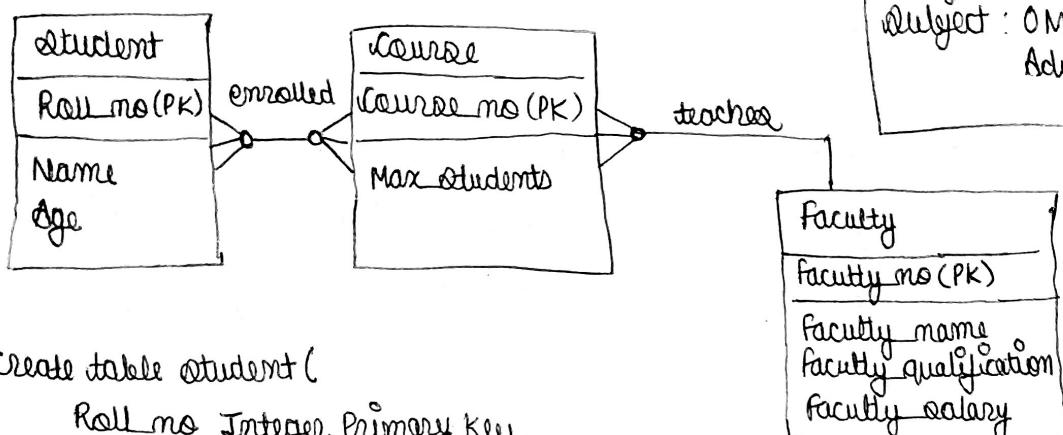


④ Case Study 1: Student Enrollment



Name: Deepankar Sharma
Course: MCA
Student ID: 233512013
Subject: OMC 208
Advanced DBMS Lab

Create table student (

Roll_no Integer Primary Key,
Name Varchar(20) NOT NULL,
Age Integer Check (Age >= 18 AND Age <= 36));

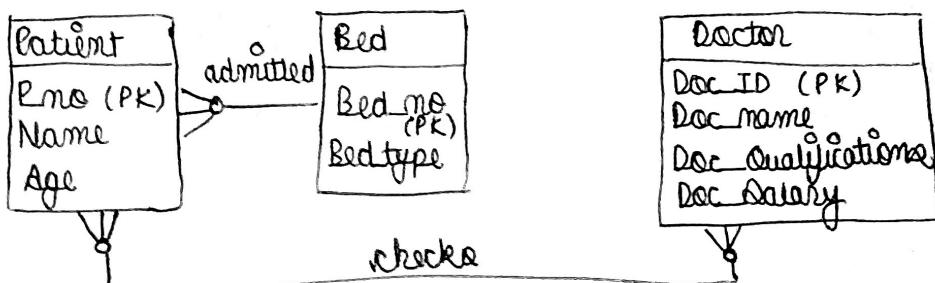
Create table course (

Course_no Primary Key, Course_name Varchar(10) NOT NULL,
Varchar(5)
Max_Students Integer DEFAULT 10);

Create table faculty (

Faculty_no Primary Key Check (Faculty_no Like 'MCA 01%'),
Faculty_name NOT NULL, Varchar(10)
Faculty_qualification Check (Faculty_qualification In ('MCA', 'MTECH', 'PHD')),
Faculty_salary Check (Faculty_salary >= 25000 AND Faculty_salary <= 50000)
);

② Patient Admitted in Hospital



Create table Patient (

Pno VARCHAR(5) PRIMARY KEY,
Name Varchar Not Null,
Age Integer Check (Age >= 0 AND Age <= 100)
)

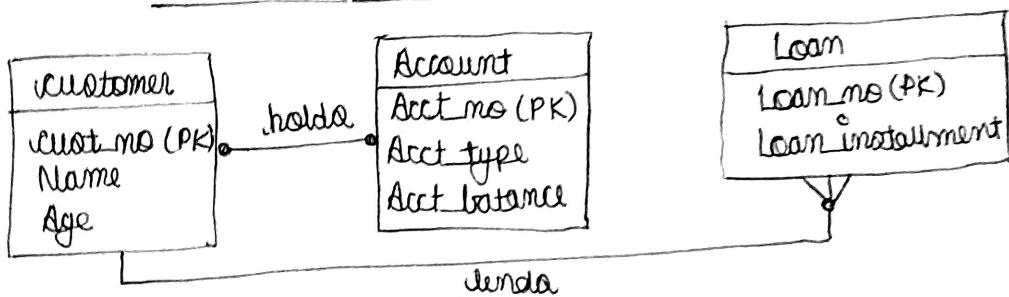
```

create table Bed (
    Bed_no Integer primary key,
    Bed_type Varchar(10) Not Null
);

create table Doctor (
    Doc_id Varchar(10) primary key,
    Doc_name Varchar(10) Not Null,
    Doc_qualification Varchar(10) check (Doc_qualification in ('MBBS', 'MS', 'MD')),
    Doc_salary Numeric(10,2) check (Doc_salary >= 25000 AND Doc_salary <= 50000)
);

```

③ Customer opens an account



```

create table customer (
    cust_no Integer primary key,
    Name Varchar(15) not null,
    Age Integer check (age >= 16 and age <= 100)
);

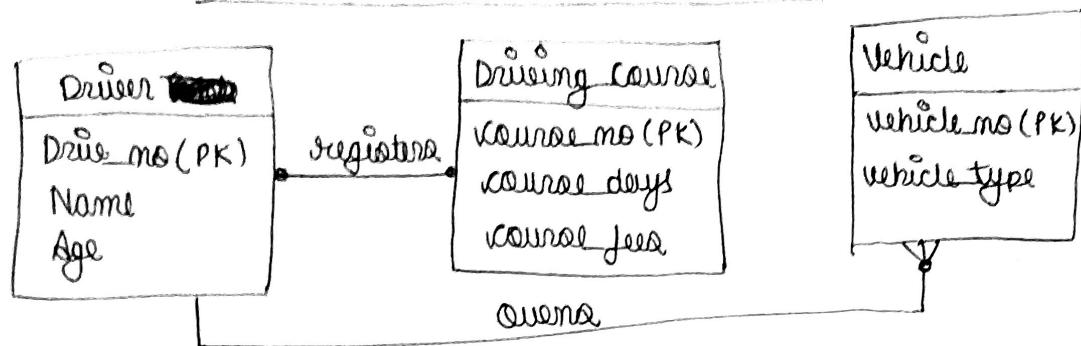
create table Account (
    acct_no Varchar(10) primary key check (acct_no like 'ACC%'),
    acct_type Varchar(10) check (acct_type in ('Current', 'Saving')),
    acct_balance Numeric(10,2) check (acct_balance between 1000 AND 50000)
);

create table Loan (
    loan_no Varchar(5) primary key,
    loan_installment Numeric(10,2) check (loan_installment >= 500 AND loan_installment <= 50000)
);

```

④

Driver Registers in a driving course



create table Driver(

Drive_no Integer primary key,

Name Varchar(10) not null,

Age Integer check (Age >= 18 AND Age <= 100)

);

create table Driving_course(

course_no Integer primary key,

course_days Integer check (course_days BETWEEN 60 AND 100),

course_fees Numeric(10) check (course_fees > 100).

);

create table Vehicle(

Vehicle_no VARCHAR(10) PRIMARY KEY check (Vehicle_no like 'Veh%'),

Vehicle_type Varchar(5) primary key check (Vehicle_type in

("car", "bus", "truck", "tempo"))

);

Creating tables

```
create table client_master (
    Client_no VARCHAR(6) primary key check (Client_no like ('C%')),
    Name VARCHAR(20) NOT NULL,
    Address1 varchar(30),
    Address2 varchar(30),
    City varchar(15),
    Lincode integer,
    State varchar(15),
    Balance NUMERIC(10,2)
);
```

```
create table Product_master (
    Product_no varchar(6) primary key check (Product_no like ('P%')),
    description varchar(15) NOT null,
    profit_percent numeric(4,2) not null,
    unit_measure varchar(10) not null,
    qty_on_hand numeric(8) not null,
    reorder_qty numeric(8) not null,
    sell_price numeric(8,2) not null check (sell_price > 0),
    cost_price numeric(8,2) not null check (cost_price > 0)
);
```

```
create table Salesman_master (
    Salesman_no varchar(6) primary key check (Salesman_no like 'S%'),
    Salesman_name varchar(20) not null,
    Address1 varchar(30) not null,
    Address2 varchar(30),
    City varchar(20),
    Lincode varchar(8),
    State varchar(20),
    sal_amount Numeric(8,2) not null check (sal_amount > 0),
    Target_to_get Numeric(6,2) not null check (yesterday_sales > 0),
    yesterday_sales Numeric(6,2) not null,
    remarks varchar(60)
);
```

```

create table Sales_order(
    Order_no varchar(6) Primary key check (Order_no like 'O%'),
    Order_date date,
    Client_no varchar(6),
    Delv_Address varchar(25),
    Salesman_no varchar(6),
    Delv_type char(1) check (Delv_type in ('P', 'F')),
    Billed_fn char(1),
    Delv_date date check (Delv_date >= Order_date),
    Order_Status varchar(10) check (Order_Status in ('In Progress', 'Pulfilled', 'Backorder'),
    FOREIGN KEY (Client_no) references Client_master(Client_no),
    FOREIGN KEY (Salesman_no) references Salesman_master (Salesman_no)
);

```

```

create table Sales_order_details(
    Order_no varchar(6),
    Product_no varchar(6),
    Quantity_order NUMERIC(8),
    Quantity_disp NUMERIC(8),
    Product_rate NUMERIC(10,2),
    PRIMARY KEY (Order_no, Product_no),
    FOREIGN KEY (Order_no, Product_no) references Sales_order (Order_no),
    FOREIGN KEY (Product_no) references Product_master (Product_no)
);

```

Inserting Data

Insert into Client_master (Client_no, name, city, pincode, state, Bal_due)

```

VALUES
('C1', 'Iam', 'Mumbai', 248001, 'Maharashtra', 15000),
('C2', 'Vandana', 'Chennai', 248004, 'Tamil Nadu', 5000),
('C3', 'Pramada', 'Mumbai', 248006, 'Maharashtra', 2500),
('C4', 'Balu', 'Mumbai', 248010, 'Maharashtra', 0),
('C5', 'Ravi', 'Delhi', 248005, 'Delhi', 2000),
('C6', 'Rukmani', 'Mumbai', 248009, 'Maharashtra', 0);

```

Insert into product master
 (product no, description, profit percent, unit measure, City on hand, Reorder level, sell price,
 cost price)

VALUES

```
('P00001', 'Floppy', 5, 'Piece', 100, 20, 525, 500),
('P03453', 'Monitor', 6, 'Piece', 10, 3, 12000, 11280),
('P06734', 'Mouse', 5, 'Piece', 20, 5, 1050, 1000),
('P07865', 'Keyboard', 5, 'Piece', 100, 20, 525, 500),
('P07868', 'CD Drive', 25, 'Piece', 10, 3, 3150, 3050),
('P07885', 'HDD', 25, 'Piece', 10, 3, 5250, 5100),
('P07965', 'Cable', 4, 'Piece', 10, 3, 8400, 8000),
('P07975', 'Key', 5, 'Piece', 10, 3, 1050, 1000),
('P08865', '2GBRAM', 5) Piece, 2, 3, 1050, 1000);
```

Insert into salesman master (salesman no, salesman name, Address1, Address2, City,
 pincode, state, sal amt, Target to get, yesterday sales, remarks)

VALUES

```
('S1', 'Kiran', 'A/14', 'Worli', 'Mumbai', '140001', 'Maharashtra', 3000, 100, 50 'Food'),
('S1', 'Kiran', 'A/14', 'Worli', 'Mumbai', '140002', 'Maharashtra', 3000, 200, 100 'Food'),
('S2', 'Ravi', '65', 'Nariman', 'Mumbai', '140003', 'Maharashtra', 3000, 200, 100 'Food'),
('S3', 'Manish', 'P-7', 'Bandra', 'Mumbai', '140004', 'Maharashtra', 3500, 200, 150 'Food'),
('S4', 'Anil', 'A/5', 'Juhu', 'Mumbai', '140005', 'Maharashtra', 3500, 200, 150 'Food');
```

Insert into Sales order (Order no, Order date, Client no, Delv type, Billed yn, Salesman
 no, Delv date, Order status) VALUES

```
('01', '2013-02-12', 'C1', 'P', 'N', 'S1', '2013-02-14', 'cancelled'),
('02', '2013-02-12', 'C2', 'P', 'N', 'S2', '2013-09-17', 'fulfilled'),
('03', '2013-09-12', 'C3', 'F', 'Y', 'S3', '2013-10-19', 'fulfilled'),
('04', '2013-10-12', 'C1', 'F', 'Y', 'S1', '2013-10-19', 'fulfilled'),
('05', '2013-10-12', 'C4', 'P', 'N', 'S2', '2013-10-25', 'cancelled'),
('06', '2013-11-12', 'C5', 'F', 'N', 'S4', '2013-11-16', 'In-progress');
```

* Note the first row was violating the check for Delv date;
 similarly many rows violate the check in following query as they are
 skipped.

Insert into Sales order details (Order no, Product no, Quantity order, quantity disp,
 Product rate) VALUES

```
('02', 'P00001', 10, 0, 525),
('05', 'P07868', 3, 3, 3150),
('05', 'P07885', 3, 1, 5250),
('05', 'P00001', 10, 10, 525),
('05', 'P03453', 4, 4, 1050),
('03', 'P03453', 2, 2, 1050),
('03', 'P06734', 1, 1, 12000),
('06', 'P07965', 1, 0, 8400),
('06', 'P07975', 1, 0, 1050);
```

Queries

- ①
- select name from client_master where name like '%a%';
 - select name from client_master where city like '%o%';
 - select name from client_master where city in ('Mumbai', 'Delhi');
 - select name from client_master where BalDue > 10000;
 - select * from sales_order where To_char(Order_date, 'MM') = '01';
 - select * from sales_order where Client_no in ('c1', 'c2');
 - select * from Product_master where sell_price > 2000 and sell_price <= 5000;
 - select Product_no, description, sell_price, sell_price * 1.15 as new_price from Product_master where sell_price > 1500;
 - select name, city, state from client_master where state != 'Maharashtra';

Data Manipulation

- select order_no, Tochar(Order_date, 'DD') as Day, Order_date from sales_order;
- select order_no, Tochar(Dely_date, 'Month') as Month, Tochar(Dely_date, 'DD') as Day from sales_order;
- select order_no, Tochar(Order_date, 'DD-Month-YY') as order_date from sales_order;
- select current_date + Interval '15 days' as Days_after_15_days;
- select order_no, current_date - dely_date as Days_Elapsed from sales_order;

Joins, Unions, Intersections & Minus

- select distinct p.Product_no, p.Description from Product_master p JOIN Sales_order_detail sod ON p.Product_no = sod.Product_no JOIN Sales_order so ON sod.order_no = so.order_no JOIN Client_master c ON c.Client_no = so.Client_no WHERE c.name = 'Ivan';
- select p.Product_no, p.Description, sod.Quantity_order from Product_master p JOIN Sales_order_detail sod ON sod.Product_no = p.Product_no JOIN Sales_order so ON sod.order_no = so.order_no WHERE To_char(so.dely_date, 'Month') = To_char(current_date, 'Month');
- select Product_no, Description, Qty_on_hand, Reorder_Lvl from Product_master where Qty_on_hand < Reorder_Lvl;
- select distinct c.name from Client_master c JOIN Sales_order so ON c.Client_no = so.Client_no JOIN Sales_order_detail sod ON so.order_no = sod.order_no JOIN Product_master p ON sod.product_no = p.product_no WHERE p.Description = 'HDD';
- select sod.product_no, sod.order_no from Sales_order_detail sod JOIN Product_master p ON sod.Product_No = p.product_no WHERE p.Description = 'floppy' AND sod.Quantity_order < 5;

- (f) select p.product_no, p.description, wod.quantity_order from product_master p
JOIN sales_order_detail wod ON p.product_no = wod.product_no JOIN sales_order wo ON wo.order_no = wod.order_no JOIN client_master c ON c.client_no = wo.client_no WHERE c.name IN ('Iran', 'Vandana');
- (g) select p.product_no, p.description, wod.quantity_order from product_master p
JOIN sales_order_detail wod ON p.product_no = wod.product_no
JOIN sales_order wo ON wo.order_no = wod.order_no
WHERE wo.client_no IN ('C1', 'C2');

④ Subqueries

- (a) select product_no, description from product_master where product_no NOT IN (select distinct product_no from sales_order_detail);
- (b) select c.name, c.address1, c.address2, c.city, c.zipcode from client_master c JOIN sales_order wo ON c.client_no = wo.client_no WHERE wo.order_no = '01';
- (c) select DISTINCT c.name from client_master c JOIN sales_order wo ON c.client_no = wo.client_no WHERE wo.order_date < ToDate('May 14', 'monthyy');
- (d) select DISTINCT c.client_no, c.name
from client_master c
JOIN sales_order wo ON c.client_no = wo.client_no
JOIN sales_order_detail wod ON wo.order_no = wod.order_no
JOIN product_master p ON wod.product_no = p.product_no
where p.description = 'Floppy';
- (e) select DISTINCT c.name
from client_master c
JOIN sales_order wo ON c.client_no = wo.client_no
JOIN sales_order_detail wod ON wo.order_no = wod.order_no,
group BY c.client_no, c.name
HAVING sum(wod.quantity_order * wod.product_rate) >= 10000;