Assignment Sheet – 4

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Enrollment No – 2023CSB047

Assignment – 8

Table Creation :

```
CREATE TABLE Customer (
    cust_id INT PRIMARY KEY CHECK (cust_id BETWEEN 100 AND 10000),
    cust_name VARCHAR(100) NOT NULL,
    annual_revenue DECIMAL(12, 2),
    cust_type VARCHAR(20) CHECK (
        cust_type IN (
            'MANUFACTURER',
            'WHOLESALER',
            'RETAILER'
        )
    )
);



-- TRUCK TABLE
CREATE TABLE Truck (
    truck_no INT PRIMARY KEY,
    driver_name VARCHAR(100) NOT NULL
);



-- CITY TABLE
CREATE TABLE City (
    city_name VARCHAR(100) PRIMARY KEY,
    population INT
);
```

```sql
-- SHIPMENT TABLE
CREATE TABLE Shipment (
    shipment_no INT PRIMARY KEY,
    cust_id INT,
    weight DECIMAL(10, 2) CHECK (weight < 1000),
    truck_no INT,
    destination VARCHAR(100),
    ship_date DATE,
    FOREIGN KEY (cust_id) REFERENCES Customer (cust_id) ON DELETE
CASCADE,
    FOREIGN KEY (truck_no) REFERENCES Truck (truck_no) ON DELETE SET
NULL,
    FOREIGN KEY (destination) REFERENCES City (city_name)
);
```

Customer Table :

cust_id	cust_name	annual_revenue	cust_type
101	ABC Industries	1500000.00	MANUFACTURER
102	FastSupply Co.	850000.00	WHOLESALER
103	CityMart	450000.00	RETAILER
104	GlobalTraders	950000.00	WHOLESALER
105	Elite Manufacturing	2000000.00	MANUFACTURER
106	MetroRetail	700000.00	RETAILER
107	StarWholesale	1200000.00	WHOLESALER
108	BuildIt Corp	1800000.00	MANUFACTURER
109	QuickShop	520000.00	RETAILER
110	SuperTrade Ltd	1100000.00	WHOLESALER
NULL	NULL	NULL	NULL

Shipment Table :

shipment_no	cust_id	weight	truck_no	destination	ship_date
1001	101	250.00	1	Kolkata	2025-10-01
1002	102	120.00	2	Chennai	2025-10-02
1003	103	180.00	3	Mumbai	2025-10-03
1004	104	950.00	4	Delhi	2025-10-04
1005	105	220.00	5	Pune	2025-10-05
1006	106	450.00	6	Hyderabad	2025-10-06
1007	107	130.00	7	Bangalore	2025-10-07
1008	108	300.00	8	Ahmedabad	2025-10-08
1009	109	650.00	9	Jaipur	2025-10-09
1010	110	275.00	10	Lucknow	2025-10-10
1011	101	190.00	1	Mumbai	2025-10-11
1012	102	210.00	2	Kolkata	2025-10-12
1013	103	800.00	3	Chennai	2025-10-13
1014	104	560.00	4	Hyderabad	2025-10-14
1015	105	340.00	5	Delhi	2025-10-15
1016	106	150.00	6	Pune	2025-10-16
1017	107	240.00	7	Ahmedabad	2025-10-17
1018	108	410.00	8	Mumbai	2025-10-18
1019	109	370.00	9	Kolkata	2025-10-19
1020	110	480.00	10	Chennai	2025-10-20
1021	101	200.00	1	Kolkata	2025-10-21
1022	102	250.00	2	Kolkata	2025-10-22
1023	103	300.00	3	Kolkata	2025-10-23
1024	104	180.00	4	Kolkata	2025-10-24
1025	105	270.00	5	Kolkata	2025-10-25
1026	106	260.00	6	Kolkata	2025-10-26
1027	107	310.00	7	Kolkata	2025-10-27

1028	108	400.00	8	Kolkata	2025-10-28
1029	109	500.00	9	Kolkata	2025-10-29
1030	110	600.00	10	Kolkata	2025-10-30
1031	101	350.00	1	Chennai	2025-11-01
1032	102	450.00	1	Mumbai	2025-11-02
1033	103	280.00	1	Delhi	2025-11-03
1034	104	300.00	1	Pune	2025-11-04
1035	105	220.00	1	Hyderabad	2025-11-05
1036	106	370.00	1	Bangalore	2025-11-06
1037	107	320.00	1	Ahmedabad	2025-11-07
1038	108	180.00	1	Jaipur	2025-11-08
1039	109	260.00	1	Lucknow	2025-11-09
1040	110	340.00	1	Kolkata	2025-11-10
NULL	NULL	NULL	NULL	NULL	NULL

City Table :

city_name	population
Ahmedabad	8400000
Bangalore	12300000
Chennai	10700000
Delhi	31000000
Hyderabad	11000000
Jaipur	5500000
Kolkata	14800000
Lucknow	6800000
Mumbai	20400000
Pune	7800000
NULL	NULL

Truck Table :

truck_no	driver_name
1	IQBAL
2	RAHUL
3	MEENA
4	VIKAS
5	ARJUN
6	PRIYA
7	SANJAY
8	KIRAN
9	JAVED
10	RANI
NULL	NULL

1. Give names of customer who have sent packages (shipments) to Kolkata, Chennai and Munbai.

```
select cust_name
from customer, shipment
where customer.cust_id = shipment.cust_id and destination in
('Kolkata','Chennai','Mumbai');
```

cust_name
ABC Industries
FastSupply Co.
CityMart
ABC Industries
FastSupply Co.
CityMart
BuildIt Corp
QuickShop
SuperTrade Ltd
ABC Industries
FastSupply Co.
CityMart
GlobalTraders
Elite Manufact...
MetroRetail
StarWholesale
BuildIt Corp
QuickShop
SuperTrade Ltd
ABC Industries
FastSupply Co.
SuperTrade Ltd

2.List the names of the driver who have delivered shipments weighing over 200 pounds.

```
select distinct driver_name
from truck, shipment
where truck.truck_no = shipment.truck_no and weight > 200;
```

driver_name
IQBAL
VIKAS
ARJUN
PRIYA
KIRAN
JAVED
RANI
RAHUL
MEENA
SANJAY

3.Retrieve the maximum and minimum weights of the shipments. Rename the output as Max_Weight and Min_Weight respectively.

```
select max(weight) as Max_Weight, min(weight) as Min_Weight
from shipment;
```

Max_Weight	Min_Weight
950.00	120.00

4. For each customer, what is the average weight of package sent by the customer?

```
select cust_id, avg(weight) as Avg_Weight
from shipment
group by cust_id;
```

cust_id	Avg_Weight
101	247.500000
102	257.500000
103	390.000000
104	497.500000
105	262.500000
106	307.500000
107	250.000000
108	322.500000
109	445.000000
110	423.750000

5. List the names and populations of cities that have received a shipment weighing over 100 pounds.

```
select DISTINCT city_name,population
from city, shipment
where city.city_name = shipment.destination and weight > 100;
```

city_name	population
Kolkata	14800000
Chennai	10700000
Mumbai	20400000
Delhi	31000000
Pune	7800000
Hyderabad	11000000
Bangalore	12300000
Ahmedabad	8400000
Jaipur	5500000
Lucknow	6800000

6. List cities that have received shipments from every customer.

```
select city_name
from shipment, city
where shipment.destination = city.city_name
group by city_name
having count(distinct cust_id) = ( select count(*) from customer );
```

city_name
Kolkata

7. For each city, what is the maximum weight of a package sent to that city?

```
select city_name ,max(weight) as Max_Weight
from city,shipment where city_name = destination
group by city_name;
```

city_name	Max_Weight
Ahmedabad	320.00
Bangalore	370.00
Chennai	800.00
Delhi	950.00
Hyderabad	560.00
Jaipur	650.00
Kolkata	600.00
Lucknow	275.00
Mumbai	450.00
Pune	300.00

8. List the name and annual revenue of customers whose shipments have been delivered by truck driver ‘IQBAL’.

```
select cust_name,annual_revenue
from customer, shipment,truck
where customer.cust_id = shipment.cust_id and shipment.truck_no =
truck.truck_no and driver_name = 'IQBAL';
```

cust_name	annual_revenue
ABC Industries	1500000.00
ABC Industries	1500000.00
ABC Industries	1500000.00
ABC Industries	1500000.00
FastSupply Co.	850000.00
CityMart	450000.00
GlobalTraders	950000.00
Elite Manufacturing	2000000.00
MetroRetail	700000.00
StarWholesale	1200000.00
BuildIt Corp	1800000.00
QuickShop	520000.00
SuperTrade Ltd	1100000.00

9. List drivers who have delivered shipments to every city.

```
select driver_name
from truck,shipment
where shipment.truck_no = truck.truck_no
group by truck.truck_no
having count(distinct destination) = (select count(*) from city);
```

driver_name
IQBAL

10. For each city, with population over 1 million, what is the minimum weight of a package sent to that city.

```
select city_name,min(weight) as MIN_Weight
from city,shipment
where city_name = destination
and population > 1000000
group by city_name;
```

city_name	MIN_Weight
Ahmedabad	240.00
Bangalore	130.00
Chennai	120.00
Delhi	280.00
Hyderabad	220.00
Jaipur	180.00
Kolkata	180.00
Lucknow	260.00
Mumbai	180.00
Pune	150.00

Assignment – 9

Table Creation :

```
CREATE TABLE DEPT (
    DEPTNO CHAR(4) PRIMARY KEY CHECK (DEPTNO LIKE 'D%'),
    DNAME VARCHAR(20) CHECK (DNAME IN ('Accounting', 'Sales',
'Research', 'Operations')),
    LOC VARCHAR(20)
);

CREATE TABLE EMP (
    EMPNO INT PRIMARY KEY CHECK (EMPNO BETWEEN 7000 AND 8000),
```

```
    ENAME VARCHAR(10) NOT NULL,
    JOB VARCHAR(10) CHECK (JOB IN
('Clerk','Salesman','Manager','Analyst','President')),
    MGR INT,
    HIREDATE DATE,
    SAL DECIMAL(10,2),
    COMM DECIMAL(10,2) DEFAULT 0 CHECK (COMM < 1500),
    DEPTNO CHAR(4),
    FOREIGN KEY (DEPTNO) REFERENCES DEPT(DEPTNO),
    FOREIGN KEY (MGR) REFERENCES EMP(EMPNO)
);
```

Employee Table

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7001	RAJESH	President	NULL	2020-01-01	95000.00	0.00	D10
7002	AMIT	Manager	7001	2020-03-12	60000.00	0.00	D20
7003	VIKRAM	Manager	7001	2020-05-15	58000.00	0.00	D30
7004	KARAN	Manager	7001	2021-02-10	55000.00	0.00	D40
7005	RAVI	Analyst	7002	2021-03-18	45000.00	0.00	D20
7006	NEHA	Analyst	7002	2022-01-20	42000.00	0.00	D50
7007	PRIYA	Clerk	7003	2020-07-07	25000.00	0.00	D30
7008	ARJUN	Salesman	7003	2020-09-12	27000.00	1000.00	D30
7009	RINA	Clerk	7004	2021-05-05	22000.00	0.00	D40
7010	SANJAY	Salesman	7003	2022-06-11	26000.00	700.00	D30
7011	ANITA	Clerk	7004	2023-03-04	23000.00	0.00	D40
7012	MOHAN	Salesman	7003	2020-04-22	24000.00	500.00	D30
7013	DEEPA	Analyst	7002	2024-02-10	47000.00	0.00	D50
7014	SUMIT	Clerk	7002	2020-11-15	21000.00	0.00	D20
7015	KAVITA	Salesman	7003	2020-10-05	25500.00	1200.00	D30
7016	SAYAK	Analyst	7004	2000-02-20	120000.00	1200.00	D20
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

Department Table

DEPTNO	DNAME	LOC
D10	Accounting	Mumbai
D100	Sales	Lucknow
D20	Research	Bengaluru
D30	Sales	Delhi
D40	Operations	Kolkata
D50	Research	Hyderabad
D60	Sales	Pune
D70	Operations	Chennai
D80	Accounting	Ahmedabad
D90	Research	Jaipur
NULL	NULL	NULL

1. Display the difference between highest and lowest salary of each department in descending order. Label the column as "Difference".

```
select dept.DNAME, max(SAL) - min(SAL) as Difference
from emp,dept
where emp.deptno = dept.deptno
group by dept.DEPTNO
order by Difference desc;
```

DNAME	Difference
Research	99000.00
Sales	34000.00
Operations	33000.00
Research	5000.00
Accounting	0.00

2.List all the employees' employee number and name along with their immediate managers' employee number and name.

```sql
select A.EMPNO as employee_id, A.ENAME as employee_name, B.EMPNO as
manager_id, B.ENAME as manager_name
from EMP A, EMP B
where A.MGR = B.EMPNO;
```

employee_id	employee_name	manager_id	manager_name
7002	AMIT	7001	RAJESH
7003	VIKRAM	7001	RAJESH
7004	KARAN	7001	RAJESH
7005	RAVI	7002	AMIT
7006	NEHA	7002	AMIT
7007	PRIYA	7003	VIKRAM
7008	ARJUN	7003	VIKRAM
7009	RINA	7004	KARAN
7010	SANJAY	7003	VIKRAM
7011	ANITA	7004	KARAN
7012	MOHAN	7003	VIKRAM
7013	DEEPA	7002	AMIT
7014	SUMIT	7002	AMIT
7015	KAVITA	7003	VIKRAM
7016	SAYAK	7004	KARAN

3.Create a query that will display the total number of employees and the total number of employees who were hired only in 2020. Give the column headings as “TOTAL” and “TOTAL_2020” respectively.

```sql
select TOTAL,TOTAL_2000
from
(select count(*) as TOTAL from EMP ) as tb1,
(select count(*) as TOTAL_2000 from EMP where HIREDATE between
'2000-01-01' and '2000-12-31') as tb2;
```

TOTAL	TOTAL_2000
16	1

4. Display the manager number and the salary of the lowest paid employee under that

manager. Exclude anyone whose manager is not known. Exclude any group where the

minimum salaryis less than 1000. Sort the output in descending order of salary.

```
select MGR as manager_id,min(SAL) as min_salary
from emp
group by MGR
having MGR is not NULL and min(SAL) > 1000
order by min_salary desc;
```

manager_id	min_salary
7001	55000.00
7003	24000.00
7004	22000.00
7002	21000.00

5. Assume that there are some departments where no employee is assigned. Now, write

a query to display the department name, location name, number of employees, and the

average salary for all the employees in that department. Label the columns as

“DNAME”, “LOCATION”, “NUMBER OF PEOPLE”, and “AVERAGE SALARY”respectively. Round the averge salary to two decimal places. The outcome of the

query must include the details of the departments where no employee is assigned and

in that case the “AVERAGE SALARY” for that department is to be displayed as 0 (zero).

```
select DNAME,loc as LOCATION,count(EMPNO) as "NUMBER OF PEOPLE",
ROUND(avg(SAL),2) as "AVERAGE SALARY"
from emp,dept
where emp.deptno = dept.deptno
group by DNAME,LOC
union
select DNAME,loc as LOCATION,count(EMPNO) as "NUMBER OF PEOPLE",
ROUND(0,2) as "AVERAGE SALARY"
from emp,dept
where dept.deptno not in (select distinct(deptno) from EMP)
group by DNAME,LOC;
```

DNAME	LOCATION	NUMBER OF PEOPLE	AVERAGE SALARY
Accounting	Mumbai	1	95000.00
Research	Bengaluru	4	61500.00
Sales	Delhi	6	30916.67
Operations	Kolkata	3	33333.33
Research	Hyderabad	2	44500.00
Research	Jaipur	16	0.00
Accounting	Ahmedabad	16	0.00
Operations	Chennai	16	0.00
Sales	Pune	16	0.00
Sales	Lucknow	16	0.00