Foundation Technical Training

Case Study - Digital Asset Management Application

Name: Niranjan Kolpe, Batch: C#-Batch 2

Problem Statement: Create following tables in SQL Schema with appropriate class and write the unit test case for the Digital Asset Management application.

Schema Design:

1. **employees table:**
    a. employee_id (Primary Key)
    b. name
    c. department
    d. email
    e. password

2. **assets table:**
    a. asset_id (Primary Key): Unique identifier for each asset
    b. name
    c. type: Type of the asset (e.g., laptop, vehicle, equipment)
    d. serial_number: Serial number or unique identifier of the asset
    e. purchase_date
    f. location: Current location of the asset
    g. status: Status of the asset (e.g., in use, decommissioned, under maintenance)
    h. owner_id: (Foreign Key): References the employee who owns the asset

3. **maintenance_records table:**
    a. maintenance_id (Primary Key): Unique identifier for each maintenance record
    b. asset_id (Foreign Key): References the asset for which maintenance was performed
    c. maintenance_date
    d. description: Description of the maintenance activity
    e. cost: Cost associated with the maintenance

4. **asset_allocations table:**
    a. allocation_id (Primary Key): Unique identifier for each asset allocation
    b. asset_id (Foreign Key): References the asset that is allocated
    c. employee_id (Foreign Key): References the employee to whom the asset is allocated
    d. allocation_date: Date when the asset was allocated
    e. return_date: Date when the asset was returned (if applicable)

5. **reservations table (to store order details):**
    a. reservation_id (Primary Key): Unique identifier for each reservation
    b. asset_id (Foreign Key): References the asset that is being reserved

c. employee_id (Foreign Key): References the employee who made the reservation
d. reservation_date: Date when the reservation was made
e. start_date: Date when the reserved asset is needed
f. end_date: Date when the reservation ends
g. status: Status of the reservation (e.g., pending, approved, canceled)

Program Code in SQL:

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-- Name: Niranjan Kolpe, Batch: C# batch-2

-- Case Study: SQL - Digital Asset Management Application


USE master;

CREATE DATABASE AssetDB;


USE AssetDB;


-- Schema Design

-- 1. Employees Table:

CREATE TABLE employees (employee_id INT PRIMARY KEY IDENTITY, name VARCHAR(20) NOT NULL,

                        department VARCHAR(20) NOT NULL, email VARCHAR(30) NOT NULL, password VARCHAR(30) NOT NULL);

INSERT INTO employees VALUES ('Niranjan', 'Technical', 'niranjan@gmail.com', 'niranjan@123');

INSERT INTO employees VALUES ('Steve', 'Finance', 'steve@gmail.com', 'steve@123');

INSERT INTO employees VALUES ('Tony', 'Legal', 'tony@gmail.com', 'tony@123');

INSERT INTO employees VALUES ('Mark', 'Technical', 'mark@gmail.com', 'mark@123');

INSERT INTO employees VALUES ('Jessica', 'R and D', 'jessica@gmail.com', 'jessica@123');
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INSERT INTO employees VALUES ('Chris', 'Finance', 'chris@gmail.com', 'chris@123');

INSERT INTO employees VALUES ('Benedict', 'Sales', 'benedict@gmail.com', 'benedict@123');

INSERT INTO employees VALUES ('Scarlett', 'Legal', 'scarlett@gmail.com', 'scarlett@123');

INSERT INTO employees VALUES ('Clint', 'Sales', 'clint@gmail.com', 'clint@123');

INSERT INTO employees VALUES ('Sam', 'Technical', 'sam@gmail.com', 'sam@123');

SELECT * FROM employees;


-- 2. Assets Table:

CREATE TABLE assets (asset_id INT PRIMARY KEY IDENTITY, name VARCHAR(20) NOT NULL, type VARCHAR(10) NOT NULL,

                     serial_number INT NOT NULL, purchase_date DATE NOT NULL, location VARCHAR(20) NOT NULL,

                       status VARCHAR(20) NOT NULL, owner_id INT FOREIGN KEY REFERENCES employees(employee_id));

INSERT INTO assets VALUES ('DELL Computer Setup', 'Laptop', 1, '2024-01-02', 'Chennai', 'Under Maintenance', 2);

INSERT INTO assets VALUES ('HP Computer Setup', 'Laptop', 2, '2024-01-03', 'Mumbai', 'In Use', 3);

INSERT INTO assets VALUES ('Fortuner', 'Vehicle', 3, '2024-01-03', 'Delhi', 'Decommissioned', 4);

INSERT INTO assets VALUES ('Hardware Kit', 'Equipment', 4, '2024-01-09', 'Bengaluru', 'In Use', 2);

INSERT INTO assets VALUES ('Google Pixel Mobile', 'Equipment', 5, '2024-01-10', 'Pune', 'In Use', 1);

INSERT INTO assets VALUES ('Activa', 'Vehicle', 6, '2024-02-15', 'Bengaluru', 'Decommissioned', 4);
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INSERT INTO assets VALUES ('Measurement Kit',     'Equipment',  7, '2024-02-24',
'Chennai',   'Decommissioned',     4);

INSERT INTO assets VALUES ('Generator',           'Equipment',  8, '2024-03-27',
'Mumbai',    'Under Maintenance',  9);

INSERT INTO assets VALUES ('ASUS Computer Setup', 'Laptop',     9, '2024-04-14',
'Delhi',     'In Use',             5);

INSERT INTO assets VALUES ('Ola EV Scooter',      'Vehicle',   10, '2024-05-21',
'Pune',      'Decommissioned',     4);

SELECT * FROM assets;



-- 3. Maintenance Records Table:

CREATE TABLE maintenance_records (maintenance_id INT PRIMARY KEY IDENTITY,

                                          asset_id INT FOREIGN KEY REFERENCES
assets(asset_id) NOT NULL,

                                    maintenance_date DATE NOT NULL, description
VARCHAR(50) NOT NULL, cost FLOAT NOT NULL);

INSERT INTO maintenance_records VALUES (1, '2024-03-31', 'Cleanup and Software
Updates',  200.00);

INSERT INTO maintenance_records VALUES (8, '2024-04-27', 'Sensor and Meter
Calibration', 1000.00);

SELECT * FROM maintenance_records;


-- 4. Asset Allocations Table:

CREATE TABLE asset_allocations (allocation_id INT PRIMARY KEY IDENTITY,

                                        asset_id INT FOREIGN KEY REFERENCES
assets(asset_id) NOT NULL,

                                   employee_id INT FOREIGN KEY REFERENCES
employees(employee_id) NOT NULL,
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                                    allocation_date DATE NOT NULL, return_date DATE
DEFAULT NULL);

INSERT INTO asset_allocations VALUES (1, 2, '2024-01-09', NULL);

INSERT INTO asset_allocations VALUES (2, 3, '2024-01-04', '2024-01-21');

INSERT INTO asset_allocations VALUES (4, 2, '2024-01-10', NULL);

INSERT INTO asset_allocations VALUES (5, 1, '2024-01-11', NULL);

INSERT INTO asset_allocations VALUES (8, 9, '2024-04-01', NULL);

INSERT INTO asset_allocations VALUES (9, 5, '2024-04-15', NULL);

SELECT * FROM asset_allocations;


-- 5. Reservations Table

CREATE TABLE reservations (reservation_id INT PRIMARY KEY IDENTITY,

                            asset_id INT FOREIGN KEY REFERENCES assets(asset_id)
NOT NULL,

                                        employee_id  INT  FOREIGN  KEY  REFERENCES
employees(employee_id) NOT NULL,

                             reservation_date DATE NOT NULL, start_date DATE NOT
NULL,

                           end_date DATE NOT NULL, status VARCHAR(10) NOT NULL);

INSERT INTO reservations VALUES ( 3, 1, '2024-09-12', '2024-10-01', '2024-10-07',
'Cancelled');

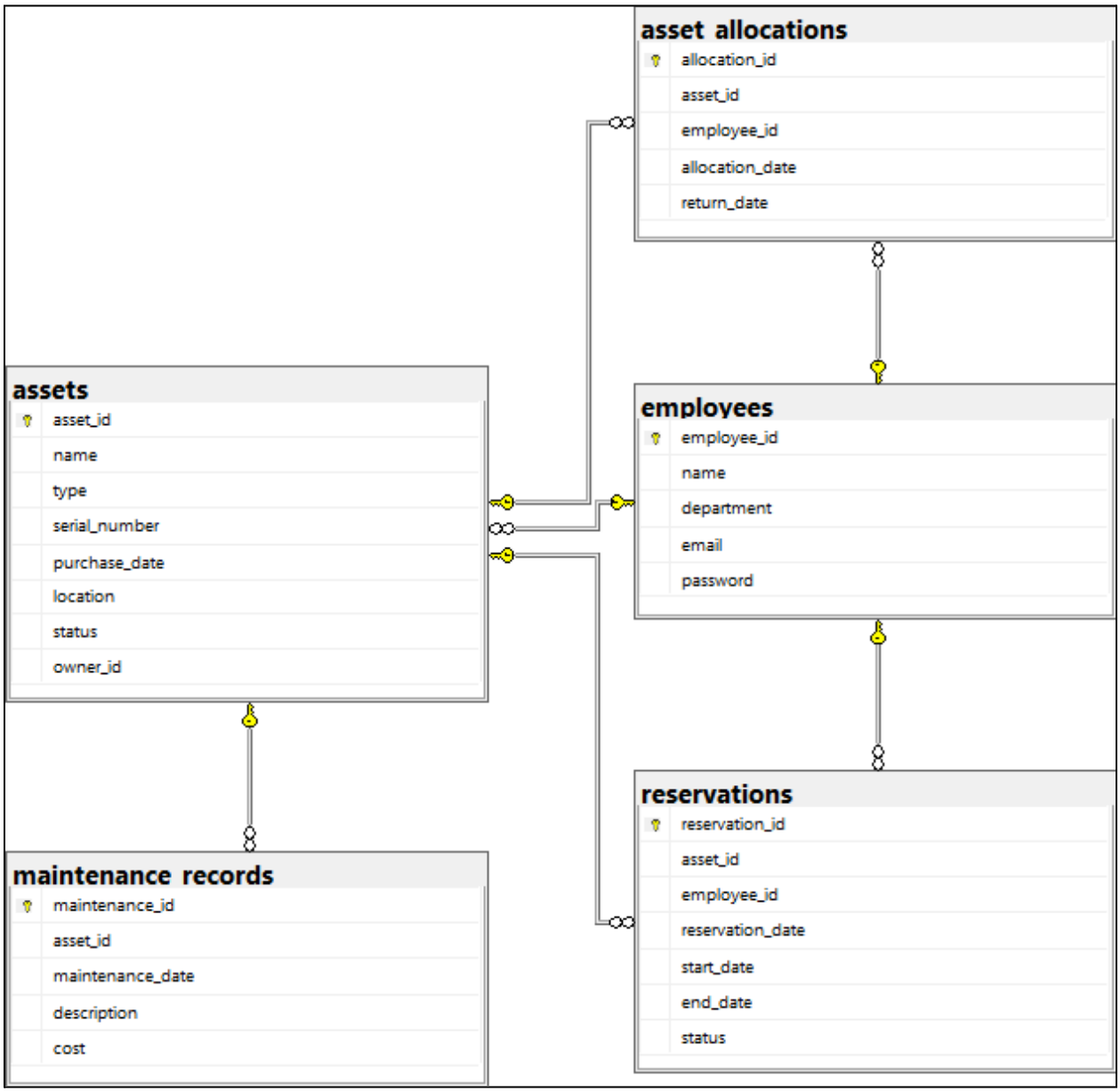
INSERT INTO reservations VALUES ( 5, 2, '2024-09-18', '2024-10-01', '2024-10-31',
'Pending');

INSERT INTO reservations VALUES ( 7, 8, '2024-09-20', '2024-10-08', '2024-10-21',
'Approved');

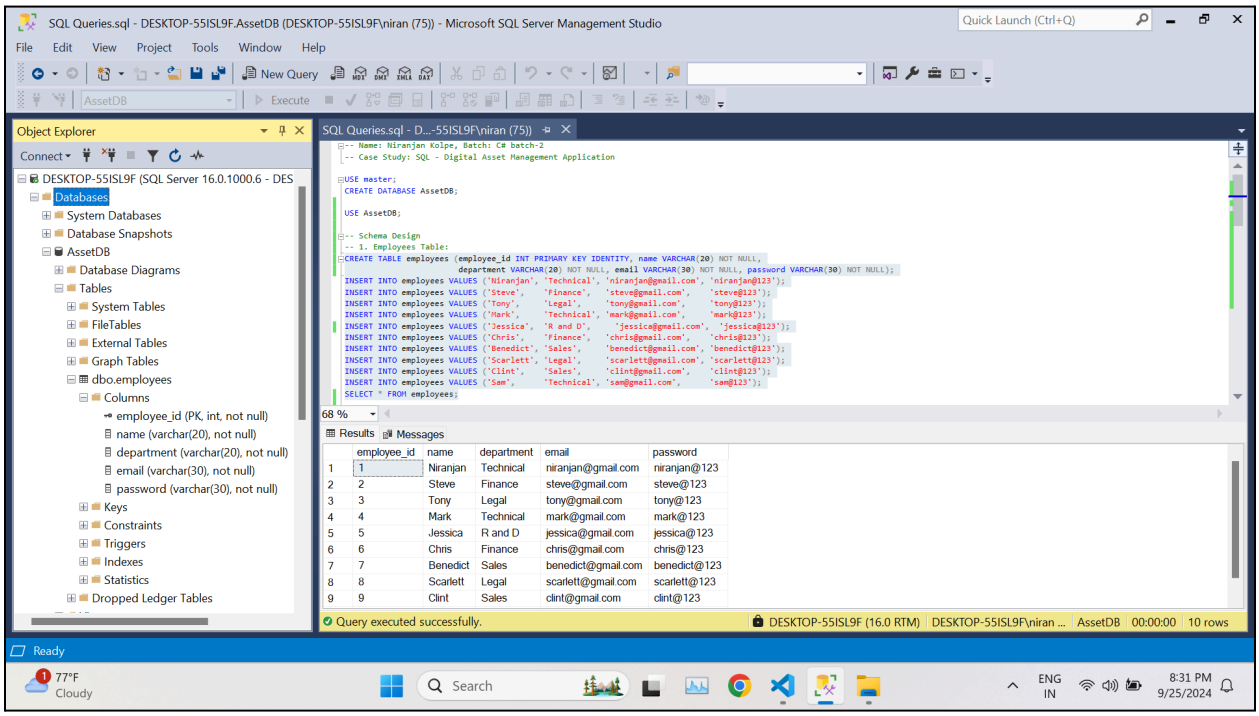
INSERT INTO reservations VALUES (10, 4, '2024-09-21', '2024-10-09', '2024-10-15',
'Pending');

SELECT * FROM reservations;
```

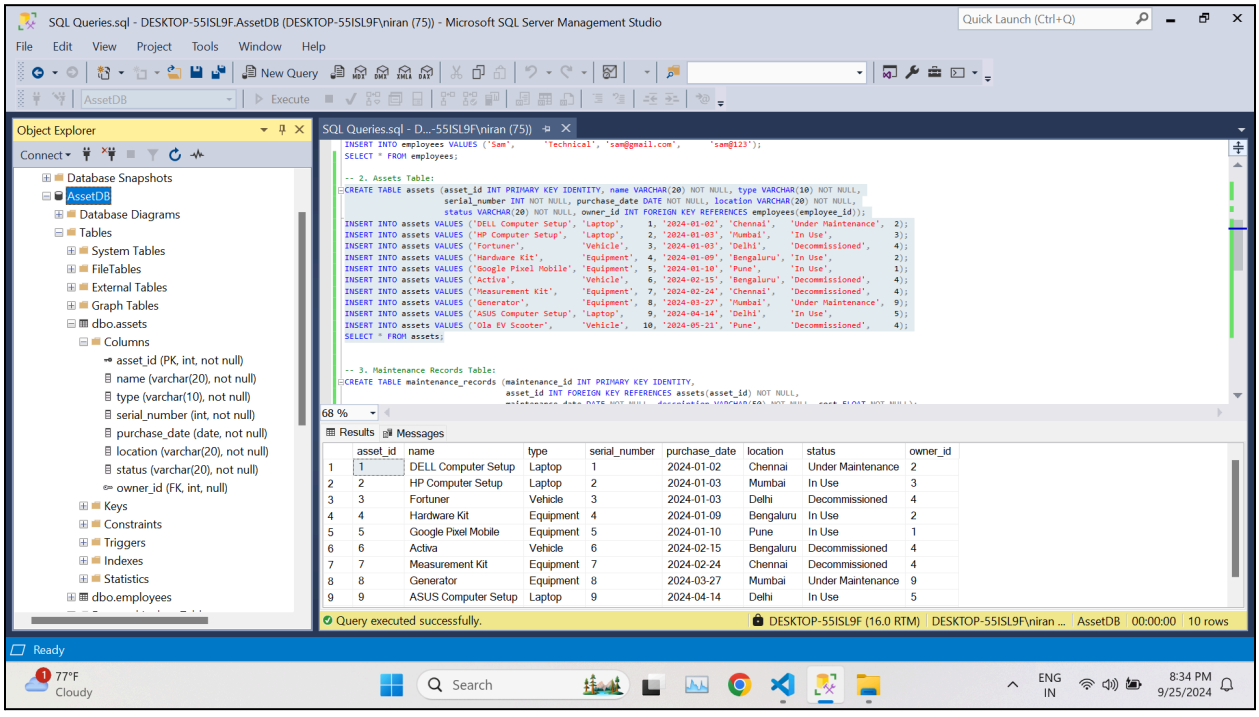
Entity Relationship Diagram:



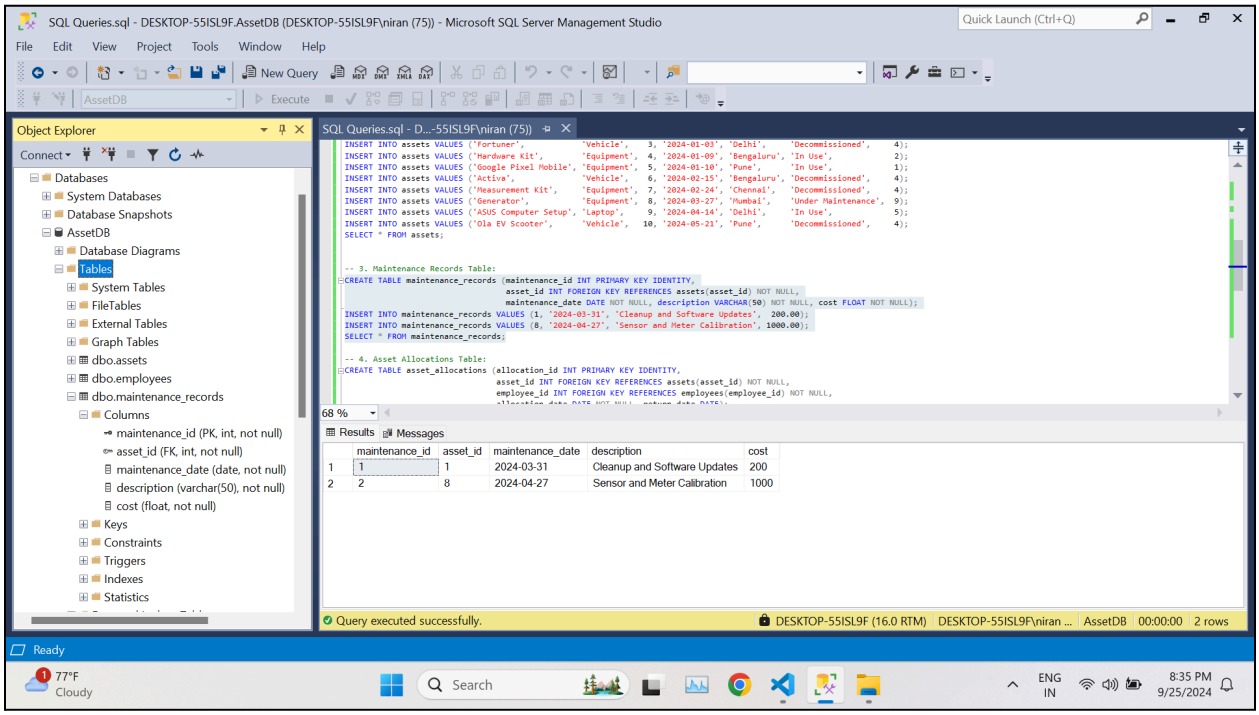
Output 1:



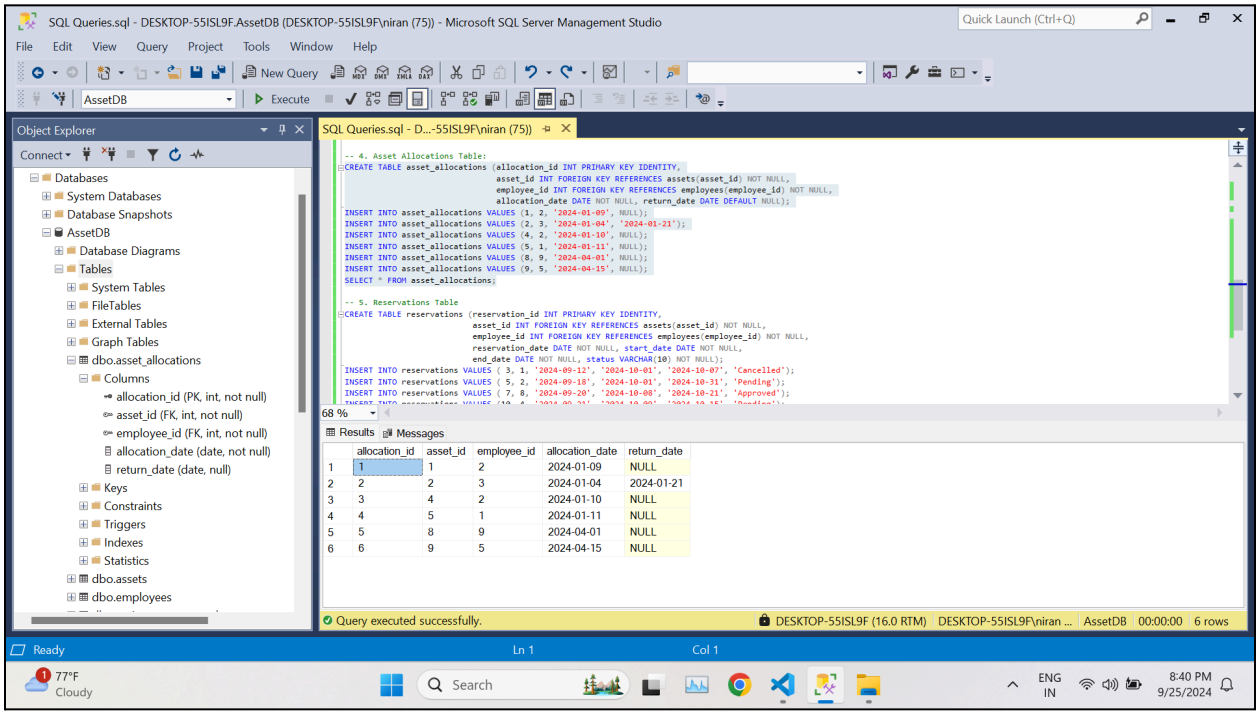
Output 2:



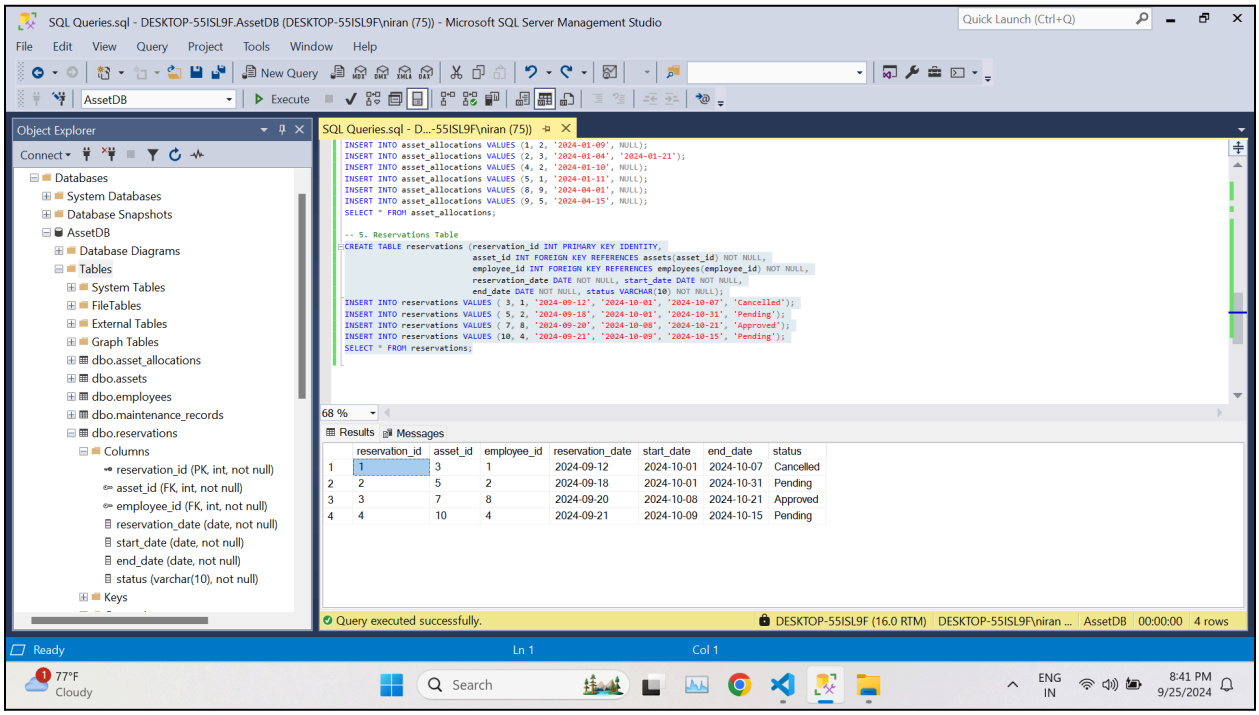
Output 3:



Output 4:



Output 5:


SQL Queries.sql - DESKTOP-55ISL9F.AssetDB (DESKTOP-55ISL9F\niran (75)) - Microsoft SQL Server Management Studio
File Edit View Query Project Tools Window Help
New Query
Execute
AssetDB
Object Explorer
Connect
Databases
System Databases
Database Snapshots
AssetDB
Database Diagrams
Tables
System Tables
FileTables
External Tables
Graph Tables
dbo.asset_allocations
dbo.assets
dbo.employees
dbo.maintenance_records
dbo.reservations
Columns
reservation_id (PK, int, not null)
asset_id (FK, int, not null)
employee_id (FK, int, not null)
reservation_date (date, not null)
start_date (date, not null)
end_date (date, not null)
status (varchar(10), not null)
Keys
SQL Queries.sql - D...-55ISL9F\niran (75))
INSERT INTO asset_allocations VALUES (1, 2, '2024-01-09', NULL);
INSERT INTO asset_allocations VALUES (2, 3, '2024-01-04', '2024-01-21');
INSERT INTO asset_allocations VALUES (4, 2, '2024-01-10', NULL);
INSERT INTO asset_allocations VALUES (5, 1, '2024-01-11', NULL);
INSERT INTO asset_allocations VALUES (8, 9, '2024-04-01', NULL);
INSERT INTO asset_allocations VALUES (9, 5, '2024-04-15', NULL);
SELECT * FROM asset_allocations;
-- 5. Reservations Table
CREATE TABLE reservations (reservation_id INT PRIMARY KEY IDENTITY,
asset_id INT FOREIGN KEY REFERENCES assets(asset_id) NOT NULL,
employee_id INT FOREIGN KEY REFERENCES employees(employee_id) NOT NULL,
reservation_date DATE NOT NULL, start_date DATE NOT NULL,
end_date DATE NOT NULL, status VARCHAR(10) NOT NULL);
INSERT INTO reservations VALUES (3, 1, '2024-09-12', '2024-10-01', '2024-10-07', 'Cancelled');
INSERT INTO reservations VALUES (5, 2, '2024-09-18', '2024-10-01', '2024-10-31', 'Pending');
INSERT INTO reservations VALUES (7, 8, '2024-09-20', '2024-10-08', '2024-10-21', 'Approved');
INSERT INTO reservations VALUES (10, 4, '2024-09-21', '2024-10-09', '2024-10-15', 'Pending');
SELECT * FROM reservations;
68 %
Results
Messages
reservation_id asset_id employee_id reservation_date start_date end_date status
1 1 3 1 2024-09-12 2024-10-01 2024-10-07 Cancelled
2 2 5 2 2024-09-18 2024-10-01 2024-10-31 Pending
3 3 7 8 2024-09-20 2024-10-08 2024-10-21 Approved
4 4 10 4 2024-09-21 2024-10-09 2024-10-15 Pending
Query executed successfully.
DESKTOP-55ISL9F (16.0 RTM)
DESKTOP-55ISL9F\niran ...
AssetDB
00:00:00
4 rows
Ready
Ln 1
Col 1
77°F
Cloudy
Search
ENG
IN
8:41 PM
9/25/2024