

<https://learn.microsoft.com/en-us/sql/t-sql/language-reference?view=sql-server-ver17>

--1) creation of database

```
CREATE DATABASE InsuranceDB;
```

```
USE InsuranceDB;
```

--2) creation of tables with relationships and constraints

```
CREATE TABLE Customers (
    CustomerID INT IDENTITY(1,1) CONSTRAINT PK_Customers 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(1,1) CONSTRAINT PK_Policies PRIMARY KEY,
    PolicyName VARCHAR(20),
    PolicyType VARCHAR(20),
    PremiumAmount DECIMAL(10,2),
    DurationYear INT
);
```

```
CREATE TABLE Agents (
```

```
    AgentID INT IDENTITY(1,1) CONSTRAINT PK_Agents PRIMARY KEY,
```

```
    AgentName VARCHAR(20),  
    Phone VARCHAR(15),  
    City VARCHAR(20)  
);
```

```
CREATE TABLE PolicyAssignments (  
    AssignmentID INT IDENTITY(1,1) CONSTRAINT PK_PolicyAssignments PRIMARY KEY,  
    CustomerID INT,  
    PolicyID INT,  
    AgentID INT,  
    StartDate DATE,  
    EndDate DATE,  
  
    CONSTRAINT FK_PolicyAssignments_Customers  
        FOREIGN KEY (CustomerID) REFERENCES Customers(CustomerID),  
  
    CONSTRAINT FK_PolicyAssignments_Policies  
        FOREIGN KEY (PolicyID) REFERENCES Policies(PolicyID),  
  
    CONSTRAINT FK_PolicyAssignments_Agents  
        FOREIGN KEY (AgentID) REFERENCES Agents(AgentID)  
);
```

```
CREATE TABLE Claims (  
    ClaimID INT IDENTITY(1,1) CONSTRAINT PK_Claims PRIMARY KEY,  
    AssignmentID INT,  
    ClaimDate DATE,
```

```
    ClaimAmount DECIMAL(10,2),  
    ClaimStatus VARCHAR(20),  
  
    CONSTRAINT FK_Claims_PolicyAssignments  
        FOREIGN KEY (AssignmentID) REFERENCES PolicyAssignments(AssignmentID)  
);
```

```
INSERT INTO Customers (FirstName, LastName, DateOfBirth, Phone, Email)  
VALUES  
('Abhi', 'Shek', '2004-07-03', '7075268421', 'abhishek@gmail.com'),  
('Santhu', 'Chepuri', '2004-05-24', '9080706050', 'chepuri@gmail.com');
```

```
INSERT INTO Policies (PolicyName, PolicyType, PremiumAmount, DurationYear)  
VALUES  
('Life Term', 'Life', 15000.00, 20),  
('Health Plus', 'Health', 12000.00, 10);
```

```
INSERT INTO Agents (AgentName, Phone, City)  
VALUES  
('Spoorthik', '7867867867', 'Karachi'),  
('Idries', '7867867866', 'Rawalpindi');
```

```
INSERT INTO PolicyAssignments  
(CustomerID, PolicyID, AgentID, StartDate, EndDate)  
VALUES
```

(1, 1, 1, '2025-01-01', '2045-01-01'),

(2, 2, 2, '2025-06-01', '2035-06-01');

INSERT INTO Claims

(AssignmentID, ClaimDate, ClaimAmount, ClaimStatus)

VALUES

(1, '2026-02-15', 50000.00, 'Approved'),

(2, '2026-03-10', 30000.00, 'Pending');

INSERT INTO Customers (FirstName, LastName, DateOfBirth, Phone, Email)

VALUES

('Varun', 'Kumar', '1999-08-12', '9001112233', 'varun@gmail.com'),

('Bhanu', 'Prakash', '1998-03-25', '9002223344', 'bhanu@gmail.com'),

('Ramu', 'Reddy', '2000-12-05', '9003334455', 'ramu@gmail.com');

INSERT INTO Policies (PolicyName, PolicyType, PremiumAmount, DurationYear)

VALUES

('Life Term', 'Life', 18000.50, 25),

('Health Shield', 'Health', 9500.75, 12),

('Car Protect', 'Vehicle', 7200.00, 5);

INSERT INTO Agents(AgentName, Phone, City)

VALUES

('Anil', '9876543210', 'Delhi'),

('Suresh', '9223344556', 'Hyderabad');

```
INSERT INTO PolicyAssignments  
(CustomerID, PolicyID, AgentID, StartDate, EndDate)  
VALUES  
(3, 3, 1, '2023-01-10', '2048-01-10'),  
(4, 4, 2, '2024-06-15', '2036-06-15'),  
(5, 5, 1, '2025-03-01', '2030-03-01');
```

```
INSERT INTO Claims  
(AssignmentID, ClaimDate, ClaimAmount, ClaimStatus)  
VALUES  
(3, '2024-11-20', 45000.00, 'Approved'),  
(4, '2025-07-05', 15000.00, 'Rejected'),  
(5, '2025-09-18', 8000.00, 'Pending');
```

```
INSERT INTO Customers (FirstName, LastName, DateOfBirth, Phone, Email)  
VALUES  
('sangu', 'Rao', '2002-02-10', '9876543210', 'sangu@gmail.com'),  
('Manu', 'pal', '1998-11-15', '9876543211', 'manu@gmail.com');
```

```
INSERT INTO Policies (PolicyName, PolicyType, PremiumAmount, DurationYear)  
VALUES  
('Motor Secure', 'Motor', 11000.00, 1),
```

```
('Family Health', 'Health', 20000.00, 1);
```

```
INSERT INTO Agents (AgentName, Phone, City)
```

```
VALUES
```

```
('Rakesh', '9112233445', 'Bangalore'),  
('Ajay', '9887766554', 'Chandigarh');
```

```
INSERT INTO PolicyAssignments (CustomerID, PolicyID, AgentID, StartDate, EndDate)
```

```
VALUES
```

```
(1, 6, 3, '2024-01-01', '2025-01-01'),  
(2, 7, 4, '2025-02-01', '2026-02-01'),  
(6, 4, 3, '2023-05-10', '2035-05-10');
```

```
INSERT INTO Claims (AssignmentID, ClaimDate, ClaimAmount, ClaimStatus)
```

```
VALUES
```

```
(6, '2025-03-15', 60000.00, 'Approved'),  
(7, '2025-05-20', 25000.00, 'Rejected');
```

#### **4.SELECT COMMANDS:**

**4.1:** SELECT \* FROM Customers;

	CustomerID	FirstName	LastName	DateOfBirth	Phone	Email
1	1	Abhi	Shek	2004-07-03	7075268421	abhishek@gmail.com
2	2	Santhu	Chepuri	2004-05-24	9080706050	chepuri@gmail.com
3	3	Varun	Kumar	1999-08-12	9001112233	varun@gmail.com
4	4	Bhanu	Prakash	1998-03-25	9002223344	bhanu@gmail.com
5	5	Ramu	Reddy	2000-12-05	9003334455	ramu@gmail.com
6	6	sangu	Rao	2002-02-10	9876543210	sangu@gmail.com
7	7	Manu	pal	1998-11-15	9876543211	manu@gmail.com

4.2: SELECT CustomerID, PolicyID, StartDate, EndDate FROM PolicyAssignments;

	CustomerID	PolicyID	StartDate	EndDate
1	1	1	2025-01-01	2045-01-01
2	2	2	2025-06-01	2035-06-01
3	3	3	2023-01-10	2048-01-10
4	4	4	2024-06-15	2036-06-15
5	5	5	2025-03-01	2030-03-01
6	1	6	2024-01-01	2025-01-01
7	2	7	2025-02-01	2026-02-01
8	6	4	2023-05-10	2035-05-10

4.3 SELECT \* FROM Policies WHERE PolicyType='Health';

	PolicyID	PolicyName	PolicyType	PremiumAmount	DurationYear
1	2	Health Plus	Health	12000.00	10
2	4	Health Shield	Health	9500.75	12
3	7	Family Health	Health	20000.00	1

4.4: Select \* from Policies Where PremiumAmount>10000 AND DurationYear=1;

	PolicyID	PolicyName	PolicyType	PremiumAmount	DurationYear
1	6	Motor Secure	Motor	11000.00	1
2	7	Family Health	Health	20000.00	1

4.5: SELECT DISTINCT City FROM Agents;

	AgentID	AgentName	Phone	City
1	1	Spoorthik	7867867867	Karachi
2	2	Idries	7867867866	Rawalpindi
3	3	Anil	9876543210	Delhi
4	4	Suresh	9223344556	Hyderabad
5	5	Rakesh	9112233445	Bangalore
6	6	Ajay	9887766554	Chandigarh

4.6: SELECT \* FROM Policies

WHERE PolicyType='Life' OR PolicyType='Health' OR PolicyType='Motor';

	PolicyID	PolicyName	PolicyType	PremiumAmount	DurationYear
1	1	Life Term	Life	15000.00	20
2	2	Health Plus	Health	12000.00	10
3	3	Life Term	Life	18000.50	25
4	4	Health Shield	Health	9500.75	12
5	6	Motor Secure	Motor	11000.00	1
6	7	Family Health	Health	20000.00	1

#### 4.7: SELECT \* FROM Policies

WHERE PolicyType IN ('Life','Health','Motor');

	PolicyID	PolicyName	PolicyType	PremiumAmount	DurationYear
1	1	Life Term	Life	15000.00	20
2	2	Health Plus	Health	12000.00	10
3	3	Life Term	Life	18000.50	25
4	4	Health Shield	Health	9500.75	12
5	6	Motor Secure	Motor	11000.00	1
6	7	Family Health	Health	20000.00	1

#### 4.8: SELECT \* FROM Customers

WHERE DateOfBirth >= '2001-01-01'

AND DateOfBirth <= '2020-12-31';

	CustomerID	FirstName	LastName	DateOfBirth	Phone	Email
1	1	Abhi	Shek	2004-07-03	7075268421	abhishek@gmail.com
2	2	Santhu	Chepuri	2004-05-24	9080706050	chepuri@gmail.com
3	6	sangu	Rao	2002-02-10	9876543210	sangu@gmail.com

#### 4.9: SELECT \* FROM Customers

WHERE DateOfBirth BETWEEN '2001-01-01'

AND '2020-12-31';

	CustomerID	FirstName	LastName	DateOfBirth	Phone	Email
1	1	Abhi	Shek	2004-07-03	7075268421	abhishek@gmail.com
2	2	Santhu	Chepuri	2004-05-24	9080706050	chepuri@gmail.com
3	6	sangu	Rao	2002-02-10	9876543210	sangu@gmail.com

#### 4.10: SELECT \* FROM Claims WHERE ClaimStatus='Rejected';

	ClaimID	AssignmentID	ClaimDate	ClaimAmount	ClaimStatus
1	4	4	2025-07-05	15000.00	Rejected
2	7	7	2025-05-20	25000.00	Rejected

#### 4.11: SELECT \* FROM Agents

WHERE City LIKE '\_a%';

	AgentID	AgentName	Phone	City
1	1	Spoorthik	7867867867	Karachi
2	2	Idries	7867867866	Rawalpindi
3	5	Rakesh	9112233445	Bangalore

**4.12** select max(ClaimAmount) as HighestClaim,min(ClaimAmount) as LowestClaim  
from Claims;

	HighestClaim	LowestClaim
1	60000.00	8000.00

**4.13:** select top 1\* from Claims  
order by ClaimDate;

	ClaimID	AssignmentID	ClaimDate	ClaimAmount	ClaimStatus
1	3	3	2024-11-20	45000.00	Approved

**4.14:** UPDATE Policies

SET PremiumAmount=PremiumAmount\*1.10

WHERE PolicyType='Health';

	PolicyID	PolicyName	PolicyType	PremiumAmount	DurationYear
1	1	Life Term	Life	15000.00	20
2	2	Health Plus	Health	13200.00	10
3	3	Life Term	Life	18000.50	25
4	4	Health Shield	Health	10450.83	12
5	5	Car Protect	Vehicle	7200.00	5
6	6	Motor Secure	Motor	11000.00	1
7	7	Family Health	Health	22000.00	1

**4.15** DELETE FROM PolicyAssignments

WHERE EndDate < GETDATE();

error:

Msg 547, Level 16, State 0, Line 236

The DELETE statement conflicted with the REFERENCE constraint "FK\_Claims\_PolicyAssignments". The conflict occurred in database "InsuranceDB", table "dbo.Claims", column 'AssignmentID'.

The statement has been terminated.

DELETE FROM Claims

WHERE AssignmentID IN (

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

(1 row affected)

### 4.16:

```
SELECT COUNT(*) AS RejectedClaims  
FROM Claims  
WHERE ClaimStatus = 'Rejected';
```

	RejectedClaims
1	2

4.17:

```
select PolicyID,PolicyName,PremiumAmount, PremiumAmount*0.06 AS LocalTaxes,  
PremiumAmount*1.06 AS PremiumTaxes,  
(PremiumAmount*1.06)/12 AS Montly  
FROM Policies;
```

	PolicyID	PolicyName	PremiumAmount	LocalTaxes	PremiumTaxes	Montly
1	1	Life Term	15000.00	900.0000	15900.0000	1325.0000000
2	2	Health Plus	13200.00	792.0000	13992.0000	1166.0000000
3	3	Life Term	18000.50	1080.0300	19080.5300	1590.0441666
4	4	Health Shield	10450.83	627.0498	11077.8798	923.1566500
5	5	Car Protect	7200.00	432.0000	7632.0000	636.0000000
6	6	Motor Secure	11000.00	660.0000	11660.0000	971.6666666
7	7	Family Health	22000.00	1320.0000	23320.0000	1943.3333333

**4.18:** ALTER table customers ADD Address VARCHAR(50), City VARCHAR(20);

	CustomerID	FirstName	LastName	DateOfBirth	Phone	Email	Address	City
1	1	Abhi	Shek	2004-07-03	7075268421	abhishek@gmail.com	NULL	NULL
2	2	Santhu	Chepuri	2004-05-24	9080706050	chepuri@gmail.com	NULL	NULL
3	3	Varun	Kumar	1999-08-12	9001112233	varun@gmail.com	NULL	NULL
4	4	Bhanu	Prakash	1998-03-25	9002223344	bhanu@gmail.com	NULL	NULL
5	5	Ramu	Reddy	2000-12-05	9003334455	ramu@gmail.com	NULL	NULL
6	6	sangu	Rao	2002-02-10	9876543210	sangu@gmail.com	NULL	NULL
7	7	Manu	pal	1998-11-15	9876543211	manu@gmail.com	NULL	NULL

4.19: ALTER TABLE Agents ADD DevOfId INT;

	AgentID	AgentName	Phone	City	DevOfId
1	1	Spoorthik	7867867867	Karachi	NULL
2	2	Idries	7867867866	Rawalpindi	NULL
3	3	Anil	9876543210	Delhi	NULL
4	4	Suresh	9223344556	Hyderabad	NULL
5	5	Rakesh	9112233445	Bangalore	NULL
6	6	Ajay	9887766554	Chandigarh	NULL

4.20:

ALTER TABLE Agents

ADD CONSTRAINT FK\_Agents\_DevOfId

FOREIGN KEY (DevOfId) REFERENCES Agents(AgentID);

## 5) QUERIES USING HAVING ,GROUPBY

5.1:

SELECT p.\* FROM Policies p JOIN PolicyAssignments pa ON p.PolicyID = pa.PolicyID WHERE pa.CustomerID = 5;

	PolicyID	PolicyName	PolicyType	PremiumAmount	DurationYear
1	5	Car Protect	Vehicle	7200.00	5

5.2:

```
select FirstName,PolicyName FROM Customers c JOIN PolicyAssignments pa
on c.CustomerID=pa.CustomerID
JOIN Policies p
on p.PolicyID=pa.PolicyID;
```

	FirstName	PolicyName
1	Abhi	Life Term
2	Santhu	Health Plus
3	Varun	Life Term
4	Bhanu	Health Shield
5	Ramu	Car Protect
6	Santhu	Family Health
7	sangu	Health Shield

**5.3** select c.FirstName,cl.ClaimAmount,cl.ClaimStatus from  
 Claims cl  
 join PolicyAssignments pa on cl.AssignmentID=pa.AssignmentID  
 join Customers c on pa.CustomerID=c.CustomerID;

	FirstName	ClaimAmount	ClaimStatus
1	Abhi	50000.00	Approved
2	Santhu	30000.00	Pending
3	Varun	45000.00	Approved
4	Bhanu	15000.00	Rejected
5	Ramu	8000.00	Pending
6	Santhu	25000.00	Rejected

**5.4:**  
 select FirstName,PolicyName,AgentName,StartDate,EndDate  
 FROM PolicyAssignments pa  
 join Customers c on pa.CustomerID=c.CustomerID  
 join Policies p on pa.PolicyID=p.PolicyID  
 join Agents a on pa.AgentID=a.AgentID;

	FirstName	PolicyName	AgentName	StartDate	EndDate
1	Abhi	Life Term	Spoorthik	2025-01-01	2045-01-01
2	Santhu	Health Plus	Idries	2025-06-01	2035-06-01
3	Varun	Life Term	Spoorthik	2023-01-10	2048-01-10
4	Bhanu	Health Shield	Idries	2024-06-15	2036-06-15
5	Ramu	Car Protect	Spoorthik	2025-03-01	2030-03-01
6	Santhu	Family Health	Suresh	2025-02-01	2026-02-01
7	sangu	Health Shield	Anil	2023-05-10	2035-05-10

**5.5:** SELECT c.FirstName, p.PolicyName,  
 cl.ClaimAmount, cl.ClaimStatus, cl.ClaimDate  
 FROM Claims cl  
 JOIN PolicyAssignments pa ON cl.AssignmentID = pa.AssignmentID  
 JOIN Customers c ON pa.CustomerID = c.CustomerID  
 JOIN Policies p ON pa.PolicyID = p.PolicyID;

	FirstName	PolicyName	ClaimAmount	ClaimStatus	ClaimDate
1	Abhi	Life Term	50000.00	Approved	2026-02-15
2	Santhu	Health Plus	30000.00	Pending	2026-03-10
3	Varun	Life Term	45000.00	Approved	2024-11-20
4	Bhanu	Health Shield	15000.00	Rejected	2025-07-05
5	Ramu	Car Protect	8000.00	Pending	2025-09-18
6	Santhu	Family Health	25000.00	Rejected	2025-05-20

**5.6:** SELECT c.CustomerID,c.FirstName,p.PolicyName,p.PolicyID  
 FROM Customers c  
 LEFT JOIN PolicyAssignments pa ON c.CustomerID = pa.CustomerID  
 LEFT JOIN Policies p ON pa.PolicyID = p.PolicyID;

	CustomerID	FirstName	PolicyName	PolicyID
1	1	Abhi	Life Term	1
2	2	Santhu	Health Plus	2
3	2	Santhu	Family Health	7
4	3	Varun	Life Term	3
5	4	Bhanu	Health Shield	4
6	5	Ramu	Car Protect	5
7	6	sangu	Health Shield	4
8	7	Manu	NULL	NULL

**5.7:** 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;

	CustomerID	FirstName	LastName	DateOfBirth	Phone	Email	Address	City
1	6	sangu	Rao	2002-02-10	9876543210	sangu@gmail.com	NULL	NULL
2	7	Manu	pal	1998-11-15	9876543211	manu@gmail.com	NULL	NULL

```

5.8: select concat(c.FirstName,c.LastName) as FullName,
sum(cl.ClaimAmount) as TotalClaim
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

```

	FullName	TotalClaim
1	SanthuChepuri	55000.00
2	VarunKumar	45000.00
3	BhanuPrakash	15000.00
4	RamuReddy	8000.00
5	AbhiShek	50000.00

```

5.9: select concat(c.FirstName,c.LastName) as FullName,
sum(cl.ClaimAmount) as TotalClaim
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
having sum(cl.ClaimAmount)>50000;

```

	FullName	TotalClaim
1	SanthuChepuri	55000.00

```

5.10: SELECT a.AgentName,COUNT(pa.AgentID) AS PolicyCount
FROM Agents a
JOIN PolicyAssignments pa
ON
a.AgentID=pa.AgentID
group by a.AgentID,a.AgentName;

```

	AgentName	PolicyCount
1	Spoorthik	3
2	Idries	2
3	Anil	1
4	Suresh	1