Module 4.4 PRACTICAL PROJECT ASSIGNMENT

Create Tables

```
create table Customers(
CustomerID INT PRIMARY KEY,
FirstName NCHAR(20),
LastName NCHAR(20),
DateOfBirth DateTime,
Phone NCHAR(10),
Email NCHAR(50)
);
```

```
create table Policies(
PolicyID INT primary key,
PolicyName NCHAR(30),
PolicyType NCHAR(30),
PremimumAmount INT,
DurationYears INT
);
```

```
CREATE TABLE Agents(
AgentID INT PRIMARY KEY,
AgentName NCHAR(20),
Phone NCHAR(10),
City NCHAR(30)
);
```

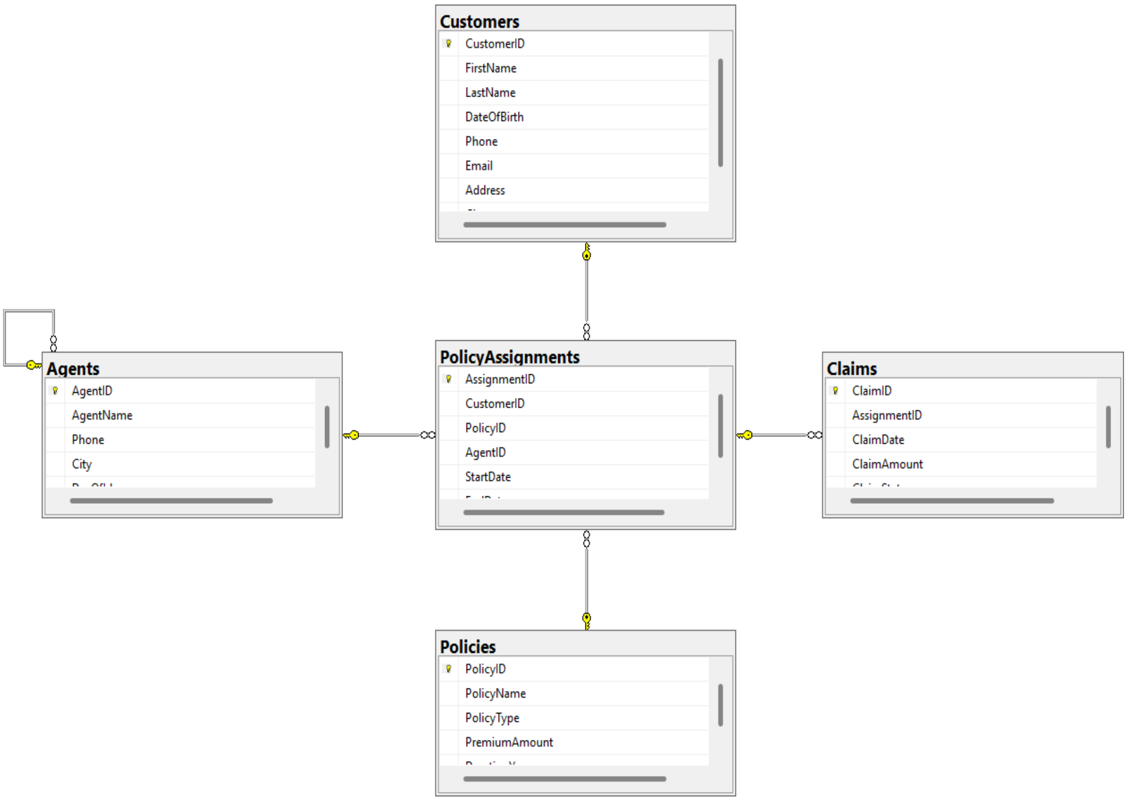
```
create table PolicyAssignments(
AssignmentID INT PRIMARY KEY,
CustomerID INT, --FOREIGN KEY
PolicyID INT, --
AgentID INT, --
StartDate DATETIME,
EndDate DATETIME,
CONSTRAINT fk_PA1
        FOREIGN KEY (CustomerID)
        REFERENCES Customers(CustomerID),
CONSTRAINT fk_PA2
        FOREIGN KEY (PolicyID)
        REFERENCES Policies(PolicyID),
CONSTRAINT fk_PA3
        FOREIGN KEY (AgentID)
        REFERENCES Agents(AgentID)

);



CREATE TABLE Claims (
    ClaimID INT PRIMARY KEY,
    AssignmentID INT,
    ClaimDate DATETIME,
    ClaimAmount INT,
    ClaimStatus NCHAR(20),
    CONSTRAINT fk_claims
        FOREIGN KEY (AssignmentID)
        REFERENCES PolicyAssignments(AssignmentID)
);
```

ER DIAGRAM


Customers
CustomerID
FirstName
LastName
DateOfBirth
Phone
Email
Address
Agents
AgentID
AgentName
Phone
City
PolicyAssignments
AssignmentID
CustomerID
PolicyID
AgentID
StartDate
Claims
ClaimID
AssignmentID
ClaimDate
ClaimAmount
Policies
PolicyID
PolicyName
PolicyType
PremiumAmount

Data Insertion

```
insert into Customers values(1,'Amit','Sharma','1990-05-
10','123457890','amit@gmail.com')
insert into Customers values(2,'Rahul','Varma','1991-06-
17','2313457890','rahul@gmail.com')
insert into Customers values(3,'Rohit','Sharma','1987-04-
30','9876543210','rohit@gmail.com')
insert into Customers values(4,'Virat','Kohli','1988-03-
11','1029384756','virat@gmail.com')
insert into Customers values(5,'MS','Dhoni','1983-07-
11','0192837465','dhoni@gmail.com')
INSERT INTO Customers VALUES
(6,'Ravi','Kumar','1998-05-12','9991112222','ravi@gmail.com'),
(7,'Anita','Sharma','2005-03-18','9992223333','anita@gmail.com'),
(8,'Karan','Verma','2010-11-25','9993334444','karan@gmail.com'),
(9,'Pooja','Singh','2002-07-10','9994445555','pooja@gmail.com'),
(10,'Amit','Patel','1995-01-20','9995556666','amit@gmail.com');


insert into Policies values(100,'JeevanSathi','Marriage',10000,2);
insert into Policies values(200,'Smart term plan plus','Term Life
insurance',30000,8)
insert into Policies values(300,'ICICI Pru Signature','Unit Linked
Insurance Plan',20000,3)
insert into Policies values(400,'Car Insurance','Motor
Insurance',25000,5)
insert into Policies values(500,'Bike Insurance','Motor
Insurance',9000,4)
insert into Policies values(600,'Maternity Insurance','Health
Insurance',17000,3)
```

```
insert into Policies values(700,'Car Insurance','Motor Insurance',22000,1)


insert into agents values(101,'Mahesh Babu','193834949','Hyderabad')
insert into agents values(102,'Prabhas Raju','1827364590','Bangalore')
insert into agents values(103,'Suresh Kumar','9988776655','Nagpur');


insert into PolicyAssignments values(1000,1,200,101,'2023-12-15','2025-12-15')
insert into PolicyAssignments values(2000,2,300,102,'2022-08-17','2025-08-17')
insert into PolicyAssignments values(3000,3,400,101,'2024-12-14','2029-12-14')
insert into PolicyAssignments values(6000,5,500,102,'2021-01-10','2023-01-10');


insert into Claims values(301,1000,'2024-02-16',12000,'Completed')
insert into Claims values(302,2000,'2024-02-16',12000,'Completed')
insert into Claims values(303,3000,'2025-01-23',20000,'Pending')
insert into Claims values(305,1000,'2024-09-10',45000,'Rejected');
```

SQL QUERIES

Basic Data Retrieval (SELECT *)

```
1) select * from Customers

2) select * from Policies

   where PolicyType like 'Health%' or PolicyType like 'Motor%' or
PolicyType like 'Life%'


3) select * from Policies

where PolicyType in ('Health','Motor','Life')


4) select CustomerID,PolicyID,StartDate,EndDate from PolicyAssignments


5) select
PolicyID,PolicyName,PremiumAmount,(PremiumAmount+(     0.06)*PremiumAmou
nt) as PremiumAmountWithTax,PremiumAmount/12 as MonthlyPremiumAmount
from Policies


6)select * from policies where PolicyType like 'health%'


7)select * from Policies where PremiumAmount>10000 and DurationYears=1


8) select * from Claims

   where ClaimStatus='Rejected'


9) select * from Agents

   where City like '_a%'
```

```
10)  select * from Policies
     where PolicyType in ('Health','Motor','Life')

11)  select distinct city from Agents

12) select * from Customers
   where DateOfBirth>='2001-01-01' and DateOfBirth<='2020-12-31'

13)  select * from Customers
     where DateOfBirth between '2001-01-01' and '2020-12-31'
```

Aggregate Functions

```
1) select max(ClaimAmount) as maxAmount,min(ClaimAmount) as
   MinAmount from Claims

2) select count(*)
   from Claims
   where ClaimStatus='Rejected'
```

ORDER BY Command

```
1) select TOP 1*
   from Claims
   order by ClaimDate desc
```

UPDATE Command

```
1) update Policies
```

```
   set PremiumAmount=PremiumAmount+(0.1)*PremiumAmount
   where PolicyType like 'Health%'
```

DELETE Command

```
1) DELETE FROM Claims
   WHERE AssignmentID IN (
    SELECT AssignmentID
    FROM PolicyAssignments
    WHERE EndDate < GETDATE()
  );
DELETE FROM PolicyAssignments
WHERE EndDate < GETDATE();
```

Alter Commands

```
1)ALTER TABLE Customers
  add Address varchar(50),
  City Varchar(20)

2) ALTER TABLE Agents
   ADD DevOfId INT

3) ALTER TABLE Agents
   ADD CONSTRAINT fk_agents_devofid
   FOREIGN KEY(DevOfId)
   REFERENCES Agents(AgentId);
```

Joins

1)

```
select p.*
from Policies p
join PolicyAssignments pa on p.PolicyID=pa.PolicyID
join Customers c on c.CustomerID=pa.CustomerID
where c.CustomerID=5
```

2)

```
select concat(c.FirstName,c.LastName) as FullName,p.PolicyName
from Customers c
join PolicyAssignments pa on pa.CustomerID=c.CustomerID
join Policies p on pa.PolicyID=p.PolicyID
```

3)

```
select cl.*,concat(c.FirstName,c.LastName) as FullName
from Claims cl
join PolicyAssignments pa on cl.AssignmentID=pa.AssignmentID
join Customers c on c.CustomerID=pa.CustomerID
```

4)

```
select c.FirstName,p.PolicyName,a.AgentName,pa.StartDate,pa.EndDate
from Customers c
join PolicyAssignments pa on c.CustomerID=pa.CustomerID
join Policies p on p.PolicyID=pa.PolicyID
join Agents a on a.AgentID=pa.AgentID
```

5)

```
select
c.FirstName,p.PolicyName,cl.ClaimAmount,cl.ClaimStatus,cl.ClaimDate

from Customers c

join PolicyAssignments pa on c.CustomerID=pa.CustomerID

join Policies p on p.PolicyID=pa.PolicyID

join Claims cl on cl.AssignmentID=pa.AssignmentID
```

6)

```
SELECT

    C.CustomerId,

    CONCAT(FirstName,LastName) AS CustomerName,

    P.PolicyId,

    P.PolicyName

FROM Customers C

LEFT JOIN PolicyAssignments PA

    ON C.CustomerId = PA.CustomerId

LEFT JOIN Policies P

    ON PA.PolicyId = P.PolicyId;
```

7)

```
select c.* from Customers C

left join PolicyAssignments pa on c.CustomerID=pa.CustomerID

left join Claims cl on cl.AssignmentID=pa.AssignmentID

where cl.ClaimID is NULL
```

8)

```
select concat(c.FirstName,c.LastName) as FullName,
sum(cl.ClaimAmount) as TotalClaimAmount
from Customers c
join PolicyAssignments pa on pa.CustomerID=c.CustomerID
join Claims cl on cl.AssignmentID=pa.AssignmentID
Group by c.FirstName,c.LastName;
```

9)

```
select CONCAT(c.FirstName,c.LastName) as FullName,
sum(cl.ClaimAmount) as TotalAmount
from Customers c
join PolicyAssignments pa on c.CustomerID=pa.CustomerID
join Claims cl on cl.AssignmentID=pa.AssignmentID
group by c.FirstName,c.LastName
having sum(cl.ClaimAmount)>50000
```

10)

```
select a.AgentName,count(pa.AgentID) AS POLICY_COUNT
from Agents a
join PolicyAssignments pa on a.AgentID=pa.AgentID
group by a.AgentID,a.AgentName
```

Subqueries

```
1) SELECT *
   FROM Customers
   WHERE CustomerID IN (
    SELECT  CustomerID
    FROM PolicyAssignments
 );

2) SELECT *
   FROM Policies
   WHERE PolicyID NOT IN (
   SELECT PolicyID
   FROM PolicyAssignments
 );

3) SELECT *
   FROM Claims
   WHERE ClaimAmount > (
    SELECT AVG(ClaimAmount)
    FROM Claims
  );

4)SELECT *
  FROM Customers
  WHERE CustomerID IN (
    SELECT  CustomerID
    FROM PolicyAssignments
    WHERE AssignmentID IN (
        SELECT AssignmentID
        FROM Claims
    )
  );
5)  SELECT *
   FROM Policies
   WHERE PremiumAmount > (
    SELECT MAX(PremiumAmount)
    FROM Policies
    WHERE PolicyType LIKE 'Motor%'
 );

6)  SELECT *
   FROM Claims
   WHERE AssignmentID IN (
    SELECT AssignmentID
    FROM PolicyAssignments
    WHERE EndDate < GETDATE()
  );
```

Case-Else Commands

```
1) SELECT PolicyID, PolicyName, PremiumAmount,
CASE
    WHEN PremiumAmount >= 30000 THEN 'High Premium'
    WHEN PremiumAmount >= 15000 THEN 'Medium Premium'
    ELSE 'Low Premium'
END AS PremiumCategory
FROM Policies;

2) SELECT PolicyID, PolicyName, DurationYears,
CASE
    WHEN DurationYears >= 10 THEN 'Long Term'
    WHEN DurationYears BETWEEN 5 AND 9 THEN 'Medium Term'
    ELSE 'Short Term'
END AS PolicyDurationType
FROM Policies;

3) SELECT AssignmentID, StartDate, EndDate,
CASE
    WHEN EndDate < GETDATE() THEN 'Expired'
    ELSE 'Active'
END AS PolicyStatus
```

```
FROM PolicyAssignments;
```

Merge Command

```
1) MERGE Customers AS target
USING NewCustomers AS source
ON target.CustomerID = source.CustomerID
WHEN MATCHED THEN
    UPDATE SET
        target.FirstName = source.FirstName,
        target.LastName  = source.LastName,
        target.City      = source.City
WHEN NOT MATCHED THEN
    INSERT (CustomerID, FirstName, LastName, DateOfBirth, City)
    VALUES (source.CustomerID, source.FirstName, source.LastName,
source.DateOfBirth, source.City);
```

Rollup With Group By Commands

```
1) SELECT ClaimStatus,
       SUM(ClaimAmount) AS TotalClaimAmount
FROM Claims
GROUP BY ROLLUP(ClaimStatus);

2) SELECT PolicyType,
       PolicyName,
       SUM(PremiumAmount) AS TotalPremium
FROM Policies
GROUP BY ROLLUP(PolicyType, PolicyName);

3) SELECT AgentID,
       COUNT(*) AS PolicyCount
FROM PolicyAssignments
GROUP BY ROLLUP(AgentID);
```