Day 2 – Querying & Modifying Data

1.Creating Database command:

Create database Insurance;

Create table commands for all the tables with constraints, relationships etc.

2.Creating Tables:

customers

create table customers (customerID int not null PRIMARY KEY identity(1,1), FirstName varchar(50),LastName varchar(50) , DateOfBirth date, Phone varchar(50), Email varchar(50));

Policies

create table Policies (PolicyID int not null PRIMARY KEY, PolicyName varchar(50), PolicyType varchar(50) , PremiumAmount int, DurationYears int);

Agents

create table Agents(AgentID int not null PRIMARY KEY, AgentName varchar(50),Phone int, City varchar(50));

PolicyAssignments

create table PolicyAssignments (AssignmentID int not null Primary key, customerID int not null Foreign key References customers(customerID),PolicyID int not null Foreign key References Policies(PolicyID), AgentID int not null Foreign key References Agents(AgentID), StartDate date, EndDate date);

Claims

create table Claims(ClaimID int not null PRIMARY KEY, AssignmentID int not null Foreign key References PolicyAssignments(AssignmentID),ClaimDate date, ClaimAmount int, ClaimStatus varchar(50));

Insert commands for all tables.

3.Inserting Data:

customers

insert into customers values('Anand','chedapangu','2003-08-23','9573634476','anandch1119@gamil.com');

insert into customers values('Abhi','Banda','2003-12-26','7396939296','abhi7@gmail.com');

insert into customers values('Abhi','chanda','2005-12-26','7396908296','abhichanda@gmail.com');

Policies

insert into Policies values(1,'Health','General',50000,2);

insert into Policies values(2,'Term','Life Insurane',100000,5);

insert into Policies values(3,'General','Health',500000,2);

insert into Policies values(4,'Life', 'Health',100000,9);

insert into Policies values(5,'Term','Life',100000,1);

insert into Policies values(6,'Motor','Motor',500000,1);

insert into Policies values(7,'Family', 'Health',100000,1);

Agents

insert into Agents values(1,'Ram','848483210','Hyderabad');

insert into Agents values(2,'Ramesh','848903210','Hyderabad');

insert into Agents values(3,'Poojitha','9191918323','kamareddy');

insert into Agents values(4,'Srinitha','848909890','karimnagar');

PolicyAssignments

insert into PolicyAssignments values(1,4,1,1,'2023-08-23','2025-08-24');

insert into PolicyAssignments values(2,5,1,2,'2023-10-23','2026-08-24');

Claims

insert into Claims values(101,1,'2023-08-24',50000,'success');

insert into Claims values(102,2,'2023-12-24',100000,'success');

insert into Claims values(103,2,'2024-08-24',100000,'Rejected');

insert into Claims values(104,2,'2023-12-24',100000,'Approved');

insert into Claims values(105,1,'2024-06-24',100000,'Rejected');

insert into Claims values(106,1,'2025-02-24',100000,'Pending');

4.Select Commands

1. View all records Customers table.

select * from customers;

	customerID	FirstName	LastName	DateOfBirth	Phone	Email
1	4	Anand	chedapangu	2003-08-23	9573634476	anandch1119@gamil.com
2	5	Abhi	Banda	2003-12-26	7396939296	abhi7@gmail.com
3	6	Abhi	chanda	2005-12-26	7396908296	abhichanda@gmail.com

2. View all records of PolicyAssignment table with CustomerId, PolicyId, StartDate and EndDate columns only.

select customerID,PolicyID,StartDate,EndDate from PolicyAssignments;

	customerID	PolicyID	StartDate	EndDate
1	4	1	2023-08-23	2025-08-24
2	5	1	2023-10-23	2026-08-24

3. Display all policies of Health type.

select PolicyName from Policies where PolicyType='Health';

	PolicyName
1	General
2	Life

4. Display policies having premium amount more than 10000 and DurationYears is 1.

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

	PolicyID	PolicyName	PolicyType	PremiumAmount	DurationYears
1	5	Term	Life	100000.0000	1
2	6	Motor	Motor	500000.0000	1
3	7	Family	Health	100000.0000	1

5. Display unique city names from where agents belong to.

select distinct city from Agents;

	city
1	Hyderabad
2	kamareddy
3	karimnagar

6. List policies of type Life, Health, Motor use OR clause.

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

	PolicyID	PolicyName	PolicyType	PremiumAmount	DurationYears
1	3	General	Health	500000.0000	2
2	4	Life	Health	100000.0000	9
3	5	Term	Life	100000.0000	1
4	6	Motor	Motor	500000.0000	1
5	7	Family	Health	100000.0000	1

7. List policies of type Life, Health, Motor use IN operator.

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

	PolicyID	PolicyName	PolicyType	PremiumAmount	DurationYears
1	3	General	Health	500000.0000	2
2	4	Life	Health	100000.0000	9
3	5	Term	Life	100000.0000	1
4	6	Motor	Motor	500000.0000	1
5	7	Family	Health	100000.0000	1

8. Display list of customers born after January 1 st , 2001 and before December 31 st , 2020 using >= and <= operators.

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

	customerID	FirstName	LastName	DateOfBirth	Phone	Email
1	4	Anand	chedapangu	2003-08-23	9573634476	anandch1119@gamil.com
2	5	Abhi	Banda	2003-12-26	7396939296	abhi7@gmail.com
3	6	Abhi	chanda	2005-12-26	7396908296	abhichanda@gmail.com

9. Display list of customers born after January 1 st , 2001 and before December 31 st , 2020 using between operator.

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

	customerID	FirstName	LastName	DateOfBirth	Phone	Email
1	4	Anand	chedapangu	2003-08-23	9573634476	anandch1119@gamil.com
2	5	Abhi	Banda	2003-12-26	7396939296	abhi7@gmail.com
3	6	Abhi	chanda	2005-12-26	7396908296	abhichanda@gmail.com

10. Display claims data where claim status is Rejected.

select * from Claims where ClaimStatus='Rejected';

	ClaimID	AssignmentID	ClaimDate	ClaimAmount	ClaimStatus
1	103	2	2024-08-24	100000	Rejected
2	105	1	2024-06-24	100000	Rejected

11. Display records of Agents who stay in a city whose second letter is 'a'.

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

	AgentID	AgentName	Phone	City
1	3	Poojitha	9191918323	kamareddy
2	4	Srinitha	848909890	karimnagar

12. Display highest and lowest claimAmount from Claims table.

select max(ClaimAmount) as highest, min(ClaimAmount) as lowest from Claims;

	highest	lowest
1	100000	50000

13. Display latest claim record.

select Top 1 * from Claims order by ClaimDate desc;

	ClaimID	AssignmentID	ClaimDate	ClaimAmount	ClaimStatus
1	106	1	2025-02-24	100000	Pending

14. Increase premium amount to 10% for all health insurance policies.

update Policies set PremiumAmount= PremiumAmount+PremiumAmount*0.1 where PolicyType='Health';

15.Delete the record of PolicyAssignments whose EndDate is before today's date.

(we can't directly delete the record as the assignmentId is a foreign key in claims table , so before deleting we have to make sure that claims are also getting deleted)

delete from PolicyAssignments where EndDate<GETDATE();

16. Display no of claims rejected.

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

	(No column name)
1	2

17. Display PolicyId, PolicyName, PremiumAmount along with computed fields not in table à 6% LocalTaxes, PremiumAmountWithTax and MonthlyPremiumAmount considering PremiumAmount is Annual.

select PolicyID,PolicyName, PremiumAmount, PremiumAmount*0.06 as localtaxes,PremiumAmount+PremiumAmount*0.06 as PremiumAmountWithTax , PremiumAmount/12 as MonthlyPremiumAmount from Policies;

	PolicyID	PolicyName	PremiumAmount	localtaxes	PremiumAmountWithTax	MonthlyPremiumAmount
1	1	Health	50002.5500	3000.153000	53002.703000	4166.8791666
2	2	Term	100002.5500	6000.153000	106002.703000	8333.5458333
3	3	General	50000.0000	3000.000000	53000.000000	4166.6666666
4	4	Life	10000.0000	600.000000	10600.000000	833.3333333
5	5	Term	100000.0000	6000.000000	106000.000000	8333.3333333
6	6	Motor	500000.0000	30000.000000	530000.000000	41666.6666666
7	7	Family	10000.0000	600.000000	10600.000000	833.3333333

18.Write a command to add Address and City Columns in the Customers table.

alter table customers add Address varchar(50),City varchar(50);

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 rec_fk Foreign Key (DevOfId) references Agents(AgentId);

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

1. List all Policies for a CustomerId 5.

select Policies.PolicyID,Policies.PolicyName from Policies join PolicyAssignments on Policies.PolicyID=PolicyAssignments.PolicyID where customers.customerID=5;

	PolicyID	PolicyName
1	1	Health

2. View all customers with their policies.

Select customers.customerID, customers.FirstName, customers.LastName,Policies.PolicyID, Policies.PolicyName from Policies join PolicyAssignments on Policies.PolicyID=PolicyAssignments.PolicyID join customers on PolicyAssignments.customerID=customers.customerID;

	customerID	FirstName	LastName	PolicyID	PolicyName
1	4	Anand	chedapangu	1	Health
2	5	Abhi	Banda	1	Health

3.View claims with customer name.

select customers.FirstName,customers.LastName,Claims.ClaimID from customers join PolicyAssignments on PolicyAssignments.customerID=customers.customerID join Claims on Claims.AssignmentID=PolicyAssignments.AssignmentID;

	FirstName	LastName	ClaimID
1	Anand	chedapangu	101
2	Abhi	Banda	102
3	Abhi	Banda	103
4	Abhi	Banda	104
5	Anand	chedapangu	105
6	Anand	chedapangu	106

4. Display FirstName, PolicyName, AgentName, StartDate and EndDate from their respective tables.

```
select customers.FirstName,Policies.PolicyName,Agents.AgentName,
PolicyAssignments.StartDate,PolicyAssignments.EndDate
from Policies join PolicyAssignments on Policies.PolicyID=PolicyAssignments.PolicyID
join customers on PolicyAssignments.customerID=customers.customerID
join Agents on PolicyAssignments.AgentID=Agents.AgentID;
```

	FirstName	PolicyName	AgentName	StartDate	EndDate
1	Anand	Health	Ram	2023-08-23	2025-08-24
2	Abhi	Health	Ramesh	2023-10-23	2026-08-24

5.Display claims report with FirstName, PolicyName, ClaimAmount, ClaimStatus, and ClaimDate from their respective tables.

```
Select customers.FirstName,Policies.PolicyName,Claims.ClaimAmount,Claims.ClaimStatus,
Claims.ClaimDate from customers join PolicyAssignments on
PolicyAssignments.customerID=customers.customerID
join Claims on Claims.AssignmentID=PolicyAssignments.AssignmentID
join Policies on Policies.PolicyID=PolicyAssignments.PolicyID;
```

	FirstName	PolicyName	ClaimAmount	ClaimStatus	ClaimDate
1	Anand	Health	50000	Approved	2023-08-24
2	Abhi	Health	100000	Not Approved	2023-12-24
3	Abhi	Health	100000	Rejected	2024-08-24
4	Abhi	Health	100000	Approved	2023-12-24
5	Anand	Health	100000	Rejected	2024-06-24
6	Anand	Health	100000	Pending	2025-02-24

6.Display records of Customers with or without Policies.

select customers.FirstName,customers.LastName,customers.DateOfBirth,customers.Email, Policies.PolicyName from customers full join PolicyAssignments on PolicyAssignments.customerID=customers.customerID

left join Policies on Policies.PolicyID=PolicyAssignments.PolicyID;

	FirstName	LastName	DateOfBirth	Email	PolicyName
1	Anand	chedapangu	2003-08-23	anandch1119@gamil.com	Health
2	Abhi	Banda	2003-12-26	abhi7@gmail.com	Health
3	Abhi	chanda	2005-12-26	abhichanda@gmail.com	NULL

7. Display all Customers with NO Claims.

select customers.FirstName,customers.LastName,customers.DateOfBirth,customers.Email, Claims.ClaimID from customers full join PolicyAssignments on PolicyAssignments.customerID=customers.customerID left join Claims on Claims.AssignmentID=PolicyAssignments.AssignmentID where Claims.ClaimID is null

	FirstName	LastName	DateOfBirth	Email	ClaimID
1	Abhi	chanda	2005-12-26	abhichanda@gmail.com	NULL

8. Show CustomerName with Total Claim Amount per Customer.

select customers.FirstName,customers.LastName, sum(Claims.ClaimAmount) as Total_claim_amount from customers full join PolicyAssignments on PolicyAssignments.customerID=customers.customerID left join Claims on Claims.AssignmentID=PolicyAssignments.AssignmentID group by customers.FirstName,customers.LastName;

	FirstName	LastName	Total_claim_amount
1	Abhi	Banda	300000
2	Abhi	chanda	NULL
3	Anand	chedapangu	250000

9. Show names and total claim amount of Customers With Claim Amount > 50000 (Use HAVING Clause).

select customers.FirstName,customers.LastName, sum(Claims.ClaimAmount) as Total_claim_amount from customers full join PolicyAssignments on PolicyAssignments.customerID=customers.customerID left join Claims on Claims.AssignmentID=PolicyAssignments.AssignmentID group by customers.FirstName,customers.LastName having sum(Claims.ClaimAmount)>50000;

	FirstName	LastName	Total_claim_amount
1	Abhi	Banda	300000
2	Anand	chedapangu	250000

10. Display list with Agent Wise Policy Count.

```
select Agents.AgentName, count(Policies.PolicyID)
from Agents join PolicyAssignments on PolicyAssignments.AgentID=Agents.AgentID
join Policies on Policies.PolicyID=PolicyAssignments.PolicyID group by Agents.AgentName;
```

	AgentName	(No column name)
1	Ram	1
2	Ramesh	1