Date: 29-12-2025 à Day 2 – Querying & Modifying Data

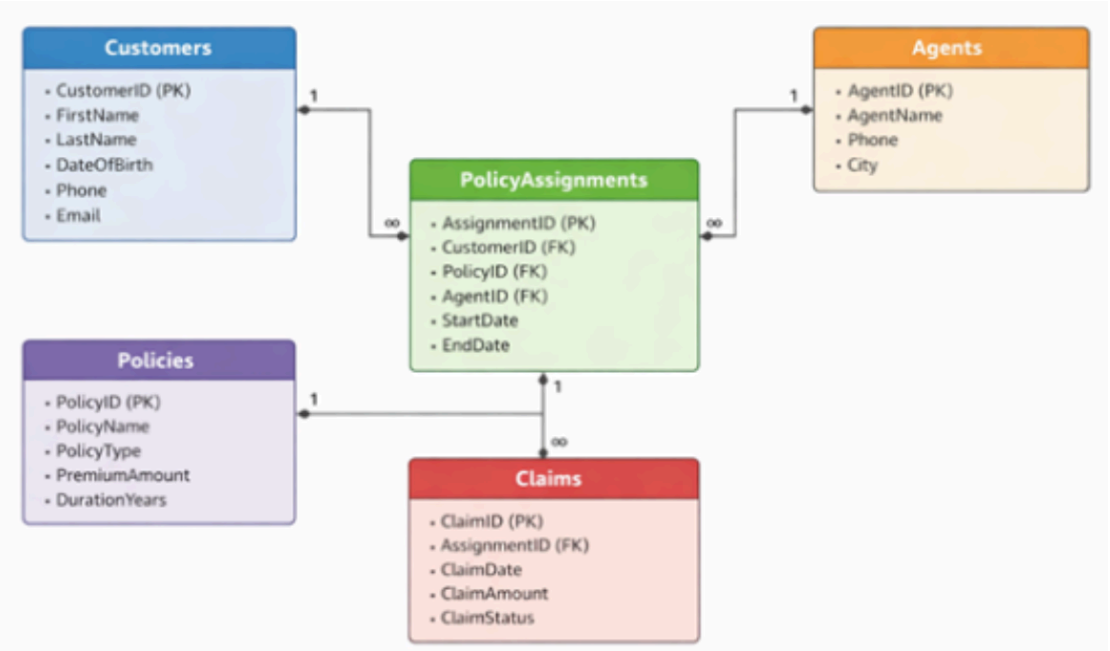
Create Sample Insurance database named **InsuranceDB** with tables, constraints, and initial sample data. Based on following er diagram and descriptions.

Entities we'll model:

- **Customers** – people who buy insurance
- **Policies** – insurance products (Health, Motor, Life)
- **Agents** – insurance agents
- **PolicyAssignments** – which customer bought which policy
- **Claims** – claims raised against policies

Relationship Explanation

- **One Customer → Many PolicyAssignments**
- **One Policy → Many PolicyAssignments**
- **One Agent → Many PolicyAssignments**
- **One PolicyAssignment → Many Claims**



1.

- create database InsuranceDB;
- use InsuranceDB;

2.

```
create table Customers(
	CustomerID int identity primary key,
	FirstName varchar(20) not null,
	LastName varchar(20),
	DateOfBirth date,
	Phone varchar(20),
	Email varchar(20) unique
)


create table Policies(
	PolicyID int identity primary key,
	PolicyName varchar(20),
	PolicyType varchar(20),
	PremiumAmount decimal(10,2),
	DurationYear int
)

create table Agents(
	AgentID int identity primary key,
	AgentName varchar(20),
	Phone varchar(15),
	City varchar(20)
)

create table PolicyAssignments(
	AssignmentID int identity primary key,
	CustomerID int,
	PolicyID int,
	AgentID int,
	StartDate date,
	EndDate date,
	constraint fk_customerid foreign key(CustomerID) references
Customers(CustomerID),
	constraint fk_policyid foreign key(PolicyID) references Policies(PolicyID),
	constraint fk_agentid foreign key(AgentID) references Agents(AgentID),
)

create table Claims(
	ClaimID int identity primary key,
	AssignmentID int,
	ClaimDate date,
	ClaimAmount decimal(10,2),
	ClaimStatus varchar(20),
	constraint fk_policyID_claims foreign key(AssignmentId) references
PolicyAssignments(AssignmentID)
```

3.

```
INSERT INTO Customers (FirstName, LastName, DateOfBirth, Phone, Email)
VALUES
('Amit', 'Sharma', '1998-04-12', '9876543210', 'amit@gmail.com'),
('Priya', 'Verma', '2000-09-25', '9123456789', 'priya@gmail.com'),
('Rahul', 'Kumar', '1997-01-18', '9988776655', 'rahul@gmail.com'),
('Sneha', 'Reddy', '1999-06-30', '9012345678', 'sneha@gmail.com'),
('Arjun', 'Mehta', '1996-11-05', '8899776655', 'arjun@gmail.com');

INSERT INTO Policies (PolicyName, PolicyType, PremiumAmount, DurationYear)
VALUES
('Life Secure', 'Life', 15000.00, 20),
('Health Plus', 'Health', 8000.50, 5),
('Car Shield', 'Vehicle', 6200.75, 1),
('Home Protect', 'Property', 12000.00, 10),
('Travel Safe', 'Travel', 3500.00, 1);

INSERT INTO Agents (AgentName, Phone, City)
VALUES
('Ravi Kumar', '9876543210', 'Hyderabad'),
('Anita Singh', '9123456789', 'Bengaluru'),
('Suresh Rao', '9988776655', 'Chennai'),
('Neha Patel', '9012345678', 'Ahmedabad'),
('Vikram Shah', '8899776655', 'Mumbai');

INSERT INTO PolicyAssignments (CustomerID, PolicyID, AgentID, StartDate, EndDate)
VALUES
(1, 1, 1, '2023-01-01', '2043-01-01'),
(2, 2, 2, '2024-03-15', '2029-03-15'),
(3, 3, 3, '2024-06-01', '2025-06-01'),
(4, 4, 4, '2022-09-10', '2032-09-10'),
(5, 5, 5, '2024-01-01', '2025-01-01');

INSERT INTO Claims (AssignmentID, ClaimDate, ClaimAmount, ClaimStatus)
VALUES
(1, '2024-02-10', 25000.00, 'Approved'),
(2, '2024-05-18', 12000.50, 'Pending'),
(3, '2024-07-01', 45000.00, 'Rejected'),
(4, '2023-12-22', 18000.75, 'Approved'),
(5, '2024-08-05', 9000.00, 'Pending');
```

4.1

select * from Customers;

	CustomerID	FirstName	LastName	DateOfBirth	Phone	Email
1	1	Amit	Sharma	1998-04-12	9876543210	amit@gmail.com
2	2	Priya	Verma	2000-09-25	9123456789	priya@gmail.com
3	3	Rahul	Kumar	1997-01-18	9988776655	rahul@gmail.com
4	4	Sneha	Reddy	1999-06-30	9012345678	sneha@gmail.com
5	5	Arjun	Mehta	1996-11-05	8899776655	arjun@gmail.com

4.2

select CustomerID, PolicyID, StartDate, EndDate
from PolicyAssignments;

	CustomerID	PolicyID	StartDate	EndDate
1	1	1	2023-01-01	2043-01-01
2	2	2	2024-03-15	2029-03-15
3	3	3	2024-06-01	2025-06-01
4	4	4	2022-09-10	2032-09-10
5	5	5	2024-01-01	2025-01-01

4.3

select * from Policies where PolicyType = 'Health';

	PolicyID	PolicyName	PolicyType	PremiumAmount	DurationYear
1	2	Health Plus	Health	8000.50	5

4.4

select * from Policies where PremiumAmount>10000 and DurationYear=1;

	PolicyID	PolicyName	PolicyType	PremiumAmount	DurationYear

4.5

select distinct(city) from agents;

	city
1	Ahmedabad
2	Bengaluru
3	Chennai
4	Hyderabad
5	Mumbai

4.6

```
select * from Policies where
PolicyType = 'Life' or
PolicyType = 'Health' or
PolicyType = 'Motor';
```

	PolicyID	PolicyName	PolicyType	PremiumAmount	DurationYear
1	1	Life Secure	Life	15000.00	20
2	2	Health Plus	Health	8000.50	5

4.7

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

	PolicyID	PolicyName	PolicyType	PremiumAmount	DurationYear
1	1	Life Secure	Life	15000.00	20
2	2	Health Plus	Health	8000.50	5

4.8

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

	CustomerID	FirstName	LastName	DateOfBirth	Phone	Email

4.9

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

	CustomerID	FirstName	LastName	DateOfBirth	Phone	Email

4.10

```
select * from Claims where ClaimStatus = 'Rejected';
```

	ClaimID	AssignmentID	ClaimDate	ClaimAmount	ClaimStatus
1	3	3	2024-07-01	45000.00	Rejected

4.11

```
select * from Agents where City like '_a%';
```

AgentID	AgentName	Phone	City

4.12

```
select max(ClaimAmount) as HighestClaimAmt,
min(ClaimAmount) as LowestClaimAmt
from Claims;
```

	HighestClaimAmt	LowestClaimAmt
1	45000.00	9000.00

4.13

```
select top 1 * from Claims
order by ClaimDate desc;
```

	ClaimID	AssignmentID	ClaimDate	ClaimAmount	ClaimStatus
1	5	5	2024-08-05	9000.00	Pending

4.14

```
update Policies
set premiumAmount = premiumAmount * 1.10
where policyType = 'Health';
```

4.15

```
delete from PolicyAssignments where EndDate < GETDATE();
```

4.16

```
select count(*) as rejectedClaims from Claims where ClaimStatus = 'Rejected';
```

	rejectedClaims
1	1

4.17

```
select PolicyID, PolicyName, PremiumAmount,
PremiumAmount * 0.06 as LocalTaxes,
PremiumAmount * 1.06 as PremiumAmountWithTax,
(PremiumAmount * 1.06) / 12 as MonthlyPremiumAmount
from Policies;
```

	PolicyID	PolicyName	PremiumAmount	LocalTaxes	PremiumAmountWithTax	MonthlyPremiumAmount
1	1	Life Secure	15000.00	900.0000	15900.0000	1325.0000000
2	2	Health Plus	8800.55	528.0330	9328.5830	777.3819166
3	3	Car Shield	6200.75	372.0450	6572.7950	547.7329166
4	4	Home Protect	12000.00	720.0000	12720.0000	1060.0000000
5	5	Travel Safe	3500.00	210.0000	3710.0000	309.1666666

4.18

```
alter table Customers add address varchar(30);
alter table Customers add city varchar(20);
```

4.19

```
alter table Agents add DevOfId int;
```

4.20

```
alter table Agents
add constraint fk_agent_devof
foreign key (DevOfId)
references Agents (AgentID);
```

5.1

```
select c.CustomerID, p.PolicyName
from Customers c join PolicyAssignments po
on po.CustomerID = c.CustomerID join Policies p
on po.PolicyID = p.PolicyID
where c.CustomerID = 5;
```

	CustomerID	PolicyName
1	5	Travel Safe

5.2

```
select c.CustomerID, p.PolicyName
from Customers c join PolicyAssignments po
on po.CustomerID = c.CustomerID join Policies p
on po.PolicyID = p.PolicyID;
```

	CustomerID	PolicyName
1	1	Life Secure
2	2	Health Plus
3	3	Car Shield
4	4	Home Protect
5	5	Travel Safe

5.3

```
select c.FirstName, cl.*
from Customers c join PolicyAssignments po
on po.CustomerID = c.CustomerID join Claims cl
on cl.AssignmentID = po.AssignmentID;
```

	FirstName	ClaimID	AssignmentID	ClaimDate	ClaimAmount	ClaimStatus
1	Amit	1	1	2024-02-10	25000.00	Approved
2	Priya	2	2	2024-05-18	12000.50	Pending
3	Rahul	3	3	2024-07-01	45000.00	Rejected
4	Sneha	4	4	2023-12-22	18000.75	Approved
5	Arjun	5	5	2024-08-05	9000.00	Pending

5.4

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

	FirstName	PolicyName	AgentName	StartDate	EndDate
1	Amit	Life Secure	Ravi Kumar	2023-01-01	2043-01-01
2	Priya	Health Plus	Anita Singh	2024-03-15	2029-03-15
3	Rahul	Car Shield	Suresh Rao	2024-06-01	2025-06-01
4	Sneha	Home Protect	Neha Patel	2022-09-10	2032-09-10
5	Arjun	Travel Safe	Vikram Shah	2024-01-01	2025-01-01

5.5

```
select c.FirstName, p.PolicyName, cl.ClaimAmount, cl.ClaimStatus, cl.ClaimDate
from Customers c join PolicyAssignments po
on po.CustomerID = c.CustomerID join Policies p
on po.PolicyID = p.PolicyID join Claims cl
on cl.AssignmentID = po.AssignmentID;
```

	FirstName	PolicyName	ClaimAmount	ClaimStatus	ClaimDate
1	Amit	Life Secure	25000.00	Approved	2024-02-10
2	Priya	Health Plus	12000.50	Pending	2024-05-18
3	Rahul	Car Shield	45000.00	Rejected	2024-07-01
4	Sneha	Home Protect	18000.75	Approved	2023-12-22
5	Arjun	Travel Safe	9000.00	Pending	2024-08-05

5.6

```
select c.*, p.PolicyName
from Customers c
```

```
left join PolicyAssignments po
on c.CustomerID = po.CustomerID
left join Policies p
on po.PolicyID = p.PolicyID;
```

	CustomerID	FirstName	LastName	DateOfBirth	Phone	Email	address	city	PolicyName
1	1	Amit	Sharma	1998-04-12	9876543210	amit@gmail.com	NULL	NULL	Life Secure
2	2	Priya	Verma	2000-09-25	9123456789	priya@gmail.com	NULL	NULL	Health Plus
3	3	Rahul	Kumar	1997-01-18	9988776655	rahul@gmail.com	NULL	NULL	Car Shield
4	4	Sneha	Reddy	1999-06-30	9012345678	sneha@gmail.com	NULL	NULL	Home Protect
5	5	Arjun	Mehta	1996-11-05	8899776655	arjun@gmail.com	NULL	NULL	Travel Safe
6	6	Mihir	Han	2001-12-11	9999998486	mihir@gmail.com	NULL	NULL	NULL

5.7

```
select c.*, cl.ClaimID
from Customers c
left join PolicyAssignments po
on c.CustomerID = po.CustomerID
left join Claims cl
on cl.AssignmentID = po.AssignmentID
where cl.ClaimID is null;
```

	CustomerID	FirstName	LastName	DateOfBirth	Phone	Email	address	city	ClaimID
1	6	Mihir	Han	2001-12-11	9999998486	mihir@gmail.com	NULL	NULL	NULL

5.8

```
select c.FirstName, sum(cl.ClaimAmount) AS TotalClaimAmount
from Customers c
join PolicyAssignments po
on c.CustomerID = po.CustomerID
join Claims cl
on po.AssignmentID = cl.AssignmentID
group by c.FirstName;
```

	FirstName	TotalClaimAmount
1	Amit	25000.00
2	Arjun	9000.00
3	Priya	12000.50
4	Rahul	45000.00
5	Sneha	18000.75

5.9

```
select c.FirstName, sum(cl.ClaimAmount) AS TotalClaimAmount
form Customers c
join PolicyAssignments po
on c.CustomerID = po.CustomerID
join Claims cl
```

```
on po.AssignmentID = cl.AssignmentID
group by c.FirstName
having sum(cl.ClaimAmount) > 50000;
```

	FirstName	TotalClaimAmount
1	Amit	275000.00

5.10

```
select a.AgentName, count(po.PolicyID) AS PolicyCount
from Agents a
left join PolicyAssignments po
on a.AgentID = po.AgentID
group by a.AgentName;
```

	AgentName	PolicyCount
1	Anita Singh	1
2	Neha Patel	1
3	Ravi Kumar	1
4	Suresh Rao	1
5	Vikram Shah	1