

TERMWORK-04.

Problem Statement:

Consider the following schema for order Database:

SALESMAN (Salesman-id, Name, City, Commission)

CUSTOMER (Customer-id, Cust-Name, City, Grade, Salesman-id)

ORDERS (Ord-No, Purchase-Amt, Ord-Date, customer-id, Salesman-id).

Create tables and populate with appropriate values (Atleast 5 records in each table) for the given database.

Write SQL queries to.

- 1) Count the customers with grades above Bangalore's average.
- 2) Find the name and numbers of all salesman who had more than one customer.
- 3) List all salesman names and customer names for whom order amount is more than 4000.
- 4) Demonstrate the DELETE operation by removing salesman with id 1000. All his orders must also be deleted.

Schema Diagram:

SALESMAN

<u>Sid</u>	Name	City	Commission
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CUSTOMER

<u>Cid</u>	Cust-Name	City	Grade	Sid
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ORDER.

<u>Order-No</u>	Purchase-Amt	Order-Date	Cid	Sid.
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Concepts:

ER modelling is a first step towards building a database application. It helps in identifying various entities, their attributes and the relationship between them. The ER model helps the application developers to explain the customers, what all data would be stored and seek suggestions to include all the data relevant to the application. While designing an ER-model it is important to include only the attributes relevant to the entity types. The relational schema diagram for each relation must be drawn and the primary key and foreign key must be correctly indicated.

Learning Outcomes:

1. ER-Model is a set of concepts to describe data in graphical form.
2. There are 7 ER-to-Relational mapping rules to get Relational model from ER-Model
3. Relational model is a set of concepts to describe data to RDBMS.
4. Relation, tuples, ~~attributes~~, domain, Primary key, Foreign key are the concepts in Relational model.
5. DDL statements helps us to create tables and specify constraints
6. DML statements helps us to populate and manipulate the database.
7. Learned to use SQL queries to list data stored in tables.

TABLE CREATION:

1) SALESMAN

```
create table SALESMAN44 (  
    sid Integer,  
    name varchar(15),  
    city varchar(12),  
    commission varchar(10),  
    PRIMARY KEY (sid)  
);
```

2) CUSTOMER

```
create table CUSTOMER44 (  
    cid Integer,  
    Cust-Name varchar(15),  
    city varchar(12),  
    grade Integer,  
    PRIMARY KEY (cid),  
    sid REFERENCES SALESMAN44(sid) ON DELETE SET NULL  
);
```

3) ORDER

```
create table ORDER44 (  
    Order-no Integer,  
    Purchase-Amt Integer,  
    Order-Date Date,  
    PRIMARY KEY (Order-no),  
    cid REFERENCES CUSTOMER44(cid) ON DELETE CASCADE,  
    sid REFERENCES SALESMAN44(sid) ON DELETE CASCADE  
);
```


Insert statements for each table:

1) SALESMAN.

insert into SALESMAN44

values (1000, 'john', 'bangalore', '25%');

insert into SALESMAN44

values (5000, 'harsha', 'hydrabad', '15%');

CUSTOMER.

insert into CUSTOMER44

values (10, 'preethi', 'bangalore', 100, 1000);

insert into CUSTOMER44

values (14, 'manatha', 'bangalore', 400, 3000);

ORDER.

insert into ORDER44

values (50, 5000, '04-MAY-17', 10, 1000);

insert into ORDER44

values (54, 550, '09-MAR-17', 12, 2000);

TABLE DATA:

1) SALESMAN

Sid	Name	City	Commission
1000	John	Bangalore	25%
2000	Ravi	Bangalore	20%
3000	Kumar	Mysore	15%
4000	Smith	Delhi	30%
5000	Larsha	Hydrabad	15%

2) CUSTOMER

Cid	Cust-Name	City	Grade	Sid
10	Preethi	Bangalore	100	1000
12	Vivek	Mangalore	300	1000
12	Bhaskar	Chennai	400	2000
13	Chethan	Bangalore	200	2000
14	Namatha	Bangalore	400	3000

3) ORDER.

Order-No.	Purchase Amt	Order-Date	Cid	Sid
50	5000	04-MAY-17	10	1000
51	450	20-JAN-17	10	2000
52	1000	24-FEB-17	13	2000
53	3500	13-APR-17	14	3000
54	550	09-MAR-17	12	2000

QUERIES:

- 1) Count the customers with grades above bangalore's average.

```
select count(DISTINCT(cid)), grade
from customer44
GROUP BY grade
having grade >= (select avg(grade)
from customer44
where city = 'bangalore');
```

OUTPUT:

<u>COUNT(DISTINCT(CID))</u>	<u>GRADE</u>
1	300
2	400

- 2) Find the names and numbers of all salesman who had more than one customer.

```
select sid, name
from salesman44
where 1 < (select count(*)
from customer44
where sid = salesman44.sid);
```

OUTPUT:

<u>SID</u>	<u>NAME</u>
1000	john
2000	ravi

- 3) List all salesman names and customer names for whom order amount is more than 4000.

```
select s.id name salesman_name, c. cust_name  
from salesman44 s, customer44 c, order44 o.  
where s.sid = o.sid  
AND c.cid = o.cid  
AND Purchase_Amt > 4000;
```

OUTPUT:

<u>SALESMAN_NAME</u>	<u>CUST_NAME</u>
john	preethi

- 4) Demonstrate the DELETE operation by removing salesman with id 1000. All his orders must also be deleted.

```
delete from salesman44 where sid = 1000;
```


Conclusion:

We learnt to use the open source ER design tool and created the ER-Model for the above said problem statement. Converted the ER-diagram into relational scheme diagram by applying the ER-to-relational rules. We identified primary and foreign keys and created all relations in the oracle DBMS using DDL statements. The content of each table was displayed using SELECT statement and implemented the DELETE statement to the table structure after they are created.

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