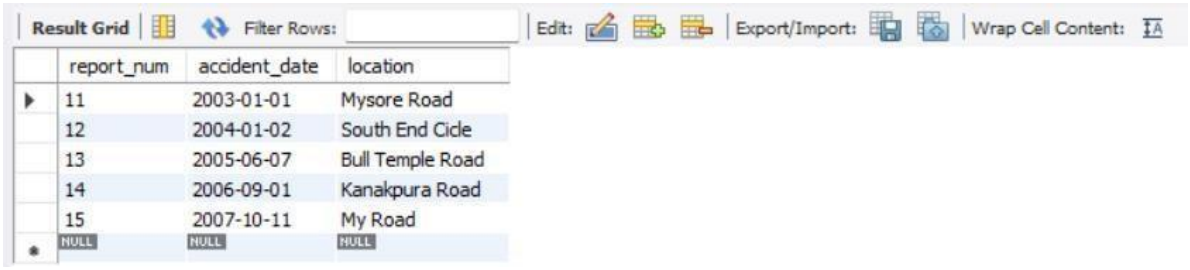
insert into accident values(12,'2004-02-02',"South end Circle");

insert into accident values(13,'2005-06-07',"Bull temple Road");

insert into accident values(14,'2006-09-01',"Kanakpura Road");

insert into accident values(15,'2007-10-11',"My Road"); select

* from accident;



report_num	accident_date	location
11	2003-01-01	Mysore Road
12	2004-01-02	South End Cicle
13	2005-06-07	Bull Temple Road
14	2006-09-01	Kanakpura Road
15	2007-10-11	My Road
NULL	NULL	NULL

insert into participated values("A01","KA052250",11,10000);

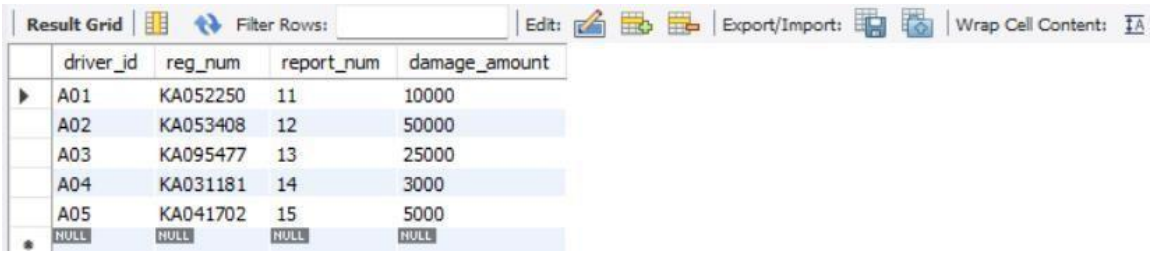
insert into participated values("A02","KA053408",12,50000); insert

into participated values("A03","KA095477",13,25000); insert into

participated values("A04","KA031181",14,3000); insert into

participated values("A05","KA041702",15,5000); select * from

participated;



driver_id	reg_num	report_num	damage_amount
A01	KA052250	11	10000
A02	KA053408	12	50000
A03	KA095477	13	25000
A04	KA031181	14	3000
A05	KA041702	15	5000
NULL	NULL	NULL	NULL

Queries

- **Update the damage amount to 25000 for the car with a specific reg-num (example 'KA053408') for which the accident report number was 12.**

update participated set

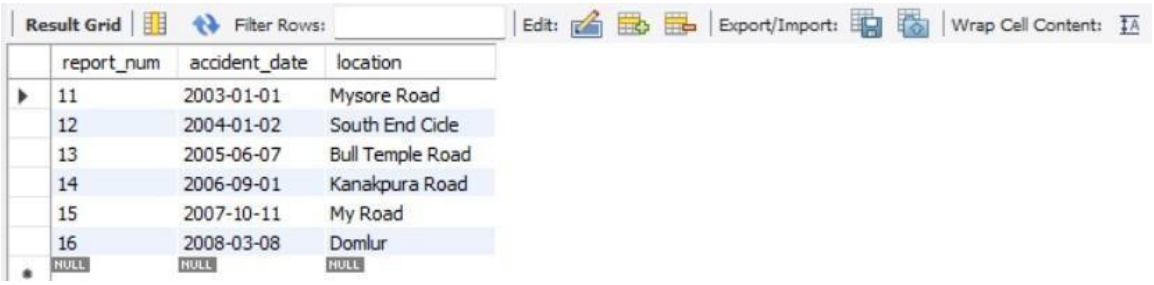
damage_amount=25000

where reg_num='KA053408' and report_num=12;

- **Add a new accident to the database.**

insert into accident values(16, '2008-03-08', 'Domlur');

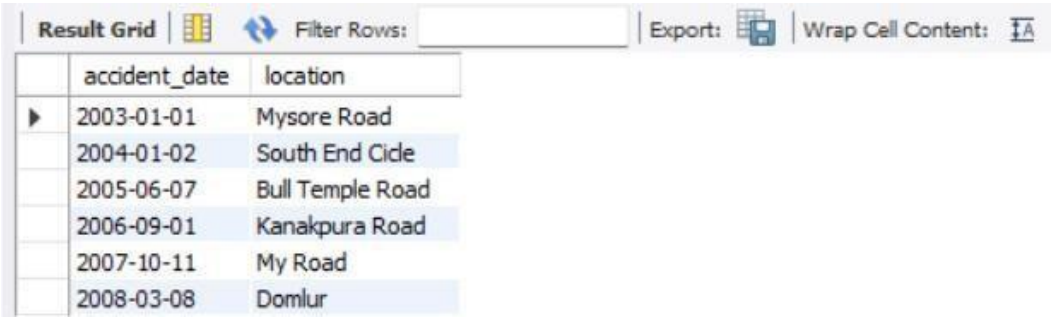
select * from accident;



report_num	accident_date	location
11	2003-01-01	Mysore Road
12	2004-01-02	South End Cicle
13	2005-06-07	Bull Temple Road
14	2006-09-01	Kanakpura Road
15	2007-10-11	My Road
16	2008-03-08	Domlur
NULL	NULL	NULL

- **Display accident date and location.**

select accident_date, location from accident;



accident_date	location
2003-01-01	Mysore Road
2004-01-02	South End Cicle
2005-06-07	Bull Temple Road
2006-09-01	Kanakpura Road
2007-10-11	My Road
2008-03-08	Domlur

- **Display driver id who did accident with damage amount greater than or equal to Rs. 25000**.

select driver_id from participated where damage_amount>=25000;

driver_id
A02
A03

More Queries on INSURANCE DATABASE QUESTION(WEEK 2)

PERSON (driver_id: String, name: String, address: String)

CAR (reg_num: String, model: String, year: int)

ACCIDENT (report_num: int, accident_date: date, location: String)

OWNS (driver_id: String, reg_num: String)

PARTICIPATED (driver_id: String,reg_num: String, report_num: int, damage_amount: int)

- Display the entire CAR relation in the ascending order of manufacturing year.

- Find the number of accidents in which cars belonging to a specific model (example 'Lancer') were involved.

- Find the total number of people who owned cars that involved in accidents in 2008.

- LIST THE ENTIRE PARTICIPATED RELATION IN THE DESCENDING ORDER OF DAMAGE AMOUNT.

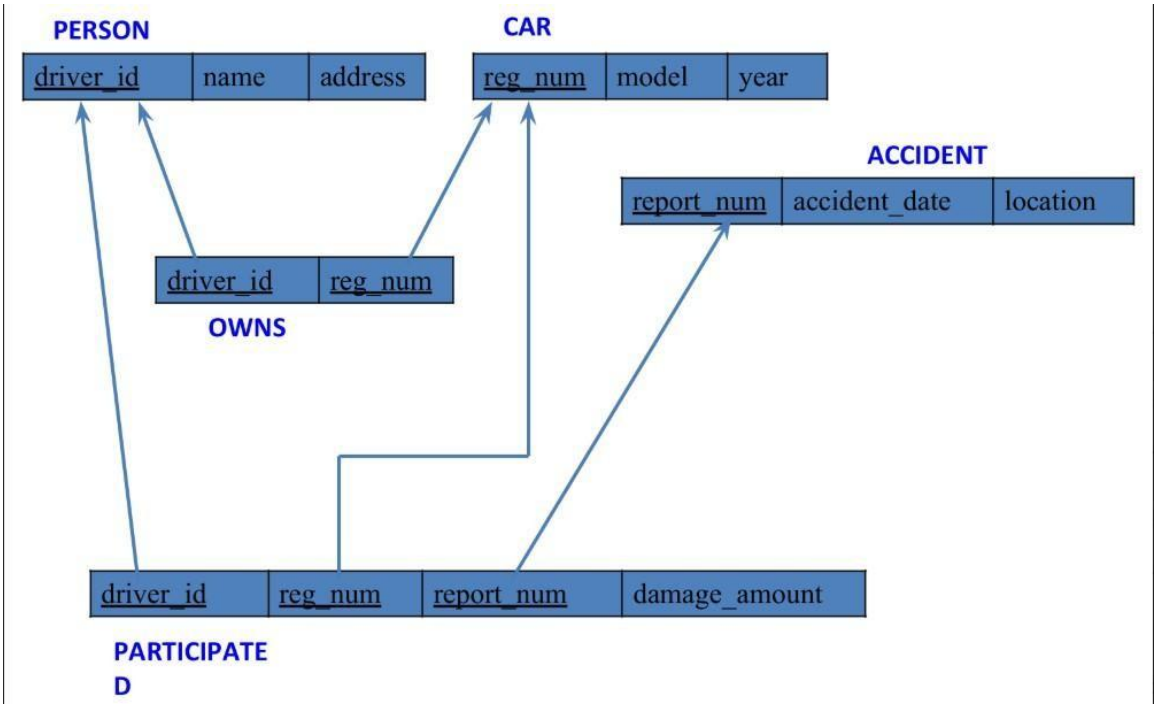
- FIND THE AVERAGE DAMAGE AMOUNT

- DELETE THE TUPLE WHOSE DAMAGE AMOUNT IS BELOW THE AVERAGE DAMAGE AMOUNT

- LIST THE NAME OF DRIVERS WHOSE DAMAGE IS GREATER THAN THE AVERAGE DAMAGE AMOUNT.

- FIND MAXIMUM DAMAGE AMOUNT.

SCHEMA DIAGRAM



QUERIES

- Display the entire CAR relation in the ascending order of manufacturing year.

select * from car order by year asc;

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

reg_num	model	year
KA031181	Lancer	1957
KA052250	Indica	1990
KA095477	Toyota	1998
KA041702	Audi	2005
KA053408	Honda	2008
NULL	NULL	NULL

- Find the number of accidents in which cars belonging to a specific model (example 'Lancer') were involved.

select count(report_num) from car c, participated p where p.reg_num and c.model='Lancer';

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

count(report_num)
0

- Find the total number of people who owned cars that involved in accidents in 2008.

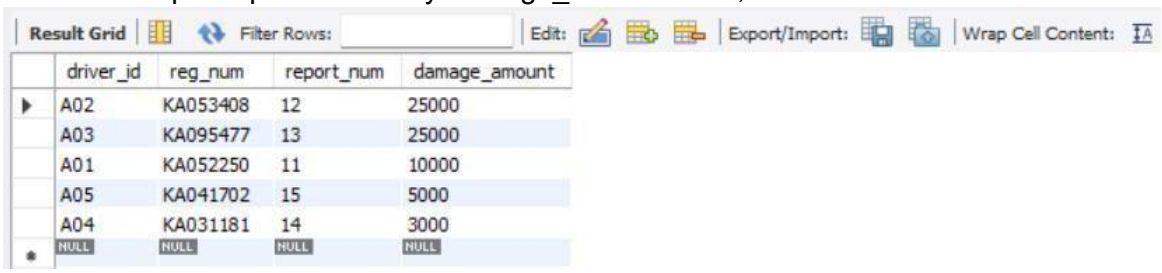
select count(distinct driver_id) CNT from participated a, accident b where a.report_num=b.report_num and b.accident_date like '__08%';


Result Grid | Filter Rows: | Export: | Wrap Cell Content:

	CNT
▶	0

- LIST THE ENTIRE PARTICIPATED RELATION IN THE DESCENDING ORDER BY DAMAGE AMOUNT.

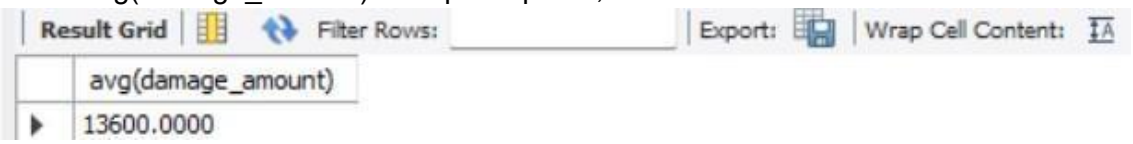
select * from participated order by damage_amount desc;


Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

	driver_id	reg_num	report_num	damage_amount
▶	A02	KA053408	12	25000
	A03	KA095477	13	25000
	A01	KA052250	11	10000
	A05	KA041702	15	5000
	A04	KA031181	14	3000
*	NULL	NULL	NULL	NULL

- FIND THE AVERAGE DAMAGE AMOUNT

select avg(damage_amount) from participated;


Result Grid | Filter Rows: | Export: | Wrap Cell Content:

	avg(damage_amount)
▶	13600.0000

- DELETE THE TUPLE WHOSE DAMAGE AMOUNT IS BELOW THE AVERAGE DAMAGE AMOUNT

set sql_safe_updates=0;

delete from participated where damage_amount<(select avg_damage from(select avg(damage_amount) as avg_damage from participated) as temp);

- LIST THE NAME OF DRIVERS WHOSE DAMAGE IS GREATER THAN THE AVERAGE DAMAGE AMOUNT.

select name from person a, participated b where a.driver_id=b.driver_id and damage_amount>13600;

- FIND MAXIMUM DAMAGE AMOUNT.

select max(damage_amount) from participated;

Bank Database

QUESTION(WEEK 3)

Branch (branch-name: String, branch-city: String, assets: real) BankAccount(accno: int, branch-name: String, balance: real)

BankCustomer (customer-name: String, customer-street: String, customer-city: String)

Depositer(customer-name: String, accno: int)

LOAN (loan-number: int, branch-name: String, amount: real)

- Create the above tables by properly specifying the primary keys and the foreign keys.

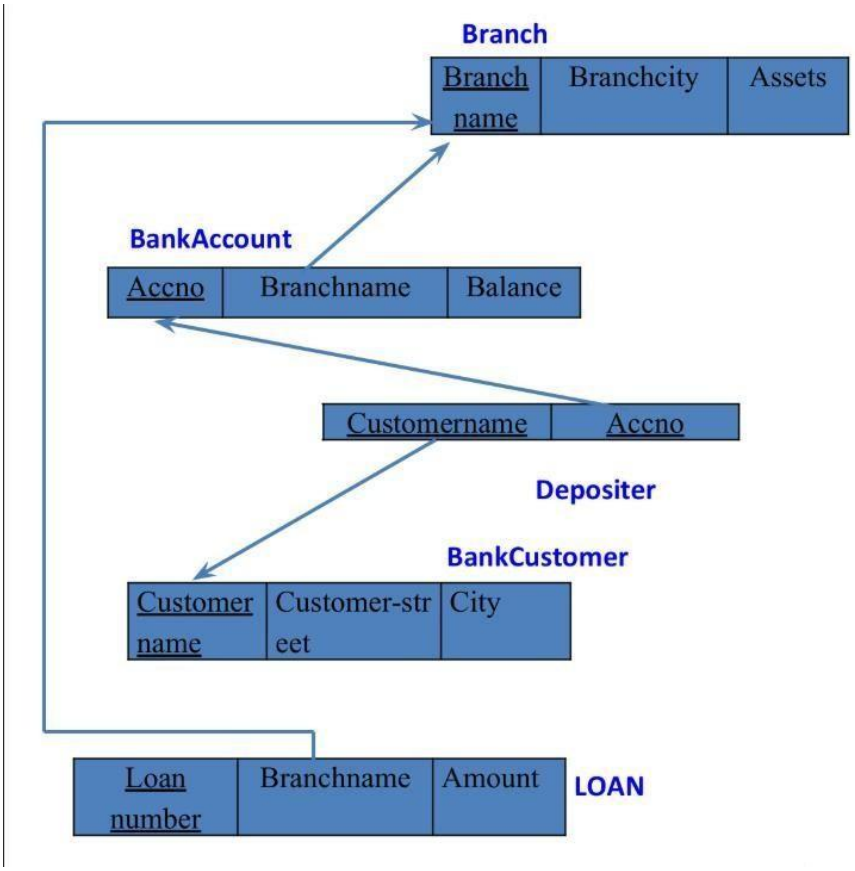
- Enter at least five tuples for each relation.

- Display the branch name and assets from all branches in lakhs of rupees and rename the assets column to 'assets in lakhs'.

- Find all the customers who have at least two accounts at the same branch (ex. SBI_ResidencyRoad).

- CREATE A VIEW WHICH GIVES EACH BRANCH THE SUM OF THE AMOUNT OF ALL THE LOANS AT THE BRANCH.

SCHEMA DIAGRAM



CREATE DATABASE

create database d_bank;

use d_bank;

CREATE TABLE

create table d_bank.branch(Branch_name varchar(30), Branch_city varchar(25), assets int, Primary key(Branch_name));

create table d_bank.BankAccount(Accno int, Branch_name varchar(30), Balance int, Primary key(Accno), Foreign key(Branch_name) references branch(Branch_name));

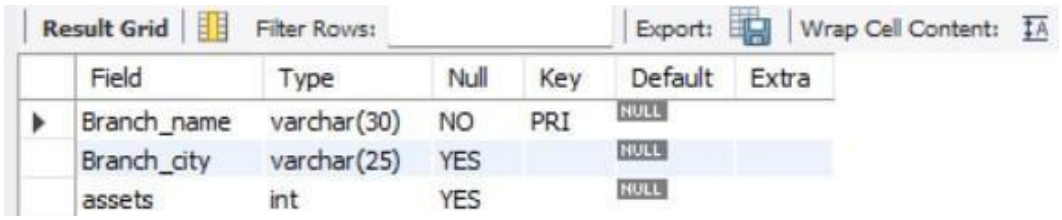
create table d_bank.BankCustomer(Customername varchar(20), Customer_street varchar(30), CustomerCity varchar(35), Primary key(Customername));

create table d_bank.Depositer(Customername varchar(20), Accno int, Primary key(Customername, Accno), foreign key(Accno) references BankAccount(Accno), foreign key(Customername) references BankCustomer(Customername));

create table d_bank.Loan(Loan_number int, Branch_name varchar(30), Amount int, PRIMARY KEY(Loan_number),foreign key(Branch_name) references branch(Branch_name));

STRUCTURE OF THE TABLE

desc branch;

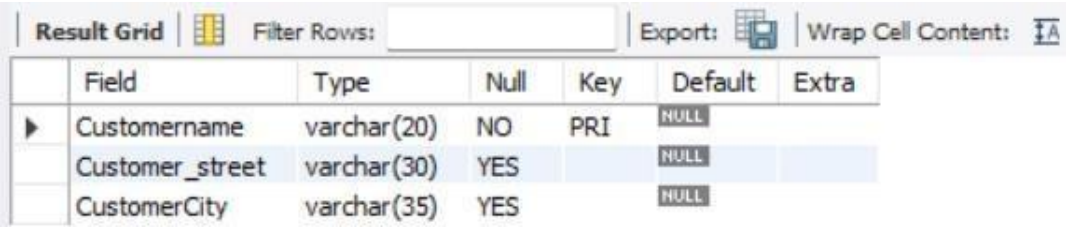


Field	Type	Null	Key	Default	Extra
Branch_name	varchar(30)	NO	PRI	NULL	
Branch_city	varchar(25)	YES		NULL	
assets	int	YES		NULL	

desc BankAccount;

Field	Type	Null	Key	Default	Extra
Accno	int	NO	PRI	NULL	
Branch_name	varchar(30)	YES	MUL	NULL	
Balance	int	YES		NULL	

desc BankCustomer;

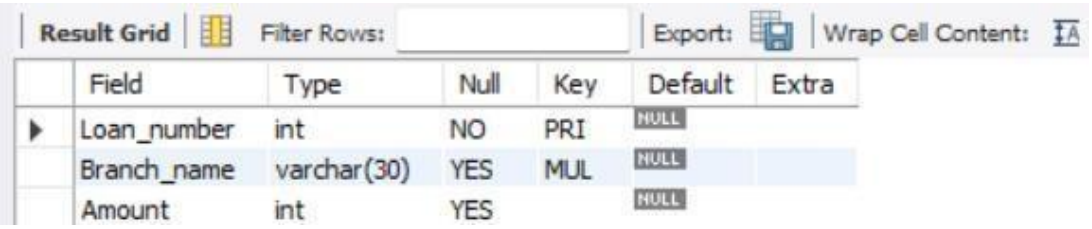


Field	Type	Null	Key	Default	Extra
Customername	varchar(20)	NO	PRI	NULL	
Customer_street	varchar(30)	YES		NULL	
CustomerCity	varchar(35)	YES		NULL	

desc Depositer;

Field	Type	Null	Key	Default	Extra
Customername	varchar(20)	NO	PRI	NULL	
Accno	int	NO	PRI	NULL	

desc Loan;



Field	Type	Null	Key	Default	Extra
Loan_number	int	NO	PRI	NULL	
Branch_name	varchar(30)	YES	MUL	NULL	
Amount	int	YES		NULL	

INSERTING VALUES TO THE TABLE

insert into branch values("HDFC_MGRoad", "Bangalore", 10000);

insert into branch values("HDFC_Jaynagar", "Bangalore", 50000);

insert into branch values("HDFC_Indiranagar", "Bangalore", 40000);

insert into branch values("HDFC_Andheri", "Mumbai", 30000); insert

into branch values("HDFC_Tnagar", "Chennai", 80000); select *

from branch;

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

Branch_name	Branch_city	assets
HDFC_Andheri	Mumbai	30000
HDFC_Indiranagar	Bangalore	40000
HDFC_Jaynagar	Bangalore	50000
HDFC_MGRoad	Bangalore	10000
HDFC_Tnagar	Chennai	80000
NULL	NULL	NULL

insert into BankAccount values(1, "HDFC_MGRoad", 1500); insert into BankAccount values(2, "HDFC_Indiranagar", 10500); insert into BankAccount values(3, "HDFC_Jaynagar", 2500); insert into BankAccount values(4, "HDFC_MGRoad", 3500); insert into BankAccount values(5, "HDFC_Andheri", 4500); insert into BankAccount values(6, "HDFC_Tnagar", 5500); insert into BankAccount values(7, "HDFC_Andheri", 6500); insert into BankAccount values(8, "HDFC_Jaynagar", 7500); insert into

BankAccount values(9, "HDFC_Tnagar", 8500); insert into

BankAccount values(10, "HDFC_Indiranagar", 9500); select

* from BankAccount;

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

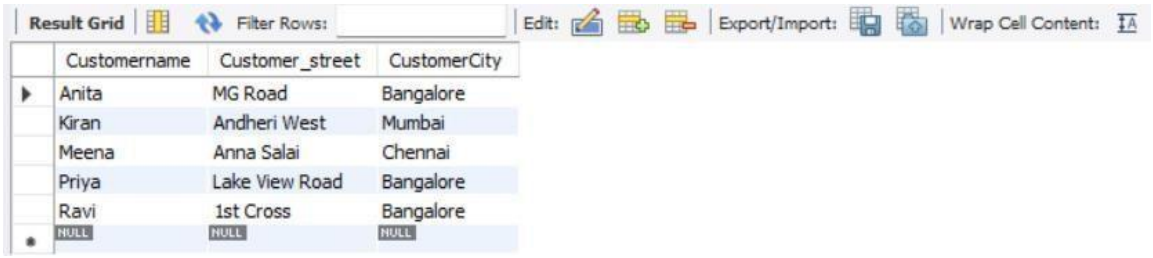
Accno	Branch_name	Balance
1	HDFC_MGRoad	1500
2	HDFC_Indiranagar	10500
3	HDFC_Jaynagar	2500
4	HDFC_MGRoad	3500
5	HDFC_Andheri	4500
6	HDFC_Tnagar	5500
7	HDFC_Andheri	6500
8	HDFC_Jaynagar	7500
9	HDFC_Tnagar	8500
10	HDFC_Indiranagar	9500
NULL	NULL	NULL

insert into BankCustomer values("Ravi", "1st Cross", "Bangalore"); insert into BankCustomer values("Priya", "Lake View Road", "Bangalore"); insert into BankCustomer values("Kiran", "Andheri West", "Mumbai"); insert into

BankCustomer values("Meena", "Anna Salai", "Chennai"); insert into

BankCustomer values("Anita", "MG Road", "Bangalore"); select *

from BankCustomer;



Customername	Customer_street	CustomerCity
Anita	MG Road	Bangalore
Kiran	Andheri West	Mumbai
Meena	Anna Salai	Chennai
Priya	Lake View Road	Bangalore
Ravi	1st Cross	Bangalore
NULL	NULL	NULL

insert into Depositer values("Ravi", 1); insert into Depositer values("Priya", 2); insert into Depositer values("Kiran", 3); insert into

Depositer values("Ravi", 4); insert into

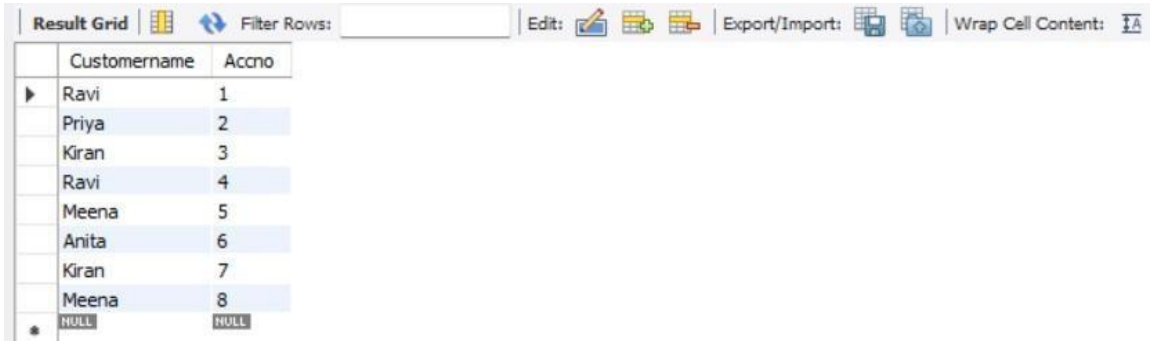
Depositer values("Meena", 5); insert into

Depositer values("Anita", 6); insert into

Depositer values("Kiran", 7); insert into

Depositer values("Meena", 8); select *

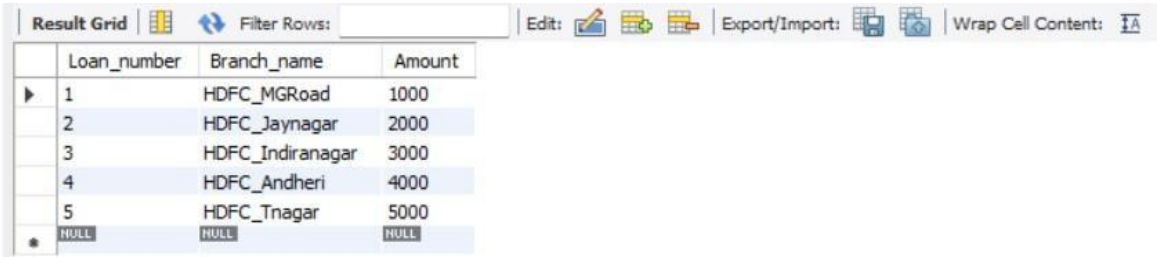
from Depositer;



Customername	Accno
Ravi	1
Priya	2
Kiran	3
Ravi	4
Meena	5
Anita	6
Kiran	7
Meena	8
NULL	NULL

insert into Loan values(1, "HDFC_MGRoad", 1000); insert into Loan values(2, "HDFC_Jaynagar", 2000); insert into Loan values(3, "HDFC_Indiranagar", 3000); insert into Loan values(4, "HDFC_Andheri", 4000); insert into Loan values(5, "HDFC_Tnagar", 5000); select

* from Loan;

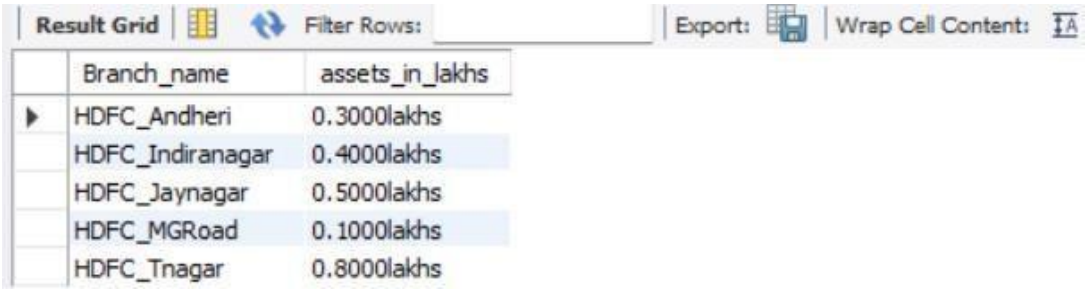


Loan_number	Branch_name	Amount
1	HDFC_MGRoad	1000
2	HDFC_Jaynagar	2000
3	HDFC_Indiranagar	3000
4	HDFC_Andheri	4000
5	HDFC_Tnagar	5000
NULL	NULL	NULL

QUERIES

- Display the branch name and assets from all branches in lakhs of rupees and rename the assets column to 'assets in lakhs'.

select Branch_name, CONCAT(assets/100000,"lakhs")assets_in_lakhs from branch;



Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Branch_name	assets_in_lakhs
HDFC_Andheri	0.3000lakhs
HDFC_Indiranagar	0.4000lakhs
HDFC_Jaynagar	0.5000lakhs
HDFC_MGRoad	0.1000lakhs
HDFC_Tnagar	0.8000lakhs

- Find all the customers who have at least two accounts at the same branch (ex. SBI_ResidencyRoad).

select d.Customername from Depositer d, BankAccount b where b.Branch_name="HDFC_MGRoad" and d.Accno=b.Accno group by d.Customername having count(d.Accno)>=2;

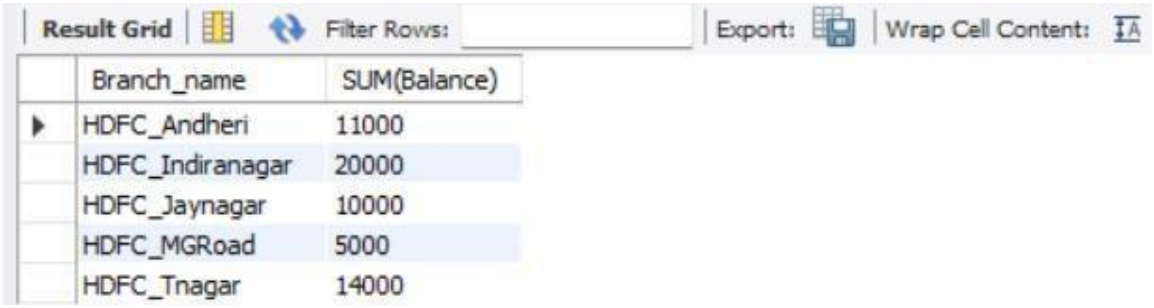
Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Customername
Ravi

- CREATE A VIEW WHICH GIVES EACH BRANCH THE SUM OF THE AMOUNT OF ALL THE LOANS AT THE BRANCH.

create view sum_of_loan as select Branch_name, SUM(Balance) from BankAccount group by Branch_name;

select * from sum_of_loan;



Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Branch_name	SUM(Balance)
HDFC_Andheri	11000
HDFC_Indiranagar	20000
HDFC_Jaynagar	10000
HDFC_MGRoad	5000
HDFC_Tnagar	14000

More Queries On Bank Database
QUESTION(WEEK 4)

Branch (branch-name: String, branch-city: String, assets: real)

BankAccount(accno: int, branch-name: String, balance: real)

BankCustomer (customer-name: String, customer-street: String, customer-city: String)

Depositer(customer-name: String, accno: int)

LOAN (loan-number: int, branch-name: String, amount: real)

- Find all the customers who have an account at all the branches located in a specific city (Ex. Delhi).

- Find all customers who have a loan at the bank but do not have an account.

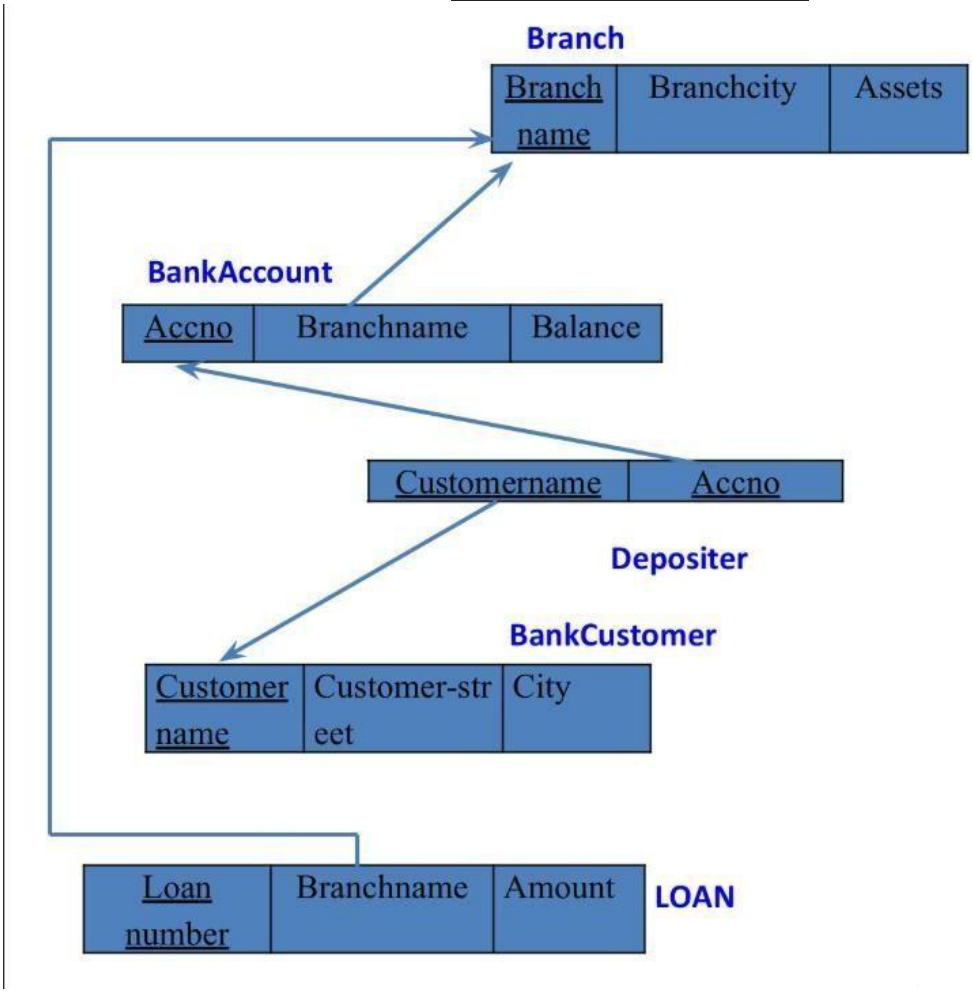
- Find all customers who have both an account and a loan at the Bangalore branch

- Find the names of all branches that have greater assets than all branches located in Bangalore.

- Demonstrate how you delete all account tuples at every branch located in a specific city (Ex. Bombay).

- Update the Balance of all accounts by 5%

SCHEMA DIAGRAM



QUERIES

- Find all the customers who have an account at all the branches located in a specific city (Ex. Delhi).

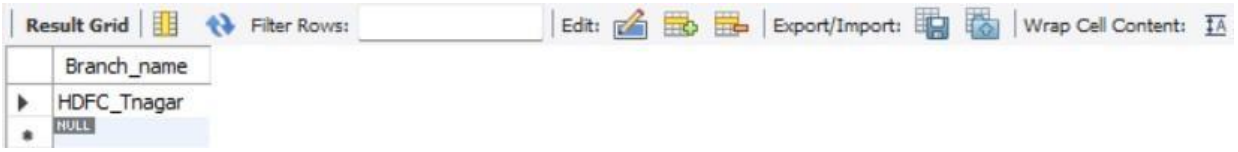
```
select c.Customername from BankCustomer c join Depositer d on
c.Customername=d.Customername join BankAccount b on d.Accno=b.Accno join branch br on
b.Branch_name=br.Branch_name where br.Branch_city='Bangalore' group by d.Customername
having count(Distinct br.Branch_name);
```

- Find all customers who have a loan at the bank but do not have an account. select distinct l.Loan_number, l.Branch_name from Loan l left join BankAccount b on l.Branch_name = b.Branch_name where b.Accno is NULL;

- Find all customers who have both an account and a loan at the Bangalore branch select distinct c.Customername from BankCustomer c join Depositer d on c.Customername=d.Customername join BankAccount b on d.Accno=b.Accno join branch br on b.Branch_name=br.Branch_name join Loan l on l.Branch_name=br.Branch_name where br.Branch_city='Bangalore';

- Find the names of all branches that have greater assets than all branches located in Bangalore.

select Branch_name from branch where assets > ALL(Select assets from branch where Branch_city='Bangalore');

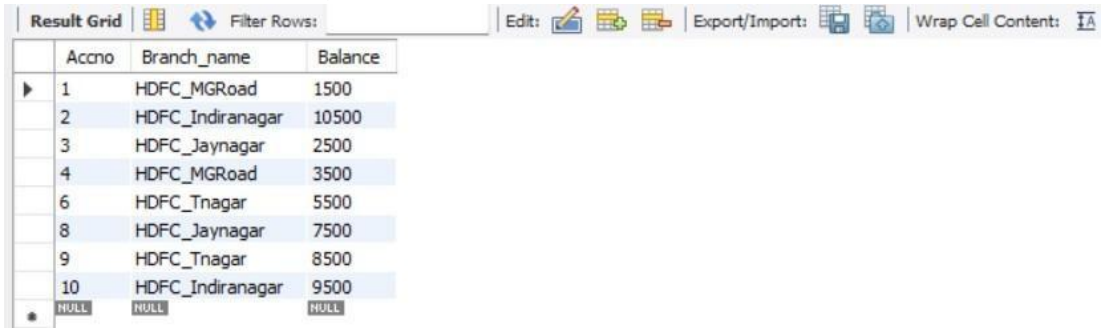


- Demonstrate how you delete all account tuples at every branch located in a specific city (Ex. Bombay).

ALTER TABLE Depositer DROP FOREIGN KEY depositer_ibfk_1; alter table depositer ADD CONSTRAINT depositer_ibfk_1 FOREIGN KEY (Accno) REFERENCES BankAccount(Accno) ON DELETE CASCADE;

delete from BankAccount where Branch_name in (Select Branch_name from branch where Branch_city='Mumbai');

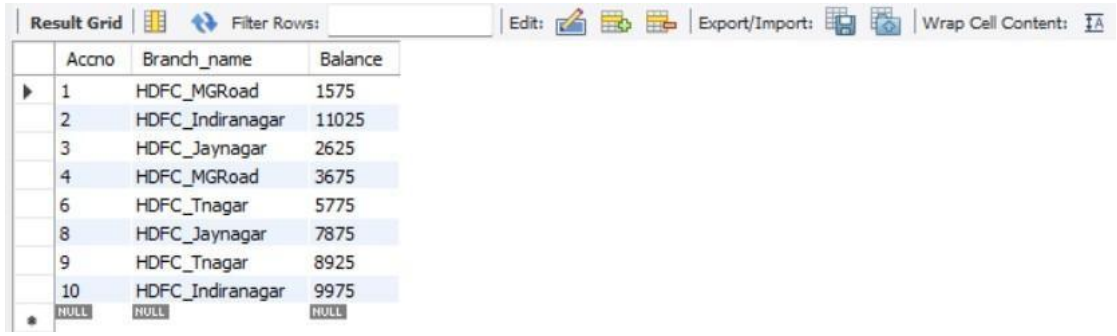
select * from BankAccount;



Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

Accno	Branch_name	Balance
1	HDFC_MGRoad	1500
2	HDFC_Indiranagar	10500
3	HDFC_Jaynagar	2500
4	HDFC_MGRoad	3500
6	HDFC_Tnagar	5500
8	HDFC_Jaynagar	7500
9	HDFC_Tnagar	8500
10	HDFC_Indiranagar	9500
NULL	NULL	NULL

- Update the Balance of all accounts by 5% update BankAccount set Balance = Balance*1.05 where Accno>0; select * from BankAccount;

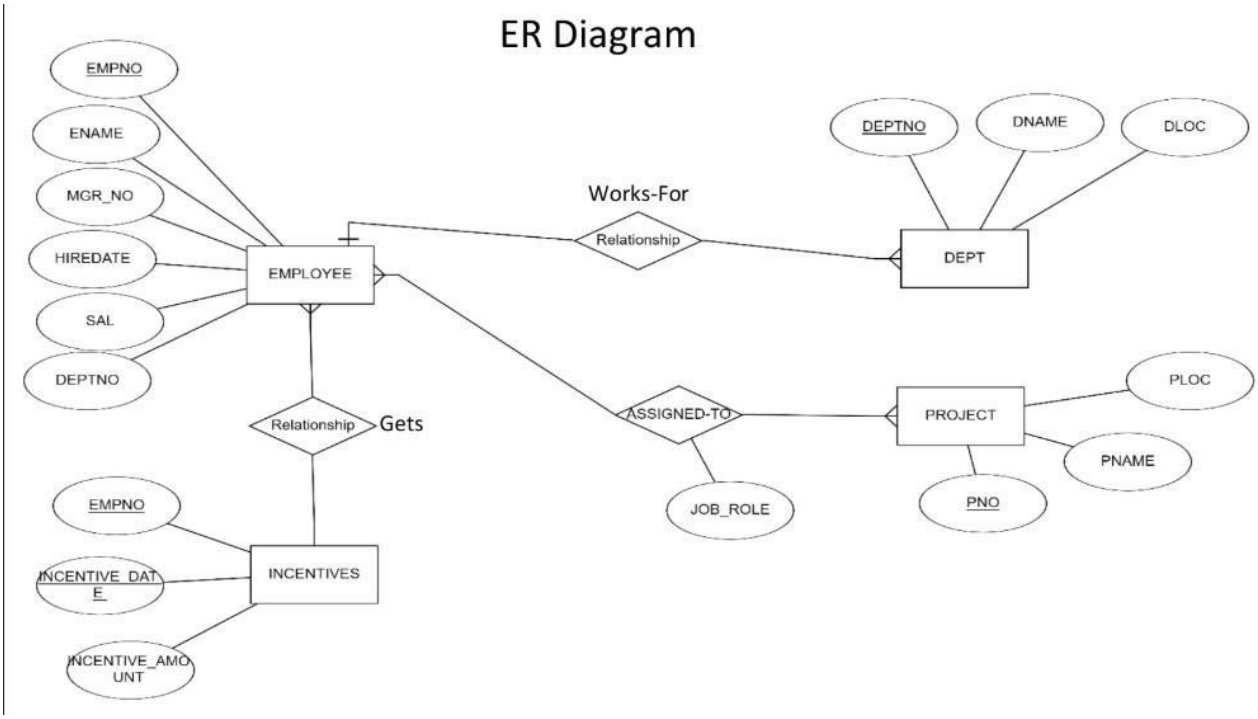


Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

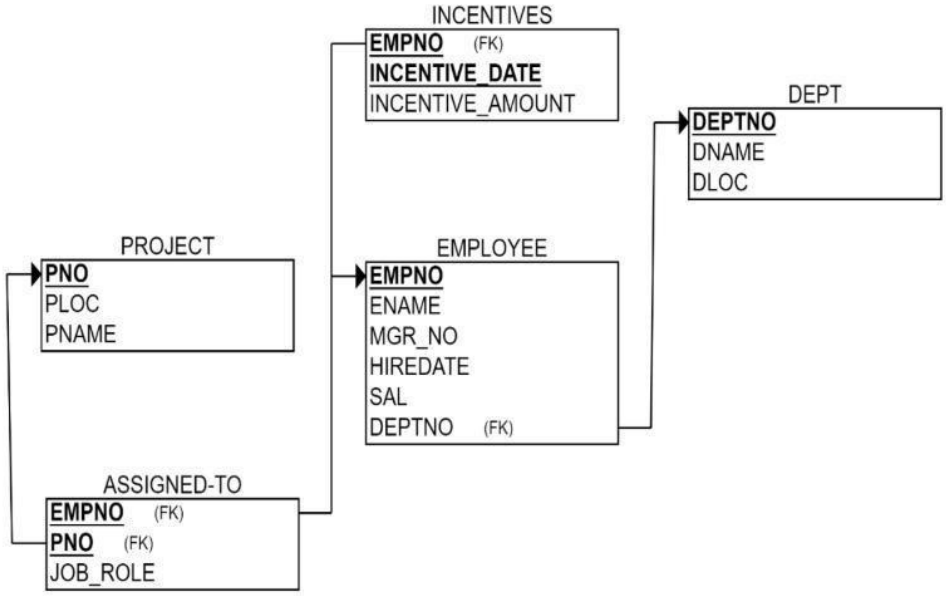
Accno	Branch_name	Balance
1	HDFC_MGRoad	1575
2	HDFC_Indiranagar	11025
3	HDFC_Jaynagar	2625
4	HDFC_MGRoad	3675
6	HDFC_Tnagar	5775
8	HDFC_Jaynagar	7875
9	HDFC_Tnagar	8925
10	HDFC_Indiranagar	9975
NULL	NULL	NULL

EMPLOYEE DATABASE QUESTION(WEEK 5)

ER Diagram



Schema Diagram



1. **Create the above tables by properly specifying the primary keys and the foreign keys.**
2. **Enter at least five tuples for each relation.**
3. **Retrieve the employee numbers of all employees who work on project located in Bengaluru, Hyderabad, or Mysuru**
4. **Get Employee ID's of those employees who didn't receive incentives 5. Write a SQL query to find the employees name, number, dept, job_role, department location and project location who are working for a project location same as his/her department location.**

CREATE DATABASE

```
create database emp; show databases;
use emp;
```

CREATE TABLE

```
create table dept(deptno decimal(2,0) primary key, dname varchar(14) default null, loc varchar(13) default null);

create table emp(empno decimal(4,0) primary key, ename varchar(10) default null, mgr_no decimal(4,0) default null, hiredate date default null, sal decimal(7,2) default null, deptno decimal(2,0) references dept(deptno) on delete cascade on update cascade);

create table incentives(empno decimal(4,0) references emp(empno) on delete cascade on update cascade, incentive_date date, incentive_amount decimal(10,2), primary key(empno, incentive_date));

create table project(pno int primary key, pname varchar(30) not null, ploc varchar(30));

create table assigned_to(empno decimal(4,0) references emp(empno) on delete cascade on update cascade, pno int references project(pno) on delete cascade on update cascade, job_role varchar(30), primary key(empno, pno));
```

STRUCTURE OF THE TABLE

desc dept;

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Field	Type	Null	Key	Default	Extra
deptno	decimal(2,0)	NO	PRI	NULL	
dname	varchar(14)	YES		NULL	
loc	varchar(13)	YES		NULL	

desc emp;

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Field	Type	Null	Key	Default	Extra
empno	decimal(4,0)	NO	PRI	NULL	
ename	varchar(10)	YES		NULL	
mgr_no	decimal(4,0)	YES		NULL	
hiredate	date	YES		NULL	
sal	decimal(7,2)	YES		NULL	
deptno	decimal(2,0)	YES		NULL	

desc incentives;

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Field	Type	Null	Key	Default	Extra
empno	decimal(4,0)	NO	PRI	NULL	
incentive_date	date	NO	PRI	NULL	
incentive_amount	decimal(10,2)	YES		NULL	

desc project;

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Field	Type	Null	Key	Default	Extra
pno	int	NO	PRI	NULL	
pname	varchar(30)	NO		NULL	
ploc	varchar(30)	YES		NULL	

desc assigned_to;

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Field	Type	Null	Key	Default	Extra
empno	decimal(4,0)	NO	PRI	NULL	
pno	int	NO	PRI	NULL	
job_role	varchar(30)	YES		NULL	

INSERTING VALUES TO THE TABLE

```
INSERT INTO dept VALUES (10,'CSE', 'MUMBAI');
INSERT INTO dept VALUES (20, 'ISE', 'BENGALURU');
INSERT INTO dept VALUES (30, 'AI ML', 'DELHI');
INSERT INTO dept VALUES (40,'CIVIL', 'CHENNAI');
INSERT INTO dept VALUES (50, 'RESEARCH', 'ASSAM');
SELECT * FROM dept;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

deptno	dname	loc
10	CSE	MUMBAI
20	ISE	BENGALURU
30	AI ML	DELHI
40	CIVIL	CHENNAI
50	RESEARCH	ASSAM
NULL	NULL	NULL

```
INSERT INTO emp VALUES (1000,'ADI', 1009,'2012-12-17',50000.00,20);
INSERT INTO emp VALUES (1001,'ARUN',1005,'2013-02-20',15000.00,30);
INSERT INTO emp VALUES (1002,'BHOOMI',1005,'2015-02-22',12500.00,30);
INSERT INTO emp VALUES (1003,'GOVIND',1008,'2008-04-02',22500.00,20);
INSERT INTO emp VALUES (1004,'RAM',1005,'2014-09-28',12500.00,30);
INSERT INTO emp VALUES (1005,'HEMANTH',1008,'2015-05-01',28500.00,30);
INSERT INTO emp VALUES (1006,'ADAM',1008,'2017-06-09',24500.00,10);
INSERT INTO emp VALUES (1007,'EVE',1003,'2010-12-09',30000.00,20);
INSERT INTO emp VALUES (1008,'GAGAN',NULL,'2009-11-17',50000.00,10);
INSERT INTO emp VALUES (1009,'HARSHA',1005,'2017-12-03',9500.00,30);
SELECT * FROM EMP;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

empno	ename	mgr_no	hiredate	sal	deptno
1000	ADI	1009	2012-12-17	50000.00	20
1001	ARUN	1005	2013-02-20	15000.00	30
1002	BHOOMI	1005	2015-02-22	12500.00	30
1003	GOVIND	1008	2008-04-02	22500.00	20
1004	RAM	1005	2014-09-28	12500.00	30
1005	HEMANTH	1008	2015-05-01	28500.00	30
1006	ADAM	1008	2017-06-09	24500.00	10
1007	EVE	1003	2017-06-09	30000.00	20
1008	GAGAN	NULL	2009-11-17	50000.00	10
1009	HARSHA	1005	2017-12-03	9500.00	30
NULL	NULL	NULL	NULL	NULL	NULL

INSERT INTO incentives VALUES(1001,'2019-02-01',5000.00);

INSERT INTO incentives VALUES(1002,'2019-03-01',2500.00);

INSERT INTO incentives VALUES(1003,'2022-02-01',5070.00);

INSERT INTO incentives VALUES(1004,'2020-02-01',2000.00); INSERT

INTO incentives VALUES(1004,'2022-04-01',879.00);

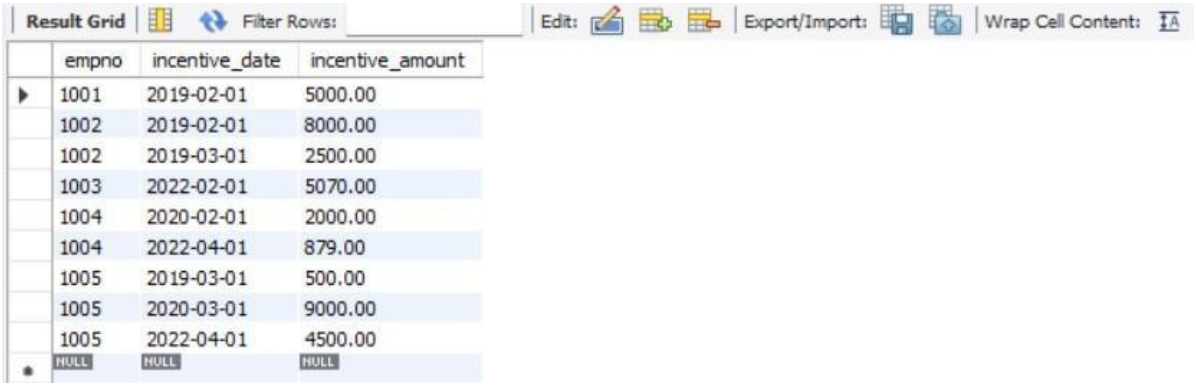
INSERT INTO incentives VALUES(1002,'2019-02-01',8000.00); INSERT

INTO incentives VALUES(1005,'2019-03-01',500.00);

INSERT INTO incentives VALUES(1005,'2020-03-01',9000.00); INSERT INTO

incentives VALUES(1005,'2022-04-01',4500.00);

select * from incentives;


Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

empno	incentive_date	incentive_amount
1001	2019-02-01	5000.00
1002	2019-02-01	8000.00
1002	2019-03-01	2500.00
1003	2022-02-01	5070.00
1004	2020-02-01	2000.00
1004	2022-04-01	879.00
1005	2019-03-01	500.00
1005	2020-03-01	9000.00
1005	2022-04-01	4500.00
NULL	NULL	NULL

INSERT INTO project VALUES(101,'CSE Project','BENGALURU');

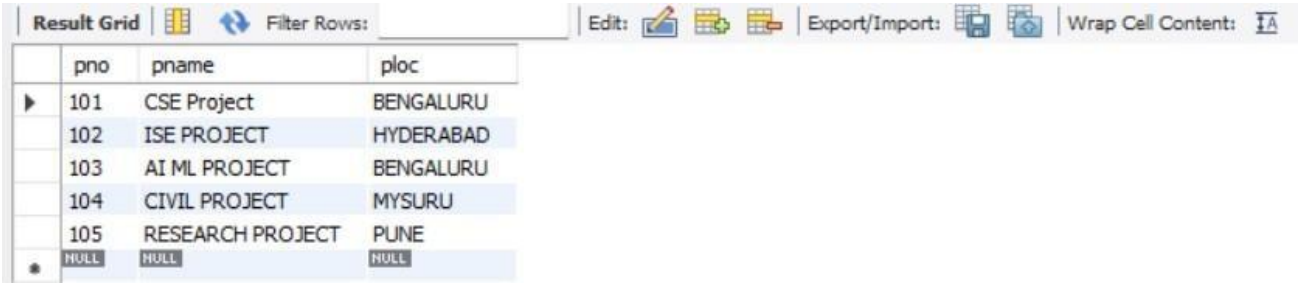
INSERT INTO project VALUES(102,'ISE PROJECT','HYDERABAD');

INSERT INTO project VALUES(103,'AI ML PROJECT','BENGALURU');

INSERT INTO project VALUES(104,'CIVIL PROJECT','MYSURU');

INSERT INTO project VALUES(105,'RESEARCH PROJECT','PUNE');

SELECT * FROM PROJECT;


Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

pno	pname	ploc
101	CSE Project	BENGALURU
102	ISE PROJECT	HYDERABAD
103	AI ML PROJECT	BENGALURU
104	CIVIL PROJECT	MYSURU
105	RESEARCH PROJECT	PUNE
NULL	NULL	NULL

INSERT INTO assigned_to VALUES(1001,101,'oftware Engineer');

INSERT INTO assigned_to VALUES(1002,101,'Software Architect');

INSERT INTO assigned_to VALUES(1003,101,'Project Manager');

INSERT INTO assigned_to VALUES(1004,102,'Sales');

INSERT INTO assigned_to VALUES(1002,102,'Software Engineer');

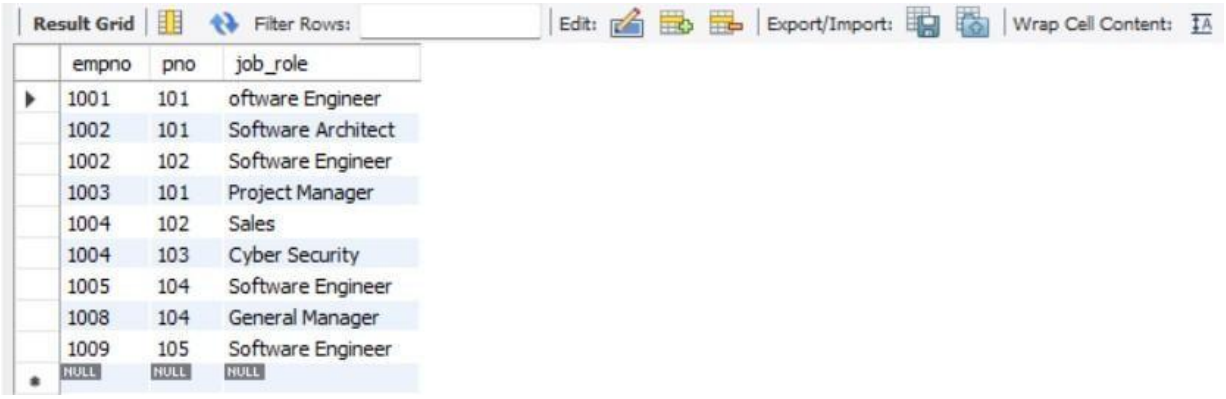
INSERT INTO assigned_to VALUES(1004,103,'Cyber Security');

INSERT INTO assigned_to VALUES(1005,104,'Software Engineer');

INSERT INTO assigned_to VALUES(1009,105,'Software Engineer');

INSERT INTO assigned_to VALUES(1008,104,'General Manager');

SELECT * FROM ASSIGNED_TO;



empno	pno	job_role
1001	101	oftware Engineer
1002	101	Software Architect
1002	102	Software Engineer
1003	101	Project Manager
1004	102	Sales
1004	103	Cyber Security
1005	104	Software Engineer
1008	104	General Manager
1009	105	Software Engineer
NULL	NULL	NULL

QUERIES

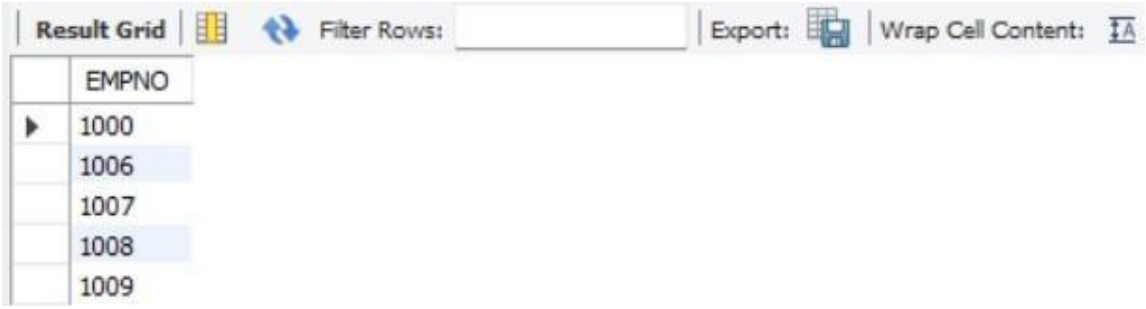
- Retrieve the employee numbers of all employees who work on project located in Bengaluru, Hyderabad, or Mysuru

select e.empno from emp e, assigned_to a, project p where e.empno=a.empno and a.pno=p.pno and p.ploc in ('Bengaluru','Hyderabad','Mysuru');

empno
1001
1002
1002
1003
1004
1004
1005
1008

- Get Employee ID's of those employees who didn't receive incentives

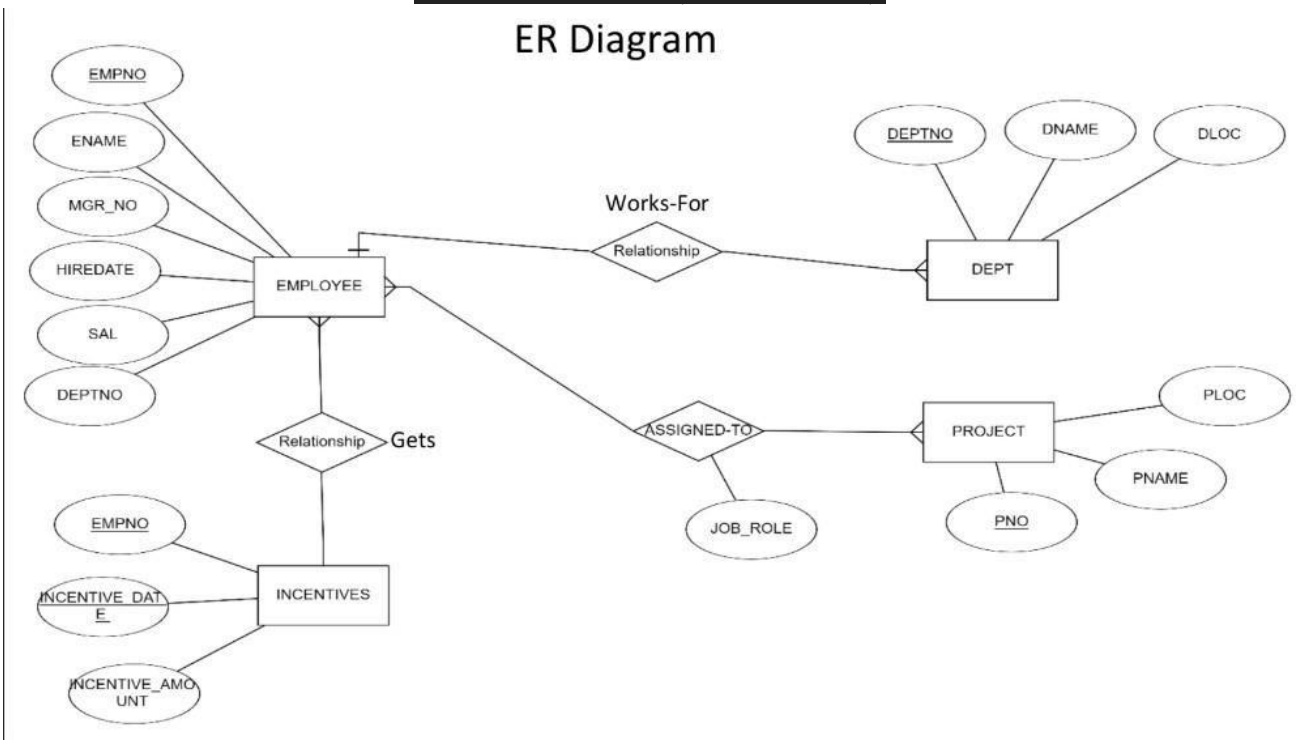
select empno from emp where empno not in (select empno from incentives);

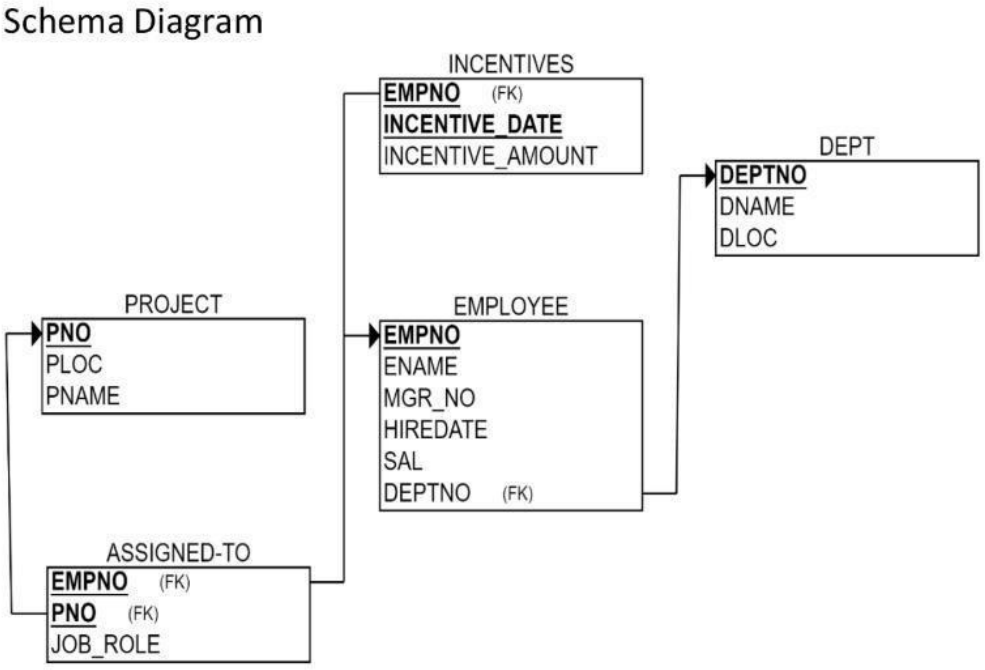


- Write a SQL query to find the employees name, number, dept, job_role, department location and project location who are working for a project location same as his/her department location.

select e.empno, e.ename, d.dname, d.loc, a.job_role, p.ploc from emp e, dept d, assigned_to a,project p where e.deptno=d.deptno and e.empno=a.empno and a.pno=p.pno and d.loc=p.ploc;

MORE QUERIES ON EMPLOYEE DATABASE QUESTION(WEEK 6)





1. List the name of the managers with the most employees

2. Display those managers name whose salary is more than average salary of his employee?
3. SQL Query to find the name of the top level manager of each department.
4. SQL Query to find the employee details who got second maximum incentive in Febrauary 2019.
5. Display those employees who are working in the same dept where his manager is work. ?
6. Write a SQL query to find those employees whose net pay are higher than or equal to the salary of any other employee in the company

QUERIES

- List the name of the managers with the most employees

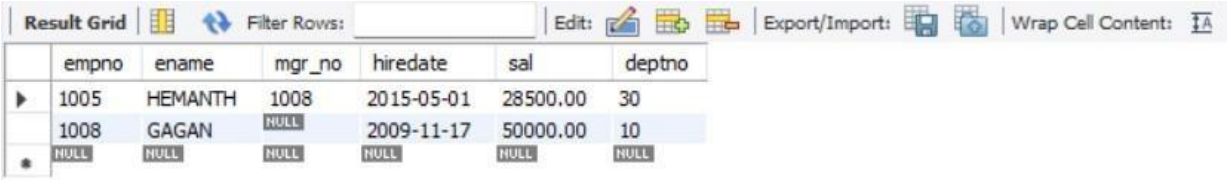
select m.ename, count(*) from emp e, emp m where e.mgr_no=m.empno group by m.ename having count(*) = (Select max(mycount) from (select count(*) mycount from emp group by mgr_no) a);


Result Grid | Filter Rows: | Export: | Wrap Cell Content:

ename	count(*)
HEMANTH	4

- Display those managers name whose salary is more than average salary of his employee?

select * from emp m where m.empno in (select mgr_no from emp) and m.sal>(select avg(e.sal) from emp e where e.mgr_no=m.empno);


Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

empno	ename	mgr_no	hiredate	sal	deptno
1005	HEMANTH	1008	2015-05-01	28500.00	30
1008	GAGAN	NULL	2009-11-17	50000.00	10
NULL	NULL	NULL	NULL	NULL	NULL

- SQL Query to find the name of the top level manager of each department.

select distinct m.mgr_no from emp e, emp m where e.mgr_no=m.mgr_no and e.deptno=m.deptno and e.empno in (select distinct m.mgr_no from emp e, emp m where e.mgr_no=m.mgr_no and e.deptno=m.deptno);

mgr_no
1005
1008

- SQL Query to find the employee details who got second maximum incentive in Febrauary 2019

select * from emp e, incentives i where e.empno=i.empno and 2=(select count(*) from incentives j where i.incentive_amount<=j.incentive_amount);

empno	ename	mgr_no	hiredate	sal	deptno	empno	incentive_date	incentive_amount
1002	BHOOMI	1005	2015-02-22	12500.00	30	1002	2019-02-01	8000.00

- Display those employees who are working in the same dept where his manager is work. ?

select * from emp e where e.deptno=(select e1.deptno from emp e1 where e1.empno=e.mgr_no);

empno	ename	mgr_no	hiredate	sal	deptno
1001	ARUN	1005	2013-02-20	15000.00	30
1002	BHOOMI	1005	2015-02-22	12500.00	30
1004	RAM	1005	2014-09-28	12500.00	30
1006	ADAM	1008	2017-06-09	24500.00	10
1007	EVE	1003	2010-12-09	30000.00	20
1009	HARSHA	1005	2017-12-03	9500.00	30
NULL	NULL	NULL	NULL	NULL	NULL

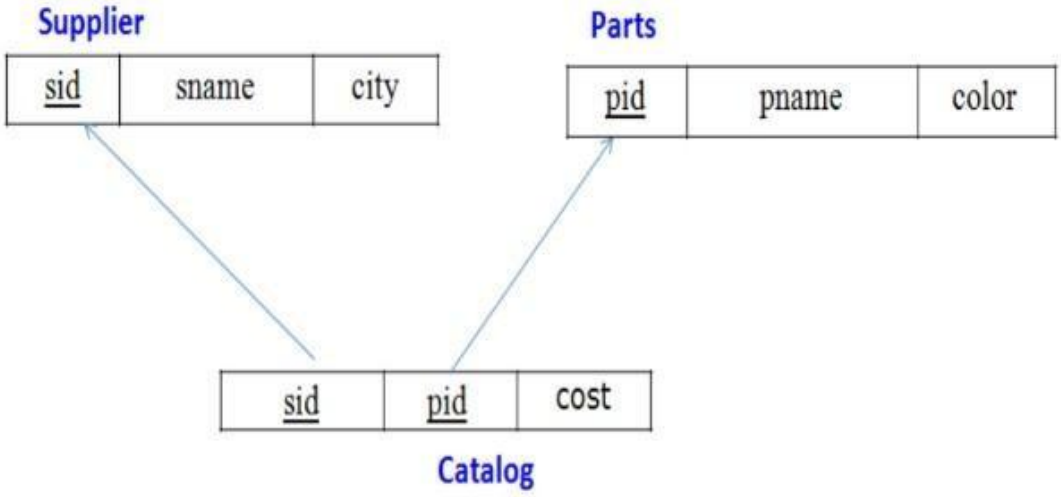
- Write a SQL query to find those employees whose net pay are higher than or equal to the salary of any other employee in the company

select distinct e.ename from emp e, incentives i where (select max(sal+incentive_amount) from emp,incentives)>=any(select sal from emp e1 where e.deptno=e1.deptno);

ename
ADI
ARUN
BHOOMI
GOVIND
RAM
HEMANTH
ADAM
EVE
GAGAN
HARSHA

SUPPLIER DATABASE QUESTION(WEEK 7)

Schema Diagram



1. Using Scheme diagram, Create tables by properly specifying the primary keys and the foreign keys.

2. Insert appropriate records in each table.

3. Find the pnames of parts for which there is some supplier.

4. Find the snames of suppliers who supply every part.

5. Find the snames of suppliers who supply every red part.

6. Find the pnames of parts supplied by Acme Widget Suppliers and by no one else.

7. Find the sids of suppliers who charge more for some part than the average cost of that part (averaged over all the suppliers who supply that part).

8. For each part, find the sname of the supplier who charges the most for that part.

CREATE DATABASE

create database sup;

use sup;

CREATE TABLE

create table Supplier(sid decimal(3,0) primary key, sname varchar(50), city varchar(50));

create table Parts(pid decimal(3,0) primary key, pname varchar(50), color varchar(20));

create table Catalog(sid decimal(3,0), pid decimal(3,0), cost decimal(2,0), primary key(sid, pid), foreign key(sid) references Supplier(sid), foreign key(pid) references Parts(pid));

STRUCTURE OF TABLE

desc Suppier;

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Field	Type	Null	Key	Default	Extra
sid	decimal(3,0)	NO	PRI	NULL	
sname	varchar(50)	YES		NULL	
city	varchar(50)	YES		NULL	

desc Parts;

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Field	Type	Null	Key	Default	Extra
pid	decimal(3,0)	NO	PRI	NULL	
pname	varchar(50)	YES		NULL	
color	varchar(20)	YES		NULL	

desc Catalog;

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

	Field	Type	Null	Key	Default	Extra
▶	sid	decimal(3,0)	NO	PRI	NULL	
	pid	decimal(3,0)	NO	PRI	NULL	
	cost	decimal(2,0)	YES		NULL	

INSERTING VALUES TO THE TABLE

INSERT INTO Supplier VALUES(101, 'Acme Widget', 'Bangalore');

INSERT INTO Supplier VALUES(102, 'Johns', 'Kolkata');

INSERT INTO Supplier VALUES(103, 'Vimal', 'Mumbai'); INSERT

INTO Supplier VALUES(104, 'Reliance', 'Delhi'); select * from

Supplier;

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

	sid	sname	city
▶	101	Acme Widget	Bangalore
	102	Johns	Kolkata
	103	Vimal	Mumbai
	104	Reliance	Delhi
*	NULL	NULL	NULL

INSERT INTO Parts VALUES(201, 'Book', 'Red');

INSERT INTO Parts VALUES(202, 'Pen', 'Red');

INSERT INTO Parts VALUES(203, 'Pencil', 'Green');

INSERT INTO Parts VALUES(204, 'Mobile', 'Green'); INSERT INTO

Parts VALUES(205, 'Charger', 'Black');

select * from Parts;

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

	pid	pname	color
▶	201	Book	Red
	202	Pen	Red
	203	Pencil	Green
	204	Mobile	Green
	205	Charger	Black
*	NULL	NULL	NULL

INSERT INTO Catalog VALUES(101, 201, 10);

INSERT INTO Catalog VALUES(101, 202, 10);

INSERT INTO Catalog VALUES(101, 203, 30);

INSERT INTO Catalog VALUES(101, 204, 10);

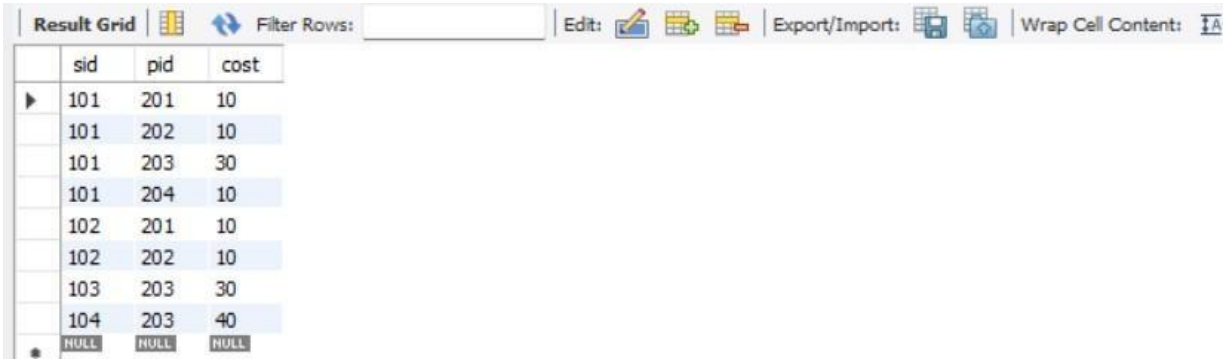
INSERT INTO Catalog VALUES(102, 201, 10);

INSERT INTO Catalog VALUES(102, 202, 10);

INSERT INTO Catalog VALUES(103, 203, 30); INSERT INTO

Catalog VALUES(104, 203, 40);

select * from Catalog;

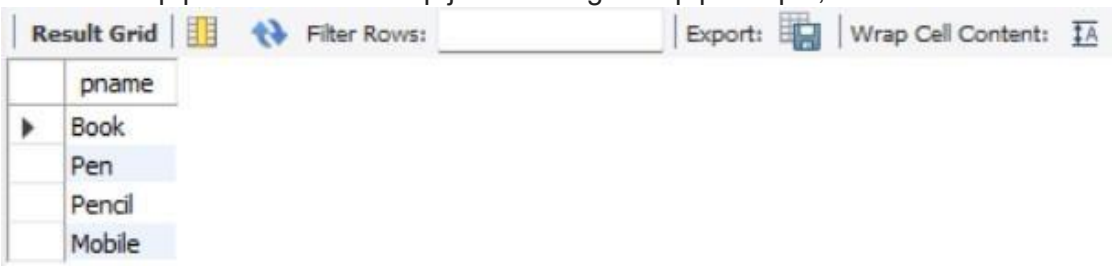


sid	pid	cost
101	201	10
101	202	10
101	203	30
101	204	10
102	201	10
102	202	10
103	203	30
104	203	40
NULL	NULL	NULL

QUERIES

- Find the pnames of parts for which there is some supplier.

select distinct p.pname from Parts p join Catalog c on p.pid=c.pid;



pname
Book
Pen
Pencil
Mobile

- Find the snames of suppliers who supply every part.

select s.sname from Supplier s join Catalog c on s.sid=c.sid group by s.sid, s.sname having count(distinct c.pid)=(select count(*) from Parts);

sname

- Find the snames of suppliers who supply every red part.

select s.sname from Supplier s join Catalog c on s.sid=c.sid join Parts p on p.pid=c.pid where

p.color='Red' group by s.sid, s.sname having count(distinct p.pid)=(select count(*) from Parts where color='Red');

- **Find the pnames of parts supplied by Acme Widget Suppliers and by no one else.**

select p.pname from Parts p join Catalog c on p.pid=c.pid join Supplier s on s.sid=c.sid group by p.pid, p.pname having count(distinct s.sid)=1 and max(s.sname)='Acme Widget';

- **Find the sids of suppliers who charge more for some part than the average cost of that part (averaged over all the suppliers who supply that part).**

select distinct c.sid from Catalog c where c.cost>(select avg(c1.cost) from Catalog c1 where c1.pid=c.pid);

- **For each part, find the sname of the supplier who charges the most for that part.** select p.pid, s.sname from Parts p, Supplier s, Catalog c where p.pid=c.pid and s.sid=c.sid and c.cost=(select max(cost) from Catalog where pid=p.pid);

pid	sname
201	Acme Widget
202	Acme Widget
204	Acme Widget
201	Johns
202	Johns
203	Reliance

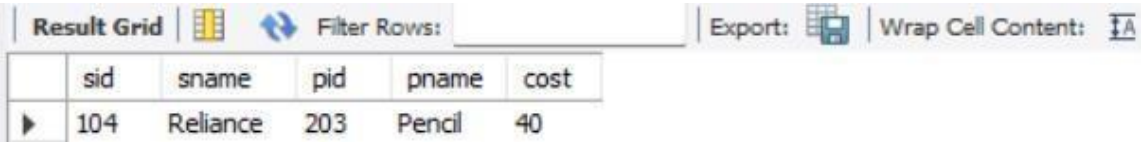
Extra queries on Supplier database

1. Find the most expensive part overall and the supplier who supplies it.
2. Find suppliers who do NOT supply any red parts.
3. Show each supplier and total value of all parts they supply.
4. Find suppliers who supply at least 2 parts cheaper than ₹20.
5. List suppliers who offer the cheapest cost for each part.
6. Create a view showing suppliers and the total number of parts they supply.
7. Create a view of the most expensive supplier for each part.
8. Create a Trigger to prevent inserting a Catalog cost below 1.
9. Create a trigger to set to default cost if not provided.

QUERIES

- Find the most expensive part overall and the supplier who supplies it.

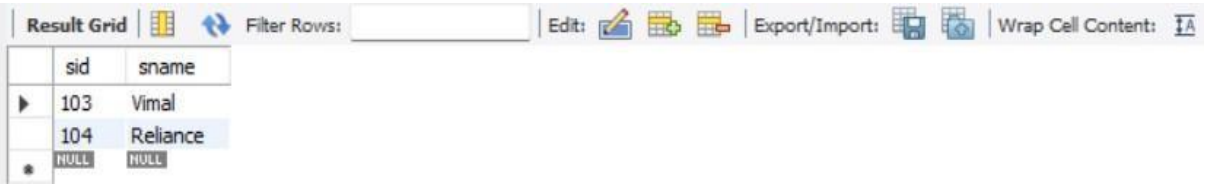
```
SELECT s.sid, s.sname, p.pid, p.pname, c.cost FROM Supplier s JOIN Catalog c ON s.sid = c.sid
JOIN Parts p ON p.pid = c.pid WHERE c.cost = (SELECT MAX(cost) FROM Catalog);
```



sid	sname	pid	pname	cost
104	Reliance	203	Pencil	40

- Find suppliers who do NOT supply any red parts.

SELECT s.sid, s.sname FROM Supplier s WHERE s.sid NOT IN (SELECT c.sid FROM Catalog c JOIN Parts p ON c.pid = p.pid WHERE p.color = 'Red');



sid	sname
103	Vimal
104	Reliance
NULL	NULL

- Show each supplier and total value of all parts they supply.

SELECT s.sid, s.sname, SUM(c.cost) AS total_value FROM Supplier s JOIN Catalog c ON s.sid = c.sid GROUP BY s.sid, s.sname;

sid	sname	total_value
101	Acme Widget	60
102	Johns	20
103	Vimal	30
104	Reliance	40

- Find suppliers who supply at least 2 parts cheaper than ₹20.

SELECT s.sid, s.sname FROM Supplier s JOIN Catalog c ON s.sid = c.sid WHERE c.cost < 20 GROUP BY s.sid, s.sname HAVING COUNT(*) >= 2;

sid	sname
101	Acme Widget
102	Johns

- List suppliers who offer the cheapest cost for each part.

SELECT c.sid, s.sname, c.pid, p.pname, c.cost FROM Catalog c JOIN Parts p ON c.pid = p.pid JOIN Supplier s ON c.sid = s.sid WHERE c.cost = (SELECT MIN(c2.cost) FROM Catalog c2 WHERE c2.pid = c.pid);

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

sid	sname	pid	pname	cost
101	Acme Widget	201	Book	10
101	Acme Widget	202	Pen	10
101	Acme Widget	203	Pencil	30
101	Acme Widget	204	Mobile	10
102	Johns	201	Book	10
102	Johns	202	Pen	10
103	Vimal	203	Pencil	30

- Create a view showing suppliers and the total number of parts they supply.

CREATE VIEW SupplierPartCount AS SELECT s.sid, s.sname, COUNT(c.pid) AS total_parts FROM Supplier s LEFT JOIN Catalog c ON s.sid = c.sid GROUP BY s.sid, s.sname; Select * from SupplierPartCount;

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

sid	sname	total_parts
101	Acme Widget	4
102	Johns	2
103	Vimal	1
104	Reliance	1

- Create a view of the most expensive supplier for each part.

CREATE VIEW MaxCostSupplier AS SELECT c.sid, s.sname, c.pid, p.pname, c.cost FROM Catalog c JOIN Supplier s ON c.sid = s.sid JOIN Parts p ON c.pid = p.pid WHERE c.cost = (SELECT MAX(c2.cost) FROM Catalog c2 WHERE c2.pid = c.pid); Select * from MaxCostSupplier;

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

sid	sname	pid	pname	cost
101	Acme Widget	201	Book	10
101	Acme Widget	202	Pen	10
101	Acme Widget	204	Mobile	10
102	Johns	201	Book	10
102	Johns	202	Pen	10
104	Reliance	203	Pencil	40

- Create a Trigger to prevent inserting a Catalog cost below 1.

DELIMITER $$

```
CREATE TRIGGER CheckCostBeforeInsert
BEFORE INSERT ON Catalog
FOR EACH ROW
BEGIN
   IF NEW.cost < 1 THEN
      SIGNAL SQLSTATE '45000'
      SET MESSAGE_TEXT = 'Cost cannot be less than 1';
   END IF;
END $$
DELIMITER ;
```

- Create a trigger to set to default cost if not provided.

```
DELIMITER $$
CREATE TRIGGER DefaultCost
BEFORE INSERT ON Catalog
FOR EACH ROW
BEGIN
   IF NEW.cost IS NULL THEN
      SET NEW.cost = 10;
   END IF;
END $$
DELIMITER ;
```

NoSQL STUDENT DATABASE QUESTION(WEEK 8)

Perform the following DB operations using MongoDB.

i. Create a database “Student” with the following attributes Rollno, Age, ContactNo, EmailId. ii. Insert appropriate values iii. Write query to update Email-Id of a student with rollno 10. iv. Replace the student name from “ABC” to “FEM” of rollno 11. v. Export the created table into local file system vi. Drop the table.

vii. Import a given csv dataset from local file system into mongodb collection.

QUERIES

- Create a database “Student” with the following attributes Rollno, Age, ContactNo, EmailId.

use student

```
test> use student
switched to db student
```

- Insert appropriate values

```
db.students.insertMany([
  { Rollno: 1, Age: 20, ContactNo: "9876543211", EmailId: "s1@gmail.com", Name: "AAA" },
  { Rollno: 2, Age: 21, ContactNo: "9876543212", EmailId: "s2@gmail.com", Name: "BBB" },
  { Rollno: 3, Age: 22, ContactNo: "9876543213", EmailId: "s3@gmail.com", Name: "CCC" },
  { Rollno: 10, Age: 20, ContactNo: "9876543214", EmailId: "old10@gmail.com", Name: "DDD" },
  { Rollno: 11, Age: 21, ContactNo: "9876543215", EmailId: "abc@gmail.com", Name: "ABC" }
])
```

```
{
  acknowledged: true,
  insertedIds: {
    '0': ObjectId('693ee5a338276760d51e2621'),
    '1': ObjectId('693ee5a338276760d51e2622'),
    '2': ObjectId('693ee5a338276760d51e2623'),
    '3': ObjectId('693ee5a338276760d51e2624'),
    '4': ObjectId('693ee5a338276760d51e2625')
  }
}
```

- Write query to update Email-Id of a student with rollno 10

```
db.students.updateOne({ Rollno: 10 }, { $set: { EmailId: "new10@gmail.com" } })
```

```
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
```

- Replace the student name from “ABC” to “FEM” of rollno 11

db.students.updateOne({ Rollno: 11 }, { $set: { Name: "FEM" } })

```
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
```

- Export the created table into local file system

exit

mongoexport --db student --collection students --out students.json

```
2025-12-14T23:54:57.237+0530    connected to: mongodb://localhost/
2025-12-14T23:54:57.239+0530    exported 5 records
```

- Drop the table

mongosh use

student

db.students.drop(

)

```
...
true
```

- Import a given csv dataset from local file system into mongodb collection.

exit

mongoimport --db student --collection students --type csv --headerline --file students.csv

```
2025-12-15T00:01:41.016+0530    connected to: mongodb://localhost/
2025-12-15T00:01:41.032+0530    5 document(s) imported successfully. 0 document(s) failed to import.
```

NoSQL CUSTOMER DATABASE QUESTION(WEEK 9)

Perform the following DB operations using MongoDB.

i. Create a collection by name Customers with the following attributes. Cust_id, Acc_Bal, Acc_Type ii. Insert at least 5 values into the table.

iii. Write a query to display those records whose total account balance is greater than 1200 of account type ‘Z’ for each customer_id.

iv. Determine Minimum and Maximum account balance for each customer_id.

v. Export the created collection into local file system.

vi. Drop the table.

vii. Import a given csv dataset from local file system into mongodb collection.

QUERIES

- Create a collection by name Customers with the following attributes. Cust_id, Acc_Bal, Acc_Type

use Bank

```
...
switched to db Bank
```

- Insert at least 5 values into the table.

db.Customers.insertMany([

{ Cust_id: 1, Acc_Bal: 500, Acc_Type: "Z" },

{ Cust_id: 1, Acc_Bal: 800, Acc_Type: "Z" },
{ Cust_id: 2, Acc_Bal: 1500, Acc_Type: "Z" },

{ Cust_id: 3, Acc_Bal: 400, Acc_Type: "A" },

{ Cust_id: 4, Acc_Bal: 2000, Acc_Type: "Z" }

])

```
{
  acknowledged: true,
  insertedIds: {
    '0': ObjectId('693f03b6dc08fb76311e2621'),
    '1': ObjectId('693f03b6dc08fb76311e2622'),
    '2': ObjectId('693f03b6dc08fb76311e2623'),
    '3': ObjectId('693f03b6dc08fb76311e2624'),
    '4': ObjectId('693f03b6dc08fb76311e2625')
  }
}
```

- Write a query to display those records whose total account balance is greater than 1200 of account type ‘Z’ for each customer_id

db.Customers.aggregate([{ $match: { Acc_Type: "Z" } }, { $group: { _id: "$Cust_id", TotalBalance: { $sum: "$Acc_Bal" }}}, { $match: { TotalBalance: { $gt: 1200 } } }])

```
[
  { _id: 4, TotalBalance: 2000 },
  { _id: 1, TotalBalance: 1300 },
  { _id: 2, TotalBalance: 1500 }
]
```

- Determine Minimum and Maximum account balance for each customer_id.

db.Customers.aggregate([{ $group: { _id: "$Cust_id", MinBalance: { $min: "$Acc_Bal"

},

MaxBalance: { $max: "$Acc_Bal" }}}])

```
[
  { _id: 4, MinBalance: 2000, MaxBalance: 2000 },
  { _id: 2, MinBalance: 1500, MaxBalance: 1500 },
  { _id: 1, MinBalance: 500, MaxBalance: 800 },
  { _id: 3, MinBalance: 400, MaxBalance: 400 }
]
```

- Export the created collection into local file system.

exit

mongoexport --db Bank --collection Customers --out customers.json

```
2025-12-15T00:08:15.623+0530    connected to: mongodb://localhost/
2025-12-15T00:08:15.626+0530    exported 5 records
```

- Drop the table. mongosh use Bank db.Customers.drop()

```
...
true
```

- Import a given csv dataset from local file system into mongodb collection

exit

mongoimport --db Bank --collection Customers --type csv --headerline --file customers.csv

```
2025-12-15T00:13:38.817+0530    connected to: mongodb://localhost/
2025-12-15T00:13:38.833+0530    5 document(s) imported successfully. 0 document(s) failed to import.
```

NoSQL RESTAURANT DATABASE QUESTION(WEEK 10)

Perform the following DB operations using MongoDB. i.

Write NoSQL Queries on “Restaurant” collection.

ii. Write a MongoDB query to display all the documents in the collection restaurants.

iii. Write a MongoDB query to arrange the name of the restaurants in descending along with all the columns.

iv. Write a MongoDB query to find the restaurant Id, name, town and cuisine for those restaurants which achieved a score which is not more than 10.

v. Write a MongoDB query to find the average score for each restaurant.

QUERIES

- Write NoSQL Queries on “Restaurant” collection.

```
use restaurant
switched to db restaurant
db.createCollection("restaurants");
{ ok: 1 }
db.restaurants.insertMany([
{ name: "Meghna Foods", town: "Jayanagar", cuisine: "Indian", score: 8,
address: { zipcode: "10001", street: "Jayanagar"}},
{ name: "Empire", town: "MG Road", cuisine: "Indian", score: 7,
address: { zipcode: "10100", street: "MG Road"}},
```

{ name: "Chinese WOK", town: "Indiranagar", cuisine: "Chinese", score: 12, address:

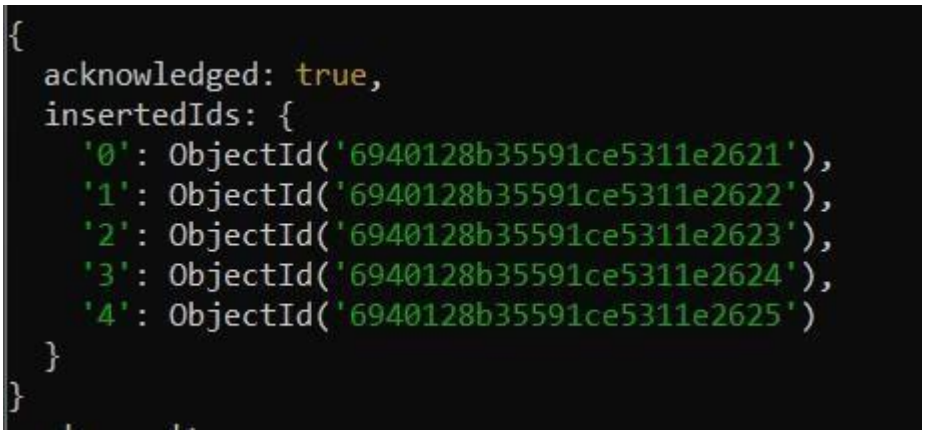
{ zipcode: "20000", street: "Indiranagar"}},

{ name: "Kyotos", town: "Majestic", cuisine: "Japanese", score: 9,

address: { zipcode: "10300", street: "Majestic"}},

{ name: "WOW Momos", town: "Malleshwaram", cuisine: "Indian", score: 5, address:

{ zipcode: "10400", street: "Malleshwaram"}}])



- Write a MongoDB query to display all the documents in the collection restaurants.

db.restaurants.find()

- Write a MongoDB query to arrange the name of the restaurants in descending along with all the columns.

db.restaurants.find().sort({ name: -1 })

```
...
[
  {
    _id: ObjectId('6940128b35591ce5311e2625'),
    name: 'WOW Momos',
    town: 'Malleshwaram',
    cuisine: 'Indian',
    score: 5,
    address: { zipcode: '10400', street: 'Malleshwaram' }
  },
  {
    _id: ObjectId('6940128b35591ce5311e2621'),
    name: 'Meghna Foods',
    town: 'Jayanagar',
    cuisine: 'Indian',
    score: 8,
    address: { zipcode: '10001', street: 'Jayanagar' }
  },
  {
    _id: ObjectId('6940128b35591ce5311e2624'),
    name: 'Kyotos',
    town: 'Majestic',
    cuisine: 'Japanese',
    score: 9,
    address: { zipcode: '10300', street: 'Majestic' }
  },
  {
    _id: ObjectId('6940128b35591ce5311e2622'),
    name: 'Empire',
    town: 'MG Road',
    cuisine: 'Indian',
    score: 7,
    address: { zipcode: '10100', street: 'MG Road' }
  },
  {
    _id: ObjectId('6940128b35591ce5311e2623'),
    name: 'Chinese WOK',
    town: 'Indiranagar',
    cuisine: 'Chinese',
    score: 12,
    address: { zipcode: '20000', street: 'Indiranagar' }
  }
]
```

- Write a MongoDB query to find the restaurant Id, name, town and cuisine for those restaurants which achieved a score which is not more than 10.

db.restaurants.find({ score: { $lte: 10 } },{ restaurantId: 1, name: 1, town: 1, cuisine: 1, _id: 0 })

```
[
  { name: 'Meghna Foods', town: 'Jayanagar', cuisine: 'Indian' },
  { name: 'Empire', town: 'MG Road', cuisine: 'Indian' },
  { name: 'Kyotos', town: 'Majestic', cuisine: 'Japanese' },
  { name: 'WOW Momos', town: 'Malleshwaram', cuisine: 'Indian' }
]
```

- Write a MongoDB query to find the average score for each restaurant

db.restaurants.aggregate([{$group: { _id: "$name", averageScore: { $avg: "$score" }}}])

```
[
  { _id: 'Kyotos', averageScore: 9 },
  { _id: 'Chinese WOK', averageScore: 12 },
  { _id: 'Meghna Foods', averageScore: 8 },
  { _id: 'Empire', averageScore: 7 },
  { _id: 'WOW Momos', averageScore: 5 }
]
```