Day 2 – Querying & Modifying Data

1. **create database insurancedb;**
2. **Create table commands**

```
create table Customers (
CustomerID int primary key identity,
FirstName nchar(50),
LastName nchar(50),
DateOfBirth date,
Phone nchar(50),
Email nchar(50)
);

create table Policies (
PolicyID int primary key identity,
PolicyName nchar(50),
PolicyType nchar(50),
PremiumAmount int,
DurationYears int
);

create table Agents (
AgentID int primary key identity,
AgentName nchar(50),
Phone nchar(10),
City nchar(30)
);

create table PolicyAssignments(
AssignmentID int primary key identity,
CustomerID int,
PolicyID int,
AgentID int,
StartDate date,
EndDate date
constraint customer_fk foreign key (CustomerID) references Customers (CustomerID),
constraint policy_fk foreign key (PolicyID) references Policies (PolicyID),
constraint agent_fk foreign key (AgentID) references Agents (AgentID)
);
```

```
create table Claims (
ClaimID int primary key identity,
AssignmentID int,
ClaimDate date,
ClaimAmount money,
ClaimStatus nvarchar(10)
constraint assignmentid_fk foreign key(AssignmentID) references
PolicyAssignments(AssignmentID)
);
```

3. Insert Commands

```
INSERT INTO Customers (FirstName, LastName, DateOfBirth, Phone, Email)
VALUES
('Rahul',  'Sharma', '1995-12-12', '9704873975', 'rahulez@gmail.com'),
('Neha',   'Shetty', '1999-07-12', '9014486579', 'neha69@gmail.com'),
('Amit',   'Patel',  '1993-03-25', '9823456789', 'amit.patel@gmail.com'),
('Sneha',  'Reddy',  '1997-11-05', '9345678123', 'sneha.reddy@gmail.com');

INSERT INTO Policies (PolicyName, PolicyType, PremiumAmount, DurationYears)
VALUES
('Two-Wheeler Shield','Vehicle Insurance',      4000,  3),
('Home Shield',       'Property Insurance',     10000, 15),
('Home Premium',      'Property Insurance',     20000, 25),
('Travel Safe',       'Travel Insurance',       3000,  1),
('Child Future Plan', 'Life Insurance',         22000, 18),
('Retirement Secure', 'Life Insurance',         25000, 30);

INSERT INTO Agents (AgentName, Phone, City)
VALUES
('Virat', '9871201234', 'Delhi'),
('Vijay',   '9127809876', 'Chennai');

insert into agents(agentname,phone,city)
values
('Mahesh','9812345678','Baroda');

INSERT INTO PolicyAssignments
(CustomerID, PolicyID, AgentID, StartDate, EndDate)
VALUES
(1, 1, 1, '2022-01-01', '2042-01-01'),
(2, 2, 2, '2023-06-15', '2035-06-15'),
```

(3, 3, 3, '2021-03-10', '2026-03-10'),
(4, 4, 1, '2020-09-01', '2035-09-01'),
(1, 2, 2, '2024-01-01', '2036-01-01');

INSERT INTO Claims (AssignmentID, ClaimDate, ClaimAmount, ClaimStatus)
VALUES
(1, '2023-05-10', 50000, 'Approved'),
(2, '2024-02-18', 30000, 'Pending'),
(7, '2026-01-25', 75000, 'Approved'),
(8, '2027-08-12', 45000, 'Rejected'),
(1, '2024-11-05', 20000, 'Approved'),
(2, '2025-06-20', 15000, 'Pending');

4. Select commands

1. View all records Customers table.
   select * from customers;

Results Messages

	CustomerID	FirstName	LastName	DateOfBirth	Phone	Email	address	city
1	1	Rahul	Sharma	1995-12-12	9704873975	rahulez@gmail.com	Nizampet	hyderabad
2	2	Neha	Shetty	1999-07-12	9014486579	neha69@gmail.com	thanjavuram	hyderabad
3	7	Amit	Patel	1993-03-25	9823456789	amit.patel@gmail.com	NULL	NULL
4	8	Sneha	Reddy	1997-11-05	9345678123	sneha.reddy@gmail.com	NULL	NULL
5	9	Arjun	Reddy	1997-10-05	9345678123	arjunreddy@gmail.com	NULL	NULL
6	10	Ronin	Reddy	2004-07-01	9876543210	ronin@mail.com	NULL	NULL

2. View all records of PolicyAssignment table with CustomerId, PolicyId, StartDate and EndDate columns only.
   select customerid,policyid,startdate,enddate from policyassignments;

Results Messages

	customerid	policyid	startdate	enddate
1	1	1	2022-01-01	2042-01-01
2	2	2	2023-06-15	2035-06-15
3	7	4	2025-12-11	2035-07-08
4	9	4	2025-12-11	2035-07-08
5	10	4	2024-12-11	2036-07-08
6	1	2	2024-12-11	2026-07-08
7	1	2	2022-12-11	2025-07-08

3. Display all policies of Health type.
   select * from policies where policytype like '%health%';

Results Messages

	PolicyID	PolicyName	PolicyType	PremiumAmount	DurationYears
1	2	HealthPlus	Health Insurance	13200	12

4. Display policies having premium amount more than 10000 and DurationYears is 1.
   select * from policies where premiumamount >10000 and durationyears=1;

Results Messages

	PolicyID	PolicyName	PolicyType	PremiumAmount	DurationYears
1	11	Disability Help	Disability Insurance	12000	1

5. Display unique city names from where agents belong to.
   select distinct city from agents;

Results Messages

	city
1	Bangalore
2	Baroda
3	Chennai
4	Delhi
5	Hyderabad

6. List policies of type Life, Health, Motor use OR clause.
   select * from policies where policytype like '%Life%' or policytype like '%Health%' or policytype like '%Motor%';

Results Messages

	PolicyID	PolicyName	PolicyType	PremiumAmount	DurationYears
1	1	Life Secure	Life Insurance	15000	20
2	2	HealthPlus	Health Insurance	13200	12
3	9	Child Future Plan	Life Insurance	22000	18
4	10	Retirement Secure	Life Insurance	25000	30

7. List policies of type Life, Health, Motor use IN operator.
   select * from policies where policytype in ('Life Insurance','Health Insurance','Motor Insurance');

Results Messages

	PolicyID	PolicyName	PolicyType	PremiumAmount	DurationYears
1	1	Life Secure	Life Insurance	15000	20
2	2	HealthPlus	Health Insurance	13200	12
3	9	Child Future Plan	Life Insurance	22000	18
4	10	Retirement Secure	Life Insurance	25000	30

8. Display list of customers born after January 1st , 2001 and before December 31st , 2020 using >= and <= operators.
   select * from customers where DateOfBirth >= '2001-01-01' and DateOfBirth <= '2020-12-31';

Results Messages

	CustomerID	FirstName	LastName	DateOfBirth	Phone	Email	address	city
1	10	Ronin	Reddy	2004-07-01	9876543210	ronin@mail.com	NULL	NULL

9. Display list of customers born after January 1st, 2001 and before December 31st, 2020 using between operator.
   select * from customers where DateOfBirth between '2001-01-01' and '2020-12-31';

Results Messages

	CustomerID	FirstName	LastName	DateOfBirth	Phone	Email	address	city
1	10	Ronin	Reddy	2004-07-01	9876543210	ronin@mail.com	NULL	NULL

10. Display claims data where claim status is Rejected.
    select * from claims where claimstatus = 'Rejected';

Results | Messages

	ClaimID	AssignmentID	ClaimDate	ClaimAmount	ClaimStatus
1	4	8	2027-08-12	45000.00	Rejected

11. Display records of Agents who stay in a city whose second letter is 'a'.
    select * from agents where city like '_a%';

Results | Messages

	AgentID	AgentName	Phone	City	DevOfId
1	2	Neha Singh	9123409876	Bangalore	3
2	5	Mahesh	9812345678	Baroda	3

12. Display highest and lowest claimAmount from Claims table.
    select max(claimamount) as max_claim_amount,min(claimamount) as min_claim_amount from claims;

Results | Messages

	max_claim_amount	min_claim_amount
1	75000.00	15000.00

13. Display latest claim record.
    select * from claims order by claimdate desc offset 0 rows fetch next 1 row only;

Results | Messages

	ClaimID	AssignmentID	ClaimDate	ClaimAmount	ClaimStatus
1	4	8	2027-08-12	45000.00	Rejected

14. Increase premium amount to 10% for all health insurance policies.
    update policies set premiumamount=(0.10*premiumamount)+premiumamount where policytype like '%health%';

Messages

```
(1 row affected)

Completion time: 2025-12-29T23:19:35.8950021+05:30
```

15. Delete the record of PolicyAssignments whose EndDate is before today's date.
    delete from policyassignments where enddate < getdate();
16. Display no of claims rejected.
    select count (*) as claims_rejected from claims where claimstatus = 'Rejected';

Results | Messages

	claims_rejected
1	1

17. Display PolicyId, PolicyName, PremiumAmount along with computed fields not in table 6% LocalTaxes, PremiumAmountWithTax and MonthlyPremiumAmount considering PremiumAmount is Annual.
    select policyid,policyname,premiumamount, (0.60*premiumamount) as local_taxes,(premiumamount+(0.60*premiumamount)) as PremiumAmountWithTax, ((premiumamount+(0.60*premiumamount))/12) as MonthlyPremiumAmount from policies;

Results | Messages

	policyid	policyname	premiumamount	localtaxes	PremiumAmountWithTax	MonthlyPremiumAmount
1	1	Life Secure	15000	9000.00	24000.00	2000.000000
2	2	HealthPlus	15972	9583.20	25555.20	2129.600000
3	3	CarPLus	8000	4800.00	12800.00	1066.666666
4	4	BoatPlus	12000	7200.00	19200.00	1600.000000
5	5	Two Wheeler Shield	4000	2400.00	6400.00	533.333333
6	6	Home Shield	10000	6000.00	16000.00	1333.333333
7	7	Home Premium	20000	12000.00	32000.00	2666.666666
8	8	Travel Safe	3000	1800.00	4800.00	400.000000
9	9	Child Future Plan	22000	13200.00	35200.00	2933.333333
10	10	Retirement Secure	25000	15000.00	40000.00	3333.333333
11	11	Disability Help	12000	7200.00	19200.00	1600.000000

18. Write a command to add Address and City Columns in the Customers table.
    alter table customers add address nvarchar(30), city nvarchar(18);

19. Write a command to add a new column named DevOfId (DevelopmentOfficerId) in an existing Agents table.
    alter table agents add DevOfId int;

20. Write command to make the above DevOfId as a recursive foreign key to AgentId as Parent.
    alter table agents add constraint devid_fk foreign key(devofid) references agents(agentid);

5. Queries using Joins, Group By, Having etc.

1. List all Policies for a CustomerId 5.

--changed it to 1

```
select * from policyassignments p
join customers c on
p.customerid=c.customerid
where c.customerid=1;
```

Results | Messages

	AssignmentID	CustomerID	PolicyID	AgentID	StartDate	EndDate	CustomerID	FirstName	LastName	DateOfBirth	Phone	Email	address	city
1	1	1	1	1	2022-01-01	2042-01-01	1	Rahul	Sharma	1995-12-12	9704873975	rahulez@gmail.com	Nizampet	hyderabad
2	13	1	2	2	2024-12-11	2026-07-08	1	Rahul	Sharma	1995-12-12	9704873975	rahulez@gmail.com	Nizampet	hyderabad
3	14	1	2	4	2022-12-11	2025-07-08	1	Rahul	Sharma	1995-12-12	9704873975	rahulez@gmail.com	Nizampet	hyderabad

2. View all customers with their policies.
   select c.customerid,c.firstname,c.lastname,po.policyname,po.policytype from customers c
   left join policyassignments p
   on c.customerid=p.customerid
   left join policies po on
   p.policyid=po.policyid;

Results | Messages

	customerid	firstname	lastname	policyname	policytype
1	1	Rahul	Sharma	Life Secure	Life Insurance
2	1	Rahul	Sharma	HealthPlus	Health Insurance
3	1	Rahul	Sharma	HealthPlus	Health Insurance
4	2	Neha	Shetty	HealthPlus	Health Insurance
5	7	Amit	Patel	BoatPlus	Boat Insurance
6	8	Sneha	Reddy	NULL	NULL
7	9	Arjun	Reddy	BoatPlus	Boat Insurance
8	10	Ronin	Reddy	BoatPlus	Boat Insurance

3. View claims with customer name.
   select c.firstname,c.lastname,cl.claimDate,cl.claimamount from claims cl
   left join policyassignments po
   on cl.assignmentid=po.assignmentid
   left join customers c
   on po.customerid=c.customerid;

Results | Messages

	firstname	lastname	claimDate	claimamount
1	Rahul	Sharma	2023-05-10	50000.00
2	Neha	Shetty	2024-02-18	30000.00
3	Amit	Patel	2026-01-25	75000.00
4	Arjun	Reddy	2027-08-12	45000.00
5	Rahul	Sharma	2024-11-05	20000.00
6	Neha	Shetty	2025-06-20	15000.00

4. Display FirstName, PolicyName, AgentName, StartDate and EndDate from their respective tables.
   select c.firstname,p.policyname,a.agentname,po.startdate,po.enddate from policyassignments po
   join customers c on
   c.customerid=po.customerid
   join agents a on
   po.agentid=a.agentid

join policies p on
po.policyid=p.policyid;

Results Messages

	firstname	policyname	agentname	startdate	enddate
1	Rahul	Life Secure	Suresh Kumar	2022-01-01	2042-01-01
2	Neha	HealthPlus	Neha Singh	2023-06-15	2035-06-15
3	Amit	BoatPlus	Vijay	2025-12-11	2035-07-08
4	Arjun	BoatPlus	Vijay	2025-12-11	2035-07-08
5	Ronin	BoatPlus	Virat	2024-12-11	2036-07-08
6	Rahul	HealthPlus	Neha Singh	2024-12-11	2026-07-08
7	Rahul	HealthPlus	Vijay	2022-12-11	2025-07-08

5. Display claims report with FirstName, PolicyName, ClaimAmount, ClaimStatus, and ClaimDate from their respective tables.
   select c.firstname, p.policyname, cl.claimamount, cl.claimstatus, cl.claimdate from claims cl
   join policyassignments po on
   cl.assignmentid=po.assignmentid
   join customers c on
   po.customerid=c.customerid
   join policies p on
   po.policyid=p.policyid;

Results Messages

	firstname	policyname	claimamount	claimstatus	claimdate
1	Rahul	Life Secure	50000.00	Approved	2023-05-10
2	Neha	HealthPlus	30000.00	Pending	2024-02-18
3	Amit	BoatPlus	75000.00	Approved	2026-01-25
4	Arjun	BoatPlus	45000.00	Rejected	2027-08-12
5	Rahul	Life Secure	20000.00	Approved	2024-11-05
6	Neha	HealthPlus	15000.00	Pending	2025-06-20

6. Display records of Customers with or without Policies.
   select c.firstname,p.policyname from customers c
   left join policyassignments po on
   c.customerid=po.customerid
   left join policies p on
   po.policyid=p.policyid
   where po.policyid is not null;

Results Messages

	firstname	policyname
1	Rahul	Life Secure
2	Neha	HealthPlus
3	Amit	BoatPlus
4	Arjun	BoatPlus
5	Ronin	BoatPlus
6	Rahul	HealthPlus
7	Rahul	HealthPlus

7. Display all Customers with NO Claims.
   select c.firstname,c.lastname,claimid,po.assignmentid from customers c
   left join policyassignments po on
   po.customerid=c.customerid
   left join claims cl on
   po.assignmentid=cl.assignmentid
   where claimid is null and po.assignmentid is not null;

Results Messages

	firstname	lastname	claimid	assignmentid
1	Ronin	Reddy	NULL	10
2	Rahul	Sharma	NULL	13
3	Rahul	Sharma	NULL	14

8. Show CustomerName with Total Claim Amount per Customer.
   select c.firstname,c.customerid,sum(cl.claimamount) from claims cl
   join policyassignments po on
   po.assignmentid=cl.assignmentid
   join customers c on
   po.customerid=c.customerid
   group by c.customerid,c.firstname;

Results Messages

	firstname	customerid	(No column name)
1	Rahul	1	70000.00
2	Neha	2	45000.00
3	Amit	7	75000.00
4	Arjun	9	45000.00

9. Show names and total claim amount of Customers With Claim Amount > 50000 (Use HAVING Clause).
   select c.firstname,c.customerid,sum(cl.claimamount) as total_claim from claims cl
   join policyassignments po on
   po.assignmentid=cl.assignmentid
   join customers c on
   po.customerid=c.customerid
   group by c.customerid,c.firstname
   having sum(cl.claimamount) > 50000 ;

Results Messages

	firstname	customerid	total_claim
1	Rahul	1	70000.00
2	Amit	7	75000.00

10. Display list with Agent Wise Policy Count.

```
select a.agentid,a.agentname,count(customerid) as total_policies_sold from
policyassignments p
right join agents a on
a.agentid=p.agentid
group by a.agentid,a.agentname
order by total_policies_sold desc;
```


Results Messages

	agentid	agentname	total_policies_sold
1	4	Vijay	3
2	2	Neha Singh	2
3	3	Virat	1
4	1	Suresh Kumar	1
5	5	Mahesh	0