Project: Data base management system
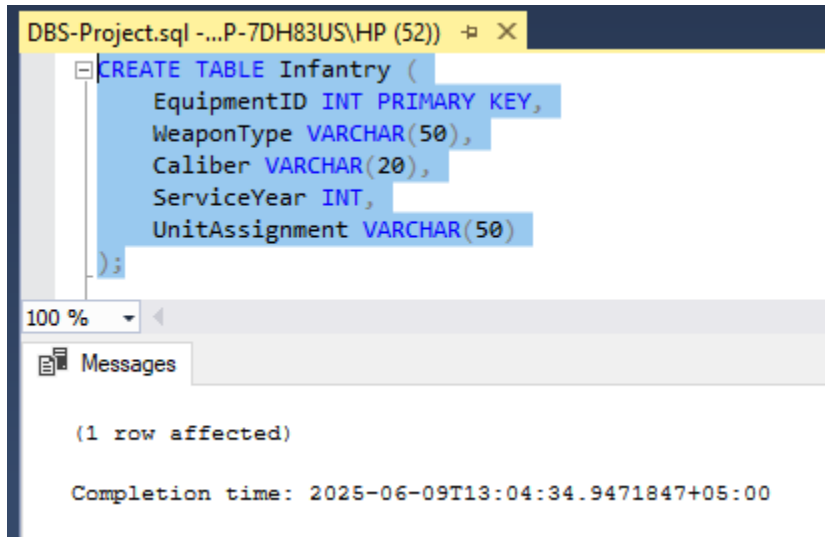
Military Inventory System

Group members:

➢ Muhammad Ayan Hamdani Rehman (241872)

➢ Muhammad Usaid ullah Rehan (241815)

Section 1:

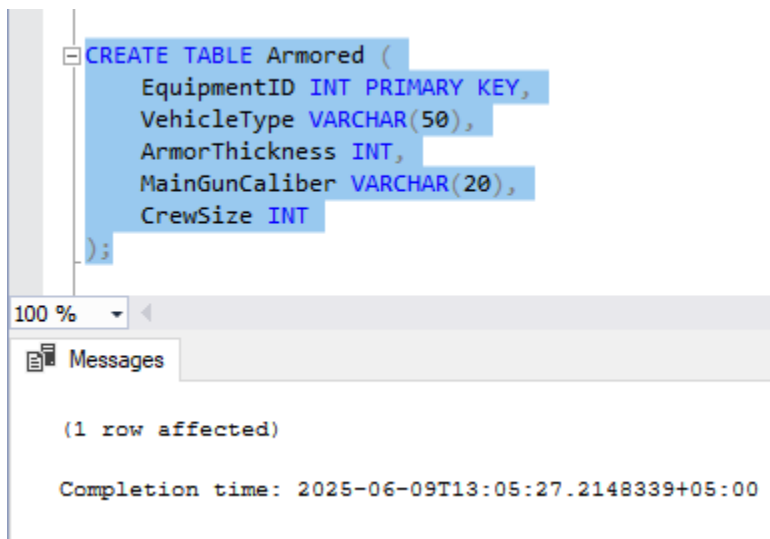# Screen shots of SQL Queries with output

```
DBS-Project.sql -...P-7DH83US\HP (52))  -p  X
CREATE TABLE Infantry (
    EquipmentID INT PRIMARY KEY,
    WeaponType VARCHAR(50),
    Caliber VARCHAR(20),
    ServiceYear INT,
    UnitAssignment VARCHAR(50)
);
```

100 %

Messages

```
(1 row affected)

Completion time: 2025-06-09T13:04:34.9471847+05:00
```

```
CREATE TABLE Armored (
    EquipmentID INT PRIMARY KEY,
    VehicleType VARCHAR(50),
    ArmorThickness INT,
    MainGunCaliber VARCHAR(20),
    CrewSize INT
);
```

100 %

Messages

```
(1 row affected)

Completion time: 2025-06-09T13:05:27.2148339+05:00
```

```sql
CREATE TABLE Artillery (
    EquipmentID INT PRIMARY KEY,
    Range INT,
    Caliber VARCHAR(20),
    MobilityType VARCHAR(30) CHECK (MobilityType IN ('Towed', 'Self-Propelled'))
);
```

```sql
CREATE TABLE SupportVehicles (
    EquipmentID INT PRIMARY KEY,
    VehicleType VARCHAR(50),
    Capacity INT,
    Purpose VARCHAR(100)
);
```

```sql
CREATE TABLE AttackHelicopters (
    EquipmentID INT PRIMARY KEY,
    MaxSpeed INT,
    Range INT,
    Armament VARCHAR(200),
    RotorDiameter DECIMAL(5,2)
);
```

```sql
CREATE TABLE FighterJets (
    EquipmentID INT PRIMARY KEY,
    MaxSpeed INT,
    CombatRadius INT,
    Armament VARCHAR(200),
    ThrustToWeightRatio DECIMAL(3,2)
);
```

Messages

(1 row affected)

Completion time: 2025-06-09T13:07:51.3378558+05:00

```sql
CREATE TABLE AWACS (
    EquipmentID INT PRIMARY KEY,
    RadarRange INT,
    Endurance INT,
    CrewSize INT
);
```

Messages

(1 row affected)

Completion time: 2025-06-09T13:08:30.0249625+05:00

```sql
CREATE TABLE CargoAircraft (
    EquipmentID INT PRIMARY KEY,
    PayloadCapacity INT,
    Range INT,
    CargoHoldDimensions VARCHAR(50)
);
```

Messages

(1 row affected)

Completion time: 2025-06-09T13:09:31.1732178+05:00

```sql
CREATE TABLE AircraftCarriers (
    EquipmentID INT PRIMARY KEY,
    Displacement INT,
    AircraftCapacity INT,
    PropulsionType VARCHAR(50),
    CrewSize INT
);
```

100 %

Messages

(1 row affected)

Completion time: 2025-06-09T13:09:31.1732178+05:00

```sql
CREATE TABLE Cruisers (
    EquipmentID INT PRIMARY KEY,
    Displacement INT,
    MissileSystems VARCHAR(200),
    TopSpeed INT
);
```

100 %

Messages

(1 row affected)

Completion time: 2025-06-09T13:10:47.2675374+05:00

```sql
CREATE TABLE Frigates (
    EquipmentID INT PRIMARY KEY,
    Displacement INT,
    ASWCapabilities VARCHAR(200),
    Range INT
);
```

100 %

Messages

(1 row affected)

Completion time: 2025-06-09T13:11:14.9277628+05:00

```sql
CREATE TABLE Corvettes (
    EquipmentID INT PRIMARY KEY,
    Displacement INT,
    PrimaryWeapon VARCHAR(100),
    CrewSize INT
);
```

100 %

Messages

(1 row affected)

Completion time: 2025-06-09T13:11:45.7692402+05:00

```sql
INSERT INTO Infantry VALUES
(1, 'Assault Rifle', '5.56mm', 2021, 'Unit-3'),
(2, 'Sniper Rifle', '5.56mm', 2012, 'Unit-1'),
(3, 'Assault Rifle', '9mm', 2016, 'Unit-1'),
(4, 'SMG', '9mm', 2018, 'Unit-2'),
(5, 'LMG', '7.62mm', 2020, 'Unit-4'),
(6, 'Assault Rifle', '5.56mm', 2015, 'Unit-2'),
(7, 'Sniper Rifle', '7.62mm', 2019, 'Unit-5'),
(8, 'LMG', '7.62mm', 2017, 'Unit-3'),
(9, 'SMG', '9mm', 2014, 'Unit-4'),
(10, 'Assault Rifle', '5.56mm', 2022, 'Unit-5'),
(11, 'Sniper Rifle', '7.62mm', 2013, 'Unit-1'),
(12, 'LMG', '5.56mm', 2011, 'Unit-3'),
(13, 'Carbine', '5.56mm', 2023, 'Unit-6');
```

100 %

Messages

(13 rows affected)

Completion time: 2025-06-09T13:17:47.4383585+05:00

```sql
INSERT INTO Armored VALUES
(1, 'APC', 260, '30mm', 4),
(2, 'IFV', 149, '30mm', 3),
(3, 'Tank', 269, '120mm', 4),
(4, 'Tank', 220, '120mm', 4),
(5, 'APC', 175, '105mm', 3),
(6, 'IFV', 190, '30mm', 3),
(7, 'Tank', 300, '120mm', 5),
(8, 'APC', 210, '105mm', 4),
(9, 'IFV', 160, '30mm', 3),
(10, 'Tank', 275, '120mm', 5),
(11, 'APC', 180, '105mm', 4),
(12, 'IFV', 200, '30mm', 3),
(13, 'IFV', 210, '35mm', 4);
```

100 %

Messages

(13 rows affected)

Completion time: 2025-06-09T15:10:10.5354218+05:00

```sql
INSERT INTO Artillery VALUES
(1, 65, '105mm', 'Towed'),
(2, 70, '155mm', 'Self-Propelled'),
(3, 40, '105mm', 'Towed'),
(4, 60, '155mm', 'Self-Propelled'),
(5, 55, '105mm', 'Towed'),
(6, 80, '155mm', 'Self-Propelled'),
(7, 35, '105mm', 'Towed'),
(8, 75, '155mm', 'Self-Propelled'),
(9, 45, '105mm', 'Towed'),
(10, 66, '155mm', 'Self-Propelled'),
(11, 50, '105mm', 'Towed'),
(12, 68, '155mm', 'Self-Propelled'),
(13, 85, '155mm', 'Self-Propelled');
```

100 %

Messages

(13 rows affected)

Completion time: 2025-06-09T15:10:48.7337488+05:00

```sql
INSERT INTO SupportVehicles VALUES
(1, 'Truck', 10, 'Transport'),
(2, 'Jeep', 4, 'Logistics'),
(3, 'Ambulance', 2, 'Medical'),
(4, 'Truck', 12, 'Transport'),
(5, 'Jeep', 5, 'Logistics'),
(6, 'Ambulance', 3, 'Medical'),
(7, 'Truck', 15, 'Transport'),
(8, 'Jeep', 6, 'Logistics'),
(9, 'Ambulance', 2, 'Medical'),
(10, 'Truck', 8, 'Transport'),
(11, 'Jeep', 5, 'Logistics'),
(12, 'Ambulance', 3, 'Medical'),
(13, 'Jeep', 6, 'Communication');
```

100 %

Messages

(13 rows affected)

Completion time: 2025-06-09T15:11:24.9292445+05:00

```sql
INSERT INTO AttackHelicopters VALUES
(1, 270, 225, 'Rockets, Machine Gun', 13.87),
(2, 320, 420, 'Missiles, Gun', 14.50),
(3, 300, 350, 'Cannon, Rockets', 12.75),
(4, 260, 300, 'Missiles, Gun', 11.50),
(5, 310, 400, 'Rockets, Machine Gun', 13.10),
(6, 280, 320, 'Cannon, Rockets', 10.95),
(7, 330, 460, 'Missiles, Gun', 14.20),
(8, 295, 310, 'Rockets, Machine Gun', 11.30),
(9, 270, 290, 'Cannon, Rockets', 10.65),
(10, 310, 390, 'Missiles, Gun', 13.00),
(11, 285, 330, 'Cannon, Rockets', 12.10),
(12, 275, 340, 'Rockets, Machine Gun', 11.75),
(13, 300, 370, 'Missiles', 14.00);
```

100 %

Messages

(13 rows affected)

Completion time: 2025-06-09T15:12:02.0121464+05:00

```sql
INSERT INTO FighterJets VALUES
(1, 1264, 1380, 'Bombs, Missiles', 0.93),
(2, 1687, 785, 'Bombs, Missiles', 0.99),
(3, 1470, 1240, 'Bombs, Missiles', 1.00),
(4, 1590, 1100, 'Missiles, Gun', 1.10),
(5, 1310, 890, 'Missiles, Gun', 0.91),
(6, 1820, 1000, 'Bombs, Missiles', 1.15),
(7, 1455, 970, 'Missiles, Gun', 0.95),
(8, 1750, 1200, 'Bombs, Missiles', 1.02),
(9, 1230, 850, 'Missiles, Gun', 0.90),
(10, 1600, 1350, 'Bombs, Missiles', 1.20),
(11, 1505, 900, 'Missiles, Gun', 0.98),
(12, 1375, 1000, 'Bombs, Missiles', 1.05),
(13, 1400, 950, 'Missiles', 0.97);
```

100 %

Messages

(13 rows affected)

Completion time: 2025-06-09T15:12:55.7324341+05:00

```sql
INSERT INTO AWACS VALUES
(1, 450, 9, 15),
(2, 420, 10, 12),
(3, 400, 7, 14),
(4, 460, 11, 16),
(5, 430, 8, 11),
(6, 480, 10, 13),
(7, 410, 9, 10),
(8, 390, 6, 12),
(9, 470, 11, 17),
(10, 440, 9, 14),
(11, 360, 8, 13),
(12, 300, 7, 10),
(13, 410, 8, 11);
```

100 %

Messages

(13 rows affected)

Completion time: 2025-06-09T15:13:45.1176532+05:00

```sql
INSERT INTO CargoAircraft VALUES
(1, 25000, 3000, '35x15x12'),
(2, 28000, 3200, '40x20x10'),
(3, 30000, 3500, '30x18x14'),
(4, 27000, 2800, '38x12x11'),
(5, 26000, 3000, '36x14x13'),
(6, 32000, 4000, '33x16x10'),
(7, 29000, 3100, '34x15x12'),
(8, 24000, 2700, '32x10x11'),
(9, 35000, 4200, '39x18x15'),
(10, 31000, 3400, '37x17x12'),
(11, 22000, 2500, '29x13x10'),
(12, 33000, 3900, '36x16x13'),
(13, 27000, 3300, '33x15x12');
```

100 %

Messages

```
(13 rows affected)

Completion time: 2025-06-09T15:14:23.9770321+05:00
```

```sql
INSERT INTO AircraftCarriers VALUES
(1, 90000, 60, 'Nuclear', 4500),
(2, 85000, 55, 'Diesel', 4200),
(3, 80000, 50, 'Nuclear', 4000),
(4, 75000, 45, 'Diesel', 3800),
(5, 70000, 40, 'Nuclear', 3600),
(6, 65000, 35, 'Diesel', 3400),
(7, 60000, 30, 'Nuclear', 3200),
(8, 55000, 25, 'Diesel', 3000),
(9, 50000, 20, 'Nuclear', 2800),
(10, 95000, 65, 'Diesel', 4700),
(11, 100000, 70, 'Nuclear', 5000),
(12, 30000, 22, 'Diesel', 2500),
(13, 60000, 30, 'Diesel', 3000);
```

100 %

Messages

```
(13 rows affected)

Completion time: 2025-06-09T15:15:04.2523460+05:00
```

```sql
INSERT INTO Cruisers VALUES
(1, 9800, 'SM-2, Tomahawk', 32),
(3, 9400, 'Tomahawk, Sea Sparrow', 29),
(4, 9300, 'Harpoon, SM-1', 28),
(5, 9100, 'Sea Sparrow, SM-2', 27),
(6, 9000, 'SM-3, Tomahawk', 31),
(7, 8900, 'Harpoon, SM-2', 30),
(8, 8800, 'SM-1, Sea Sparrow', 26),
(9, 8700, 'Tomahawk, Harpoon', 32),
(10, 8600, 'SM-2, Sea Sparrow', 29),
(11, 8500, 'Harpoon, SM-3', 28),
(12, 8400, 'Tomahawk, SM-1', 27),
(13, 8200, 'Tomahawk, Harpoon', 28);
```

LEXPRESS (SQL Server 16.0.1000 - DESKTOP-7DH83US\HP)

100 %

Messages

(13 rows affected)

Completion time: 2025-06-09T15:15:31.1694559+05:00

```sql
INSERT INTO Frigates VALUES
(1, 4500, 'Torpedoes, Sonar, Depth Charges', 4500),
(2, 4300, 'Sonar, Missiles, ASW Rockets', 4200),
(3, 4100, 'Torpedoes, Sonar', 4000),
(4, 4000, 'ASW Helicopter, Sonar', 3900),
(5, 3900, 'Depth Charges, Torpedoes', 3800),
(6, 3800, 'Missiles, Sonar', 3700),
(7, 3700, 'Torpedoes, ASW Rockets', 3600),
(8, 3600, 'Sonar, Helicopter', 3500),
(9, 3500, 'Depth Charges, Sonar', 3400),
(10, 3400, 'ASW Helicopter, Missiles', 3300),
(11, 3300, 'Torpedoes, Sonar', 3200),
(12, 3200, 'Missiles, Depth Charges', 3100),
(13, 3100, 'Sonar, Torpedoes', 3000);
```

100 %

Messages

(13 rows affected)

Completion time: 2025-06-09T15:16:03.8571446+05:00

```
INSERT INTO Corvettes VALUES
(1, 1800, '76mm Gun', 75),
(2, 1700, 'Missile Launcher', 70),
(3, 1600, 'Anti-Ship Missile', 68),
(4, 1500, 'Torpedo Tubes', 66),
(5, 1400, 'Anti-Air Gun', 65),
(6, 1300, 'Surface Missile', 63),
(7, 1200, '76mm Gun', 62),
(8, 1100, 'Missile Launcher', 60),
(9, 1000, 'Anti-Submarine Rockets', 58),
(10, 900, 'Torpedo Tubes', 55),
(11, 800, 'Surface Missile', 50),
(12, 700, '76mm Gun', 48),
(13, 650, 'Missile Launcher', 45);
```

100 %

Messages

```
(13 rows affected)

Completion time: 2025-06-09T15:16:49.0819766+05:00
```

```
--SELECT
SELECT * FROM Infantry;
```

100 %

Results | **Messages**

	EquipmentID	WeaponType	Caliber	ServiceYear	UnitAssignment
1	1	Assault Rifle	5.56mm	2021	Unit-3
2	2	Sniper Rifle	5.56mm	2012	Unit-1
3	3	Assault Rifle	9mm	2016	Unit-1
4	4	SMG	9mm	2018	Unit-2
5	5	LMG	7.62mm	2020	Unit-4
6	6	Assault Rifle	5.56mm	2015	Unit-2
7	7	Sniper Rifle	7.62mm	2019	Unit-5
8	8	LMG	7.62mm	2017	Unit-3
9	9	SMG	9mm	2014	Unit-4
10	10	Assault Rifle	5.56mm	2022	Unit-5
11	11	Sniper Rifle	7.62mm	2013	Unit-1
12	12	LMG	5.56mm	2011	Unit-3
13	13	Carbine	5.56mm	2023	Unit-6

```sql
SELECT * FROM Infantry WHERE WeaponType = 'Sniper Rifle';
SELECT WeaponType, COUNT(*) FROM Infantry GROUP BY WeaponType;
-- UPDATE
```

100 %

Results | **Messages**

	EquipmentID	WeaponType	Caliber	ServiceYear	UnitAssignment
1	2	Sniper Rifle	5.56mm	2012	Unit-1
2	7	Sniper Rifle	7.62mm	2019	Unit-5
3	11	Sniper Rifle	7.62mm	2013	Unit-1

	WeaponType	(No column name)
1	Assault Rifle	4
2	Carbine	1
3	LMG	3
4	SMG	2
5	Sniper Rifle	3

```sql
-- UPDATE
UPDATE Infantry SET UnitAssignment = 'Unit-7' WHERE EquipmentID = 13;
-- DELETE
DELETE FROM Infantry WHERE EquipmentID = 13;
```

100 %

Messages

```
(1 row affected)

(1 row affected)

Completion time: 2025-06-09T15:20:45.7824317+05:00
```

```sql
-- SELECT
SELECT * FROM Armored;
```

100 %

Results | **Messages**

	EquipmentID	VehicleType	ArmorThickness	MainGunCaliber	CrewSize
1	1	APC	260	30mm	4
2	2	IFV	149	30mm	3
3	3	Tank	269	120mm	4
4	4	Tank	220	120mm	4
5	5	APC	175	105mm	3
6	6	IFV	190	30mm	3
7	7	Tank	300	120mm	5
8	8	APC	210	105mm	4
9	9	IFV	160	30mm	3
10	10	Tank	275	120mm	5
11	11	APC	180	105mm	4
12	12	IFV	200	30mm	3
13	13	IFV	210	35mm	4

```sql
SELECT * FROM Armored WHERE ArmorThickness > 200;
```

100 %

Results | **Messages**

	EquipmentID	VehicleType	ArmorThickness	MainGunCaliber	CrewSize
1	1	APC	260	30mm	4
2	3	Tank	269	120mm	4
3	4	Tank	220	120mm	4
4	7	Tank	300	120mm	5
5	8	APC	210	105mm	4
6	10	Tank	275	120mm	5
7	13	IFV	210	35mm	4

```sql
SELECT VehicleType, AVG(ArmorThickness) AS AvgArmor FROM Armored GROUP BY VehicleType;
```

100 %

▦ Results ▤ Messages

	VehicleType	AvgArmor
1	APC	206
2	IFV	181
3	Tank	266

```sql
-- UPDATE
UPDATE Armored SET CrewSize = 5 WHERE EquipmentID = 13;
-- DELETE
DELETE FROM Armored WHERE EquipmentID = 13;
```

100 %

▤ Messages

```
(1 row affected)

(1 row affected)

Completion time: 2025-06-09T20:16:33.3511759+05:00
```

```sql
-- SELECT
SELECT * FROM Artillery;
```

100 %

▦ Results ▤ Messages

	EquipmentID	Range	Caliber	MobilityType
1	1	65	105mm	Towed
2	2	70	155mm	Self-Propelled
3	3	40	105mm	Towed
4	4	60	155mm	Self-Propelled
5	5	55	105mm	Towed
6	6	80	155mm	Self-Propelled
7	7	35	105mm	Towed
8	8	75	155mm	Self-Propelled
9	9	45	105mm	Towed
10	10	66	155mm	Self-Propelled
11	11	50	105mm	Towed
12	12	68	155mm	Self-Propelled
13	13	85	155mm	Self-Propelled

```sql
SELECT * FROM Artillery WHERE MobilityType = 'Towed';
```

100 %

Results | Messages

	EquipmentID	Range	Caliber	MobilityType
1	1	65	105mm	Towed
2	3	40	105mm	Towed
3	5	55	105mm	Towed
4	7	35	105mm	Towed
5	9	45	105mm	Towed
6	11	50	105mm	Towed

```sql
SELECT MobilityType, COUNT(*) FROM Artillery GROUP BY MobilityType;
```

100 %

Results | Messages

	MobilityType	(No column name)
1	Self-Propelled	7
2	Towed	6

```sql
-- UPDATE
UPDATE Artillery SET Range = 90 WHERE EquipmentID = 13;
-- DELETE
DELETE FROM Artillery WHERE EquipmentID = 13;
```

100 %

Messages

```
(1 row affected)

(1 row affected)

Completion time: 2025-06-09T20:20:00.8667843+05:00
```

```sql
-- SELECT
SELECT * FROM SupportVehicles;
```

100 %

Results | Messages

	EquipmentID	VehicleType	Capacity	Purpose
2	2	Jeep	4	Logistics
3	3	Ambulance	2	Medical
4	4	Truck	12	Transport
5	5	Jeep	5	Logistics
6	6	Ambulance	3	Medical
7	7	Truck	15	Transport
8	8	Jeep	6	Logistics
9	9	Ambulance	2	Medical
10	10	Truck	8	Transport
11	11	Jeep	5	Logistics
12	12	Ambulance	3	Medical
13	13	Jeep	6	Communication

```sql
SELECT * FROM SupportVehicles WHERE Purpose = 'Medical';
```

100 %

Results | Messages

	EquipmentID	VehicleType	Capacity	Purpose
1	3	Ambulance	2	Medical
2	6	Ambulance	3	Medical
3	9	Ambulance	2	Medical
4	12	Ambulance	3	Medical

```sql
SELECT VehicleType, COUNT(*) FROM SupportVehicles GROUP BY VehicleType;
```

100 %

Results | Messages

	VehicleType	(No column name)
1	Ambulance	4
2	Jeep	5
3	Truck	4

```
-- UPDATE
UPDATE SupportVehicles SET Capacity = 7 WHERE EquipmentID = 13;
-- DELETE
DELETE FROM SupportVehicles WHERE EquipmentID = 13;
```

100 %

Messages

(1 row affected)

(1 row affected)

Completion time: 2025-06-09T20:24:52.2953512+05:00

```
SELECT AVG(RotorDiameter) AS AvgRotor FROM AttackHelicopters;
```

100 %

Results   Messages

	AvgRotor
1	12.590000

```sql
-- SELECT
SELECT * FROM AttackHelicopters;
SELECT * FROM AttackHelicopters WHERE MaxSpeed > 300;
```

100 %

Results | **Messages**

	EquipmentID	MaxSpeed	Range	Armament	RotorDiameter
3	3	300	350	Cannon, Rockets	12.75
4	4	260	300	Missiles, Gun	11.50
5	5	310	400	Rockets, Machine Gun	13.10
6	6	280	320	Cannon, Rockets	10.95
7	7	330	460	Missiles, Gun	14.20
8	8	295	310	Rockets, Machine Gun	11.30
9	9	270	290	Cannon, Rockets	10.65
10	10	310	390	Missiles, Gun	13.00
11	11	285	330	Cannon, Rockets	12.10
12	12	275	340	Rockets, Machine Gun	11.75
13	13	300	370	Missiles	14.00

	EquipmentID	MaxSpeed	Range	Armament	RotorDiameter
1	2	320	420	Missiles, Gun	14.50
2	5	310	400	Rockets, Machine Gun	13.10
3	7	330	460	Missiles, Gun	14.20
4	10	310	390	Missiles, Gun	13.00

```sql
-- UPDATE
UPDATE AttackHelicopters SET Range = 400 WHERE EquipmentID = 13;
-- DELETE
DELETE FROM AttackHelicopters WHERE EquipmentID = 13;
```

100 %

Messages

(1 row affected)

(1 row affected)

Completion time: 2025-06-09T20:29:03.9645913+05:00

```
-- SELECT
SELECT * FROM FighterJets;
SELECT * FROM FighterJets WHERE ThrustToWeightRatio > 1.0;
```

100 % ▼ ◄

⊞ Results ▤ Messages

	EquipmentID	MaxSpeed	CombatRadius	Armament	ThrustToWeightRatio
1	1	1264	1380	Bombs, Missiles	0.93
2	2	1687	785	Bombs, Missiles	0.99
3	3	1470	1240	Bombs, Missiles	1.00
4	4	1590	1100	Missiles, Gun	1.10
5	5	1310	890	Missiles, Gun	0.91
6	6	1820	1000	Bombs, Missiles	1.15
7	7	1455	970	Missiles, Gun	0.95
8	8	1750	1200	Bombs, Missiles	1.02
9	9	1230	850	Missiles, Gun	0.90
10	10	1600	1350	Bombs, Missiles	1.20
11	11	1505	900	Missiles, Gun	0.98
12	12	1375	1000	Bombs, Missiles	1.05
13	13	1400	950	Missiles	0.97

	EquipmentID	MaxSpeed	CombatRadius	Armament	ThrustToWeightRatio
1	4	1590	1100	Missiles, Gun	1.10
2	6	1820	1000	Bombs, Missiles	1.15
3	8	1750	1200	Bombs, Missiles	1.02
4	10	1600	1350	Bombs, Missiles	1.20
5	12	1375	1000	Bombs, Missiles	1.05

```
SELECT MAX(CombatRadius) FROM FighterJets;
```

100 % ▼ ◄

⊞ Results ▤ Messages

	(No column name)
1	1380

```sql
-- UPDATE
UPDATE FighterJets SET Armament = 'Missiles, Bombs' WHERE EquipmentID = 13;
-- DELETE
DELETE FROM FighterJets WHERE EquipmentID = 13;
```

100 %

Messages

(1 row affected)

(1 row affected)

Completion time: 2025-06-09T20:32:35.9865072+05:00

```sql
-- SELECT
SELECT * FROM AWACS;
```

100 %

Results | Messages

	EquipmentID	RadarRange	Endurance	CrewSize
1	1	450	9	15
2	2	420	10	12
3	3	400	7	14
4	4	460	11	16
5	5	430	8	11
6	6	480	10	13
7	7	410	9	10
8	8	390	6	12
9	9	470	11	17
10	10	440	9	14
11	11	360	8	13
12	12	300	7	10
13	13	410	8	11

```sql
SELECT * FROM AWACS WHERE RadarRange > 400;
```

100 %

Results | Messages

	EquipmentID	RadarRange	Endurance	CrewSize
1	1	450	9	15
2	2	420	10	12
3	4	460	11	16
4	5	430	8	11
5	6	480	10	13
6	7	410	9	10
7	9	470	11	17
8	10	440	9	14
9	13	410	8	11

```sql
SELECT CrewSize, COUNT(*) FROM AWACS GROUP BY CrewSize;
```

100 %

Results | Messages

	CrewSize	(No column name)
1	10	2
2	11	2
3	12	2
4	13	2
5	14	2
6	15	1
7	16	1
8	17	1

```sql
-- UPDATE
UPDATE AWACS SET Endurance = 12 WHERE EquipmentID = 13;
-- DELETE
DELETE FROM AWACS WHERE EquipmentID = 13;
```

100 %

Messages

```
(1 row affected)

(1 row affected)

Completion time: 2025-06-09T20:36:59.1454245+05:00
```

```sql
-- SELECT
SELECT * FROM CargoAircraft;
```

100 %

Results | Messages

	EquipmentID	PayloadCapacity	Range	CargoHoldDimensions
1	1	25000	3000	35x15x12
2	2	28000	3200	40x20x10
3	3	30000	3500	30x18x14
4	4	27000	2800	38x12x11
5	5	26000	3000	36x14x13
6	6	32000	4000	33x16x10
7	7	29000	3100	34x15x12
8	8	24000	2700	32x10x11
9	9	35000	4200	39x18x15
10	10	31000	3400	37x17x12
11	11	22000	2500	29x13x10
12	12	33000	3900	36x16x13
13	13	27000	3300	33x15x12

```sql
SELECT * FROM CargoAircraft WHERE Range >= 3000;
```

100 %

Results | Messages

	EquipmentID	PayloadCapacity	Range	CargoHoldDimensions
1	1	25000	3000	35x15x12
2	2	28000	3200	40x20x10
3	3	30000	3500	30x18x14
4	5	26000	3000	36x14x13
5	6	32000	4000	33x16x10
6	7	29000	3100	34x15x12
7	9	35000	4200	39x18x15
8	10	31000	3400	37x17x12
9	12	33000	3900	36x16x13
10	13	27000	3300	33x15x12

```sql
SELECT AVG(PayloadCapacity) FROM CargoAircraft;
```

100 %

Results | Messages

	(No column name)
1	28384

```sql
-- UPDATE
UPDATE CargoAircraft SET PayloadCapacity = 28000 WHERE EquipmentID = 13;
-- DELETE
DELETE FROM CargoAircraft WHERE EquipmentID = 13;
```

100 %

Messages

(1 row affected)

(1 row affected)

Completion time: 2025-06-09T20:44:31.1562732+05:00

```sql
-- SELECT
SELECT * FROM AircraftCarriers;
SELECT * FROM AircraftCarriers WHERE PropulsionType = 'Nuclear';
```

100 %

Results | **Messages**

	EquipmentID	Displacement	AircraftCapacity	PropulsionType	CrewSize
1	1	90000	60	Nuclear	4500
2	2	85000	55	Diesel	4200
3	3	80000	50	Nuclear	4000
4	4	75000	45	Diesel	3800
5	5	70000	40	Nuclear	3600
6	6	65000	35	Diesel	3400
7	7	60000	30	Nuclear	3200
8	8	55000	25	Diesel	3000
9	9	50000	20	Nuclear	2800
10	10	95000	65	Diesel	4700
11	11	100000	70	Nuclear	5000
12	12	30000	22	Diesel	2500
13	13	60000	30	Diesel	3000

	EquipmentID	Displacement	AircraftCapacity	PropulsionType	CrewSize
1	1	90000	60	Nuclear	4500
2	3	80000	50	Nuclear	4000
3	5	70000	40	Nuclear	3600
4	7	60000	30	Nuclear	3200
5	9	50000	20	Nuclear	2800
6	11	100000	70	Nuclear	5000

```sql
SELECT AVG(AircraftCapacity) FROM AircraftCarriers;
```

100 %

Results | Messages

	(No column name)
1	42

```sql
-- UPDATE
UPDATE AircraftCarriers SET Displacement = 65000 WHERE EquipmentID = 13;
-- DELETE
DELETE FROM AircraftCarriers WHERE EquipmentID = 13;
```

100 %

Messages

```
(1 row affected)

(1 row affected)

Completion time: 2025-06-09T20:47:31.3505655+05:00
```

```sql
SELECT Displacement, COUNT(*) FROM Cruisers GROUP BY Displacement;
```

100 %

Results | Messages

	Displacement	(No column name)
1	8200	1
2	8400	1
3	8500	1
4	8600	1
5	8700	1
6	8800	1
7	8900	1
8	9000	1
9	9100	1
10	9300	1
11	9400	1
12	9600	1
13	9800	1

```sql
-- SELECT
SELECT * FROM Cruisers;
SELECT * FROM Cruisers WHERE TopSpeed > 30;
```

100 %

Results | **Messages**

	EquipmentID	Displacement	MissileSystems	TopSpeed
1	1	9800	SM-2, Tomahawk	32
2	2	9600	SM-3, Harpoon	30
3	3	9400	Tomahawk, Sea Sparrow	29
4	4	9300	Harpoon, SM-1	28
5	5	9100	Sea Sparrow, SM-2	27
6	6	9000	SM-3, Tomahawk	31
7	7	8900	Harpoon, SM-2	30
8	8	8800	SM-1, Sea Sparrow	26
9	9	8700	Tomahawk, Harpoon	32
10	10	8600	SM-2, Sea Sparrow	29
11	11	8500	Harpoon, SM-3	28
12	12	8400	Tomahawk, SM-1	27
13	13	8200	Tomahawk, Harpoon	28

	EquipmentID	Displacement	MissileSystems	TopSpeed
1	1	9800	SM-2, Tomahawk	32
2	6	9000	SM-3, Tomahawk	31
3	9	8700	Tomahawk, Har...	32

```sql
-- UPDATE
UPDATE Cruisers SET TopSpeed = 29 WHERE EquipmentID = 13;
-- DELETE
DELETE FROM Cruisers WHERE EquipmentID = 13;
```

100 %

Messages

    (1 row affected)

    (1 row affected)

    Completion time: 2025-06-09T23:08:47.6026635+05:00

```
-- SELECT
SELECT * FROM Frigates;
SELECT * FROM Frigates WHERE Range > 4000;
```

100 %

Results | Messages

	EquipmentID	Displacement	ASWCapabilities	Range
1	1	4500	Torpedoes, Sonar, Depth Charges	4500
2	2	4300	Sonar, Missiles, ASW Rockets	4200
3	3	4100	Torpedoes, Sonar	4000
4	4	4000	ASW Helicopter, Sonar	3900
5	5	3900	Depth Charges, Torpedoes	3800
6	6	3800	Missiles, Sonar	3700
7	7	3700	Torpedoes, ASW Rockets	3600
8	8	3600	Sonar, Helicopter	3500
9	9	3500	Depth Charges, Sonar	3400
10	10	3400	ASW Helicopter, Missiles	3300
11	11	3300	Torpedoes, Sonar	3200
12	12	3200	Missiles, Depth Charges	3100
13	13	3100	Sonar, Torpedoes	3000

	EquipmentID	Displacement	ASWCapabilities	Range
1	1	4500	Torpedoes, Sonar, Depth Charges	4500
2	2	4300	Sonar, Missiles, ASW Rockets	4200

```
SELECT AVG(Displacement) FROM Frigates;
```

100 %

Results | Messages

	(No column name)
1	3723

```
-- UPDATE
UPDATE Frigates SET ASWCapabilities = 'Torpedoes, Sonar, Depth Charges' WHERE EquipmentID = 13;
-- DELETE
DELETE FROM Frigates WHERE EquipmentID = 13;
```

100 %

Messages

```
(1 row affected)

(1 row affected)

Completion time: 2025-06-09T23:11:14.2090107+05:00
```

```sql
-- SELECT
SELECT * FROM Corvettes;
SELECT * FROM Corvettes WHERE PrimaryWeapon = '76mm Gun';
```

100 % ▾ ◀

⊞ Results ▤ Messages

	EquipmentID	Displacement	PrimaryWeapon	CrewSize
1	1	1800	76mm Gun	75
2	2	1700	Missile Launcher	70
3	3	1600	Anti-Ship Missile	68
4	4	1500	Torpedo Tubes	66
5	5	1400	Anti-Air Gun	65
6	6	1300	Surface Missile	63
7	7	1200	76mm Gun	62
8	8	1100	Missile Launcher	60
9	9	1000	Anti-Submarine...	58
10	10	900	Torpedo Tubes	55
11	11	800	Surface Missile	50
12	12	700	76mm Gun	48
13	13	650	Missile Launcher	45

	EquipmentID	Displacement	PrimaryWeapon	CrewSize
1	1	1800	76mm Gun	75
2	7	1200	76mm Gun	62
3	12	700	76mm Gun	48

```sql
SELECT MAX(Displacement) FROM Corvettes;
```

100 % ▾ ◀

⊞ Results ▤ Messages

	(No column name)
1	1800

```sql
-- UPDATE
UPDATE Corvettes SET CrewSize = 50 WHERE EquipmentID = 13;
-- DELETE
DELETE FROM Corvettes WHERE EquipmentID = 13;
```

100 %

Messages

```
(1 row affected)

(1 row affected)

Completion time: 2025-06-09T23:14:58.8775915+05:00
```

```sql
CREATE TABLE FighterJets_Log (
    EquipmentID INT,
    DeletedOn DATETIME
);
```

100 %

Messages

```
(1 row affected)

Completion time: 2025-06-09T23:18:02.4551591+05:00
```

```sql
CREATE TRIGGER trg_DeleteFighterJet
ON FighterJets
AFTER DELETE
AS
BEGIN
    INSERT INTO FighterJets_Log (EquipmentID, DeletedOn)
    SELECT EquipmentID, GETDATE() FROM deleted;
END;
```

100 %

Messages

```
Commands completed successfully.

Completion time: 2025-06-09T23:19:05.8129327+05:00
```

```sql
CREATE VIEW ArmyEquipment AS
SELECT 'Infantry' AS Type, EquipmentID, WeaponType AS Detail1, Caliber AS Detail2
FROM Infantry
UNION ALL
SELECT 'Armored', EquipmentID, VehicleType, MainGunCaliber
FROM Armored
UNION ALL
SELECT 'Artillery', EquipmentID, MobilityType, Caliber
FROM Artillery
UNION ALL
SELECT 'SupportVehicle', EquipmentID, VehicleType, Purpose
FROM SupportVehicles;
```

100 %

📄 Messages

```
Commands completed successfully.

Completion time: 2025-06-09T23:20:36.0187788+05:00
```

```sql
select * from ArmyEquipment;
```

100 %

⊞ Results   📄 Messages

	Type	EquipmentID	Detail1	Detail2
1	Infantry	1	Assault Rifle	5.56mm
2	Infantry	2	Sniper Rifle	5.56mm
3	Infantry	3	Assault Rifle	9mm
4	Infantry	4	SMG	9mm
5	Infantry	5	LMG	7.62mm
6	Infantry	6	Assault Rifle	5.56mm
7	Infantry	7	Sniper Rifle	7.62mm
8	Infantry	8	LMG	7.62mm
9	Infantry	9	SMG	9mm
10	Infantry	10	Assault Rifle	5.56mm

13	Amor...	1	APC	30mm
14	Amor...	2	IFV	30mm
15	Amor...	3	Tank	120mm
16	Amor...	4	Tank	120mm
17	Amor...	5	APC	105mm
18	Amor...	6	IFV	30mm
19	Amor...	7	Tank	120mm
20	Amor...	8	APC	105mm
21	Amor...	9	IFV	30mm
22	Amor...	10	Tank	120mm
23	Amor...	11	APC	105mm
24	Amor...	12	IFV	30mm

31	Artillery	7	Towed	105mm
32	Artillery	8	Self-Prope...	155mm
33	Artillery	9	Towed	105mm
34	Artillery	10	Self-Prope...	155mm
35	Artillery	11	Towed	105mm
36	Artillery	12	Self-Prope...	155mm
37	Supp...	1	Truck	Trans...
38	Supp...	2	Jeep	Logist...
39	Supp...	3	Ambulance	Medical
40	Supp...	4	Truck	Trans...
41	Supp...	5	Jeep	Logist...
42	Supp...	6	Ambulance	Medical
43	Supp...	7	Truck	Trans...
44	Supp...	8	Jeep	Logist...
45	Supp...	9	Ambulance	Medical
46	Supp...	10	Truck	Trans...
47	Supp...	11	Jeep	Logist...
48	Supp...	12	Ambulance	Medical

```sql
SELECT A.EquipmentID, A.VehicleType, A.MainGunCaliber, A.CrewSize, S.VehicleType AS SupportVehicle
FROM Armored A
INNER JOIN SupportVehicles S
ON A.EquipmentID = S.EquipmentID;
```

100 %

Results | Messages

	EquipmentID	VehicleType	MainGunCaliber	CrewSize	SupportVehicle
1	1	APC	30mm	4	Truck
2	2	IFV	30mm	3	Jeep
3	3	Tank	120mm	4	Ambulance
4	4	Tank	120mm	4	Truck
5	5	APC	105mm	3	Jeep
6	6	IFV	30mm	3	Ambulance
7	7	Tank	120mm	5	Truck
8	8	APC	105mm	4	Jeep
9	9	IFV	30mm	3	Ambulance
10	10	Tank	120mm	5	Truck
11	11	APC	105mm	4	Jeep
12	12	IFV	30mm	3	Ambulance

```sql
SELECT I.EquipmentID, I.WeaponType, A.Range, A.MobilityType
FROM Infantry I
LEFT JOIN Artillery A
ON I.EquipmentID = A.EquipmentID;
```

100 %

Results | Messages

	EquipmentID	WeaponType	Range	MobilityType
1	1	Assault Rifle	65	Towed
2	2	Sniper Rifle	70	Self-Propelled
3	3	Assault Rifle	40	Towed
4	4	SMG	60	Self-Propelled
5	5	LMG	55	Towed
6	6	Assault Rifle	80	Self-Propelled
7	7	Sniper Rifle	35	Towed
8	8	LMG	75	Self-Propelled
9	9	SMG	45	Towed
10	10	Assault Rifle	66	Self-Propelled
11	11	Sniper Rifle	50	Towed
12	12	LMG	68	Self-Propelled

```sql
SELECT A.EquipmentID, A.Range, A.MobilityType, I.WeaponType
FROM Infantry I
RIGHT JOIN Artillery A
ON I.EquipmentID = A.EquipmentID;
```

100 % ▼ ◄

⊞ Results 📄 Messages

	EquipmentID	Range	MobilityType	WeaponType
1	1	65	Towed	Assault Rifle
2	2	70	Self-Propelled	Sniper Rifle
3	3	40	Towed	Assault Rifle
4	4	60	Self-Propelled	SMG
5	5	55	Towed	LMG
6	6	80	Self-Propelled	Assault Rifle
7	7	35	Towed	Sniper Rifle
8	8	75	Self-Propelled	LMG
9	9	45	Towed	SMG
10	10	66	Self-Propelled	Assault Rifle
11	11	50	Towed	Sniper Rifle
12	12	68	Self-Propelled	LMG

```sql
SELECT
    F.EquipmentID AS FighterJetID,
    F.MaxSpeed AS Fighter_MaxSpeed,
    F.CombatRadius AS Fighter_CombatRadius,
    F.Armament AS Fighter_Armament,
    F.ThrustToWeightRatio AS Fighter_TWR,

    H.EquipmentID AS HelicopterID,
    H.MaxSpeed AS Heli_MaxSpeed,
    H.Range AS Heli_Range,
    H.Armament AS Heli_Armament,
    H.RotorDiameter AS Heli_RotorDiameter

FROM FighterJets F
FULL OUTER JOIN AttackHelicopters H
    ON F.EquipmentID = H.EquipmentID;
```
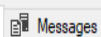
Results | Messages

	FighterJetID	Fighter_MaxSpeed	Fighter_CombatRadius	Fighter_Armament	Fighter_TWR	HelicopterID	Heli_MaxSpeed	Heli_Range	Heli_Armament	Heli_RotorDiameter
1	1	1264	1380	Bombs, Missiles	0.93	1	270	225	Rockets, Machine Gun	13.87
2	2	1687	785	Bombs, Missiles	0.99	2	320	420	Missiles, Gun	14.50
3	3	1470	1240	Bombs, Missiles	1.00	3	300	350	Cannon, Rockets	12.75
4	4	1590	1100	Missiles, Gun	1.10	4	260	300	Missiles, Gun	11.50
5	5	1310	890	Missiles, Gun	0.91	5	310	400	Rockets, Machine Gun	13.10
6	6	1820	1000	Bombs, Missiles	1.15	6	280	320	Cannon, Rockets	10.95
7	7	1455	970	Missiles, Gun	0.95	7	330	460	Missiles, Gun	14.20
8	8	1750	1200	Bombs, Missiles	1.02	8	295	310	Rockets, Machine Gun	11.30
9	9	1230	850	Missiles, Gun	0.90	9	270	290	Cannon, Rockets	10.65
10	10	1600	1350	Bombs, Missiles	1.20	10	310	390	Missiles, Gun	13.00
11	11	1505	900	Missiles, Gun	0.98	11	285	330	Cannon, Rockets	12.10
12	12	1375	1000	Bombs, Missiles	1.05	12	275	340	Rockets, Machine Gun	11.75

Section 2:

Normalization

Normalization Process of Military Inventory System

1. Un-normalized Form (UNF)

The unnormalized table (UNF) combines all data from 12 military equipment categories into a single table. It contains attributes related to the Army, Air Force, and Navy equipment in one place, leading to data redundancy and null values for unrelated categories. The unnormalized table contains attributes related to multiple entities (e.g., Army, Navy, Air Force) in a single table. It has repeating groups and is not atomic.

AllMilitaryEquipment_UNF Table Attributes
• EquipmentID
• EquipmentType
• Branch
• ModelName
• Manufacturer
• CommissionDate
• Status
• CurrentLocation
• LastInspectionDate
• WeaponType
• Caliber
• ServiceYear
• UnitAssignment
• VehicleType_Army
• ArmorThickness
• MainGunCaliber
• CrewSize_Army
• ArtilleryRange
• MobilityType
• Capacity
• Purpose

- MaxSpeed
- AircraftRange
- Armament
- RotorDiameter
- CombatRadius
- ThrustToWeightRatio
- RadarRange
- Endurance
- CrewSize_Air
- PayloadCapacity
- CargoHoldDimensions
- Displacement
- AircraftCapacity
- PropulsionType
- MissileSystems
- ASWCapabilities
- NavalRange
- PrimaryWeapon
- CrewSize_Navy

Step 2: First Normal Form (1NF)

In 1NF, we remove repeating groups and ensure atomicity. Each table must have a primary key and no multivalued attributes. We split the table based on branch-specific details.

Tables and Attributes in 1NF

- Equipment (PK: EquipmentID)
  EquipmentType, Branch, ModelName, Manufacturer, CommissionDate, Status, CurrentLocation, LastInspectionDate

- InfantryWeapons (PK, FK: EquipmentID)
  WeaponType, Caliber, ServiceYear, UnitAssignment

- ArmoredVehicles (PK, FK: EquipmentID)
  VehicleType, ArmorThickness, MainGunCaliber, CrewSize

- ArtillerySystems (PK, FK: EquipmentID)
  Range, Caliber, MobilityType

- SupportVehicles (PK, FK: EquipmentID)
  VehicleType, Capacity, Purpose

- AttackHelicopters (PK, FK: EquipmentID)
  MaxSpeed, Range, Armament, RotorDiameter

- FighterJets (PK, FK: EquipmentID)
  MaxSpeed, CombatRadius, Armament, ThrustToWeightRatio

- AWACS (PK, FK: EquipmentID)
  RadarRange, Endurance, CrewSize

- CargoAircraft (PK, FK: EquipmentID)
  PayloadCapacity, Range, CargoHoldDimensions

- AircraftCarriers (PK, FK: EquipmentID)
  Displacement, AircraftCapacity, PropulsionType, CrewSize

- Cruisers (PK, FK: EquipmentID)
  Displacement, MissileSystems, TopSpeed

- Frigates (PK, FK: EquipmentID)
  Displacement, ASWCapabilities, Range

- Corvettes (PK, FK: EquipmentID)
  Displacement, PrimaryWeapon, CrewSize

Step 3: Second Normal Form (2NF)

All tables from 1NF are already in 2NF because they have a single-column primary key and no partial dependencies.

Step 4: Third Normal Form (3NF)

We remove transitive dependencies by creating reference tables for Manufacturer, EquipmentType, and Branch.
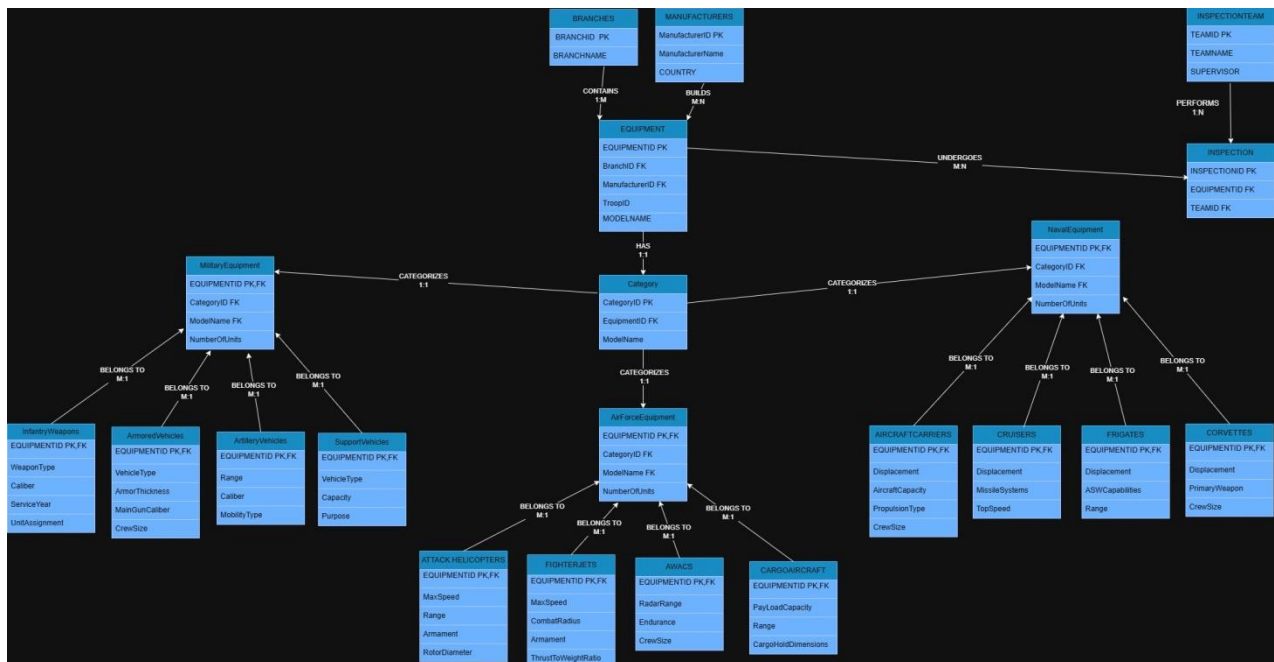
Normalized Tables in 3NF

- Branches (PK: BranchID)
  BranchName

- EquipmentTypes (PK: TypeID, FK: BranchID)
  TypeName

- Manufacturers (PK: ManufacturerID)
  ManufacturerName, Country

- Equipment (PK: EquipmentID, FK: TypeID, FK: ManufacturerID)
  ModelName, CommissionDate, Status, CurrentLocation, LastInspectionDate

Section 3:

Simple ERD
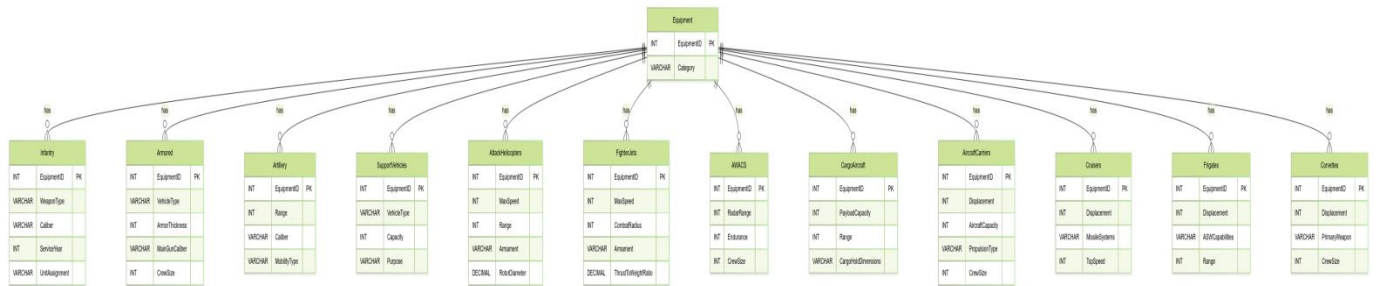
Section 4:

Enhanced ERD

Section 5:

Updated windows form having joins

This main form contains buttons by clicking on any button user can go on corresponding selected table

Separate forms for each table are as follow:

All operations ADD, delete, Joins buttons are properly working

Working of Joins

By clicking on button "Join Table" user have new form in which user can join any two tables of his choice

Here is the working

Form 14 (first window)

Welcome to Joins Form

Select any Two Tables to Join

First Table: Corvettes

Second Table: AWACS

Join Tables

EquipmentID	Displacement	PrimaryWeapon	CrewSize
1	1800	76mm Gun	75
2	1700	Missile Launcher	70
3	1600	Anti-Ship Missile	68
4	1500	Torpedo Tubes	66
5	1400	Anti-Air Gun	65
6	1300	Surface Missile	63
7	1200	76mm Gun	62
8	1100	Missile Launcher	60
9	1000	Anti-Submarine R...	58
10	900	Torpedo Tubes	55
11	800	Surface Missile	50
12	700	76mm Gun	48
13	650	Missile Launcher	45

Form 14 (second window)

Welcome to Joins Form

Select any Two Tables to Join

First Table: AttackHelicopters

Second Table: SupportVehicles

Join Tables

EquipmentID	MaxSpeed	Range	Armament
1	270	225	Rockets, I
2	320	420	Missiles, G
3	300	350	Cannon, F
4	260	300	Missiles, G
5	310	400	Rockets, I
6	280	320	Cannon, F
7	330	460	Missiles, G
8	295	310	Rockets, I
9	270	290	Cannon, F
10	310	390	Missiles, G
11	285	330	Cannon, F
12	275	340	Rockets, I
13	300	370	Missiles

Form 1

Form14

Welcome to Joins Form

Select any Two Tables to Join

First Table: Artillery

Second Table: Cruisers

Join Tables

	Caliber	MobilityType	EquipmentID1	D
▶	105mm	Towed	1	98
	155mm	Self-Propelled	2	96
	105mm	Towed	3	94
	155mm	Self-Propelled	4	93
	105mm	Towed	5	91
	155mm	Self-Propelled	6	90
	105mm	Towed	7	89
	155mm	Self-Propelled	8	88
	105mm	Towed	9	87
	155mm	Self-Propelled	10	86
	105mm	Towed	11	85
	155mm	Self-Propelled	12	84
	155mm	Self-Propelled	13	82
*				

Form 2

Form14

Welcome to Joins Form

Select any Two Tables to Join

First Table: Frigates

Second Table: FighterJets

Join Tables

	EquipmentID	Range	Displacement	ASWCap
▶	1	4500	4500	Torpedoes
	2	4200	4300	Sonar, Mis
	3	4000	4100	Torpedoes
	4	3900	4000	ASW Helic
	5	3800	3900	Depth Cha
	6	3700	3800	Missiles, S
	7	3600	3700	Torpedoes
	8	3500	3600	Sonar, Hel
	9	3400	3500	Depth Cha
	10	3300	3400	ASW Helic
	11	3200	3300	Torpedoes
	12	3100	3200	Missiles, D
	13	3000	3100	Sonar, Tor
*				

C# code behind the button "Join Table "which joins the two table and also display on data grid view.

```csharp
1 reference
private void button1_Click(object sender, EventArgs e)
{
    string table1 = comboBox1.Text;
    string table2 = comboBox2.Text;

    if (string.IsNullOrWhiteSpace(table1) || string.IsNullOrWhiteSpace(table2))
    {
        MessageBox.Show("Please select both tables to perform the join.");
        return;
    }

    if (table1 == table2)
    {
        MessageBox.Show("Please select two different tables.");
        return;
    }

    string query = $@"
            SELECT *
            FROM [{table1}] t1
            INNER JOIN [{table2}] t2 ON t1.EquipmentID = t2.EquipmentID";

    try
    {
        using (SqlConnection conn = new SqlConnection(connectionString))
        {
            SqlDataAdapter adapter = new SqlDataAdapter(query, conn);
            DataTable dt = new DataTable();
            adapter.Fill(dt);
            JoinsGridView.DataSource = dt;
        }
    }
    catch (Exception ex)
    {
        MessageBox.Show("Error executing join: " + ex.Message);
    }
}
```

Full code of windows form is present in zip folder

Separate forms for all tables

Infantory

Infantory Weapons

Equipment ID		
Weapon Type		
Caliber		
Service Year		
Unit Assignment		

Add   Delete

	EquipmentID	WeaponType	Caliber
►	1	Assault Rifle	5.56mm
	2	Sniper Rifle	5.56mm
	3	Assault Rifle	9mm
	4	SMG	9mm
	5	LMG	7.62mm
	6	Assault Rifle	5.56mm
	7	Sniper Rifle	7.62mm
	8	LMG	7.62mm
	9	SMG	9mm
	10	Assault Rifle	5.56mm
	11	Sniper Rifle	7.62mm

Armored

Equipment ID		
Vehicle Type		
Armor Thickness		
Main Gun caliber		
Crew Size		

Add   Delete

	EquipmentID	VehicleType	ArmorThick
►	1	APC	260
	2	IFV	149
	3	Tank	269
	4	Tank	220
	5	APC	175
	6	IFV	190
	7	Tank	300
	8	APC	210
	9	IFV	160
	10	Tank	275

Form4

Artillery

Equipment ID [   ]

Range [   ]

Caliber [   ]

Mobility type [∨]

[Add]   [Delete]

	EquipmentID	Range	Caliber
▶	1	65	105mm
	2	70	155mm
	3	40	105mm
	4	60	155mm
	5	55	105mm
	6	80	155mm
	7	35	105mm
	8	75	155mm
	9	45	105mm
	10	66	155mm
	11	50	105mm

Form5

Support Vehicles

Equipment ID [   ]

Vehicle Type [   ]

Capacity [   ]

Purpose [   ]

[Add]   [Delete]

	EquipmentID	VehicleType	Capacity
▶	1	Truck	10
	2	Jeep	4
	3	Ambulance	2
	4	Truck	12
	5	Jeep	5
	6	Ambulance	3
	7	Truck	15
	8	Jeep	6
	9	Ambulance	2
	10	Truck	8

Form6

label1

Attack Helicopters

Equipment ID   [ ]

Max Speed   [ ]

Range   [ ]

Armament   [ ]

Rotor Diameter   [ ]

	EquipmentID	MaxSpeed	Range
▶	1	270	225
	2	320	420
	3	300	350
	4	260	300
	5	310	400
	6	280	320
	7	330	460
	8	295	310
	9	270	290
	10	310	390

[Add] [Delete]

Form7

Fighter Jets

Equipment ID   [ ]

Max Speed   [ ]

Combat Radius   [ ]

Armament   [ ]

Thrust to Weight Ratio   [ ]

	EquipmentID	MaxSpeed	CombatRa
▶	1	1264	1380
	2	1687	785
	3	1470	1240
	4	1590	1100
	5	1310	890
	6	1820	1000
	7	1455	970
	8	1750	1200
	9	1230	850
	10	1600	1350
	11	1505	900

[Add] [Delete]

Form8

AWACS

Equipment ID

Radar Range

Endurance

Crew Size

[Add]   [Delete]

EquipmentID	RadarRange	Endurance
1	450	9
2	420	10
3	400	7
4	460	11
5	430	8
6	480	10
7	410	9
8	390	6
9	470	11
10	440	9
11	360	8

Form9

Cargo Aircraft

Equipment ID

Pay Load Capacity

Range

Cargo Hold Dimensions

[Add]   [Delete]

EquipmentID	PayloadCapacity	Range
1	25000	3000
2	28000	3200
3	30000	3500
4	27000	2800
5	26000	3000
6	32000	4000
7	29000	3100
8	24000	2700
9	35000	4200
10	31000	3400
11	22000	2500
12	33000	3900

Form10

Aircraft Carriers

Equipment ID   [＿＿＿＿＿＿]

Displacement   [＿＿＿＿＿＿]

Aircraft Capacity   [＿＿＿＿＿＿]

Propulsion Type   [＿＿＿＿＿＿]

Crew Size   [＿＿＿＿＿＿]

[Add]   [Delete]

EquipmentID	Displacement	AircraftCapacity
1	90000	60
2	85000	55
3	80000	50
4	75000	45
5	70000	40
6	65000	35
7	60000	30
8	55000	25
9	50000	20
10	95000	65
11	100000	70

Form11

Cruisers

Equipment ID   [＿＿＿＿＿＿]

Displacement   [＿＿＿＿＿＿]

Missile Systems   [＿＿＿＿＿＿]

Top Speed   [＿＿＿＿＿＿]

[Add]   [Delete]

EquipmentID	Displacement	MissileSyste
1	9800	SM-2, Tomah
2	9600	SM-3, Harpo
3	9400	Tomahawk, S
4	9300	Harpoon, SM
5	9100	Sea Sparrow
6	9000	SM-3, Tomah
7	8900	Harpoon, SM
8	8800	SM-1, Sea Sp
9	8700	Tomahawk, I
10	8600	SM-2, Sea Sp
11	8500	Harpoon, SM
12	8400	Tomahawk, S

Form12

Frigates

Equipment ID

Displacement

ASW Capabilities

Range

	EquipmentID	Displacement	ASWCapabilities
	1	4500	Torpedoes, Sona...
	2	4300	Sonar, Missiles, A...
	3	4100	Torpedoes, Sonar
	4	4000	ASW Helicopter, ...
	5	3900	Depth Charges, ...
	6	3800	Missiles, Sonar
	7	3700	Torpedoes, ASW...
▶	8	3600	Sonar, Helicopter
	9	3500	Depth Charges, ...
	10	3400	ASW Helicopter, ...
	11	3300	Torpedoes, Sonar
	12	3200	Missiles, Depth C...

Add   Delete

Form13

Corvettes

Equipment ID

Displacement

Primary Weapon

Crew Size

	EquipmentID	Displacement	PrimaryWeapon
	1	1800	76mm Gun
	2	1700	Missile Launcher
	3	1600	Anti-Ship Missile
	4	1500	Torpedo Tubes
	5	1400	Anti-Air Gun
	6	1300	Surface Missile
	7	1200	76mm Gun
	8	1100	Missile Launcher
▶	9	1000	Anti-Submarine R...
	10	900	Torpedo Tubes
	11	800	Surface Missile
	12	700	76mm Gun

Add   Delete