Aim: Implementation of all dimension tables based on experiment 1 Case Study

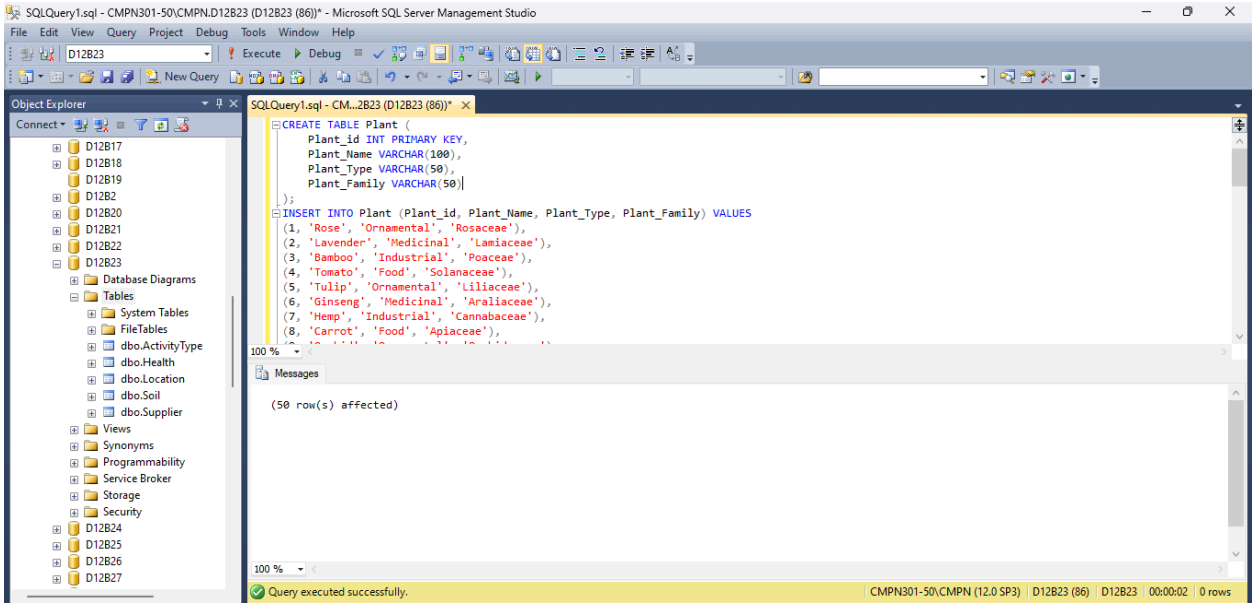
Theory:

The implementation of dimension tables for the data warehouse involves structuring tables based on the key dimensions identified in Experiment 1 of the Case Study. These dimension tables will include:

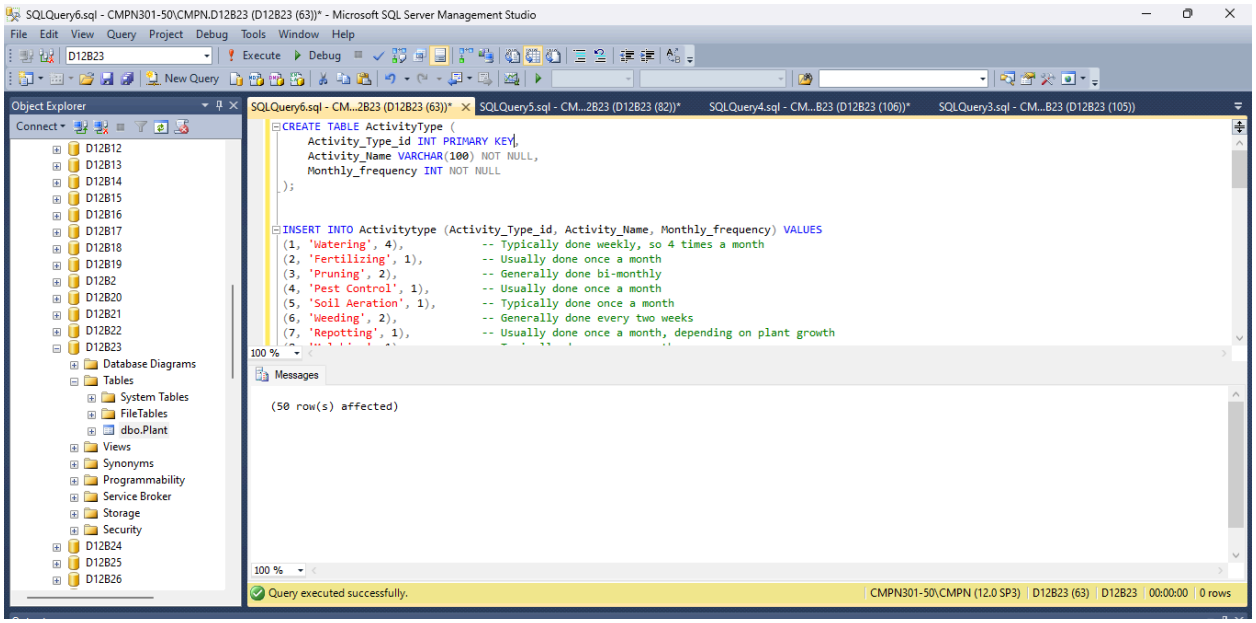
1. **Plant Dimension:** Captures detailed information about different plant species and varieties.
2. **Activity Type Dimension:** Records various types of activities performed, such as watering, fertilizing, and pruning.
3. **Health Dimension:** Tracks metrics related to plant health, including growth stages, disease indicators, and overall condition.
4. **Time Dimension:** Provides temporal context for the data, including dates, seasons, and time intervals.
5. **Soil Dimension:** Includes data on soil conditions such as pH levels, type, and moisture levels.
6. **TaskImpact(Fact Table):** Includes primary keys of all the dimensions with light exposure,temp and humidity as facts.

Screenshots:

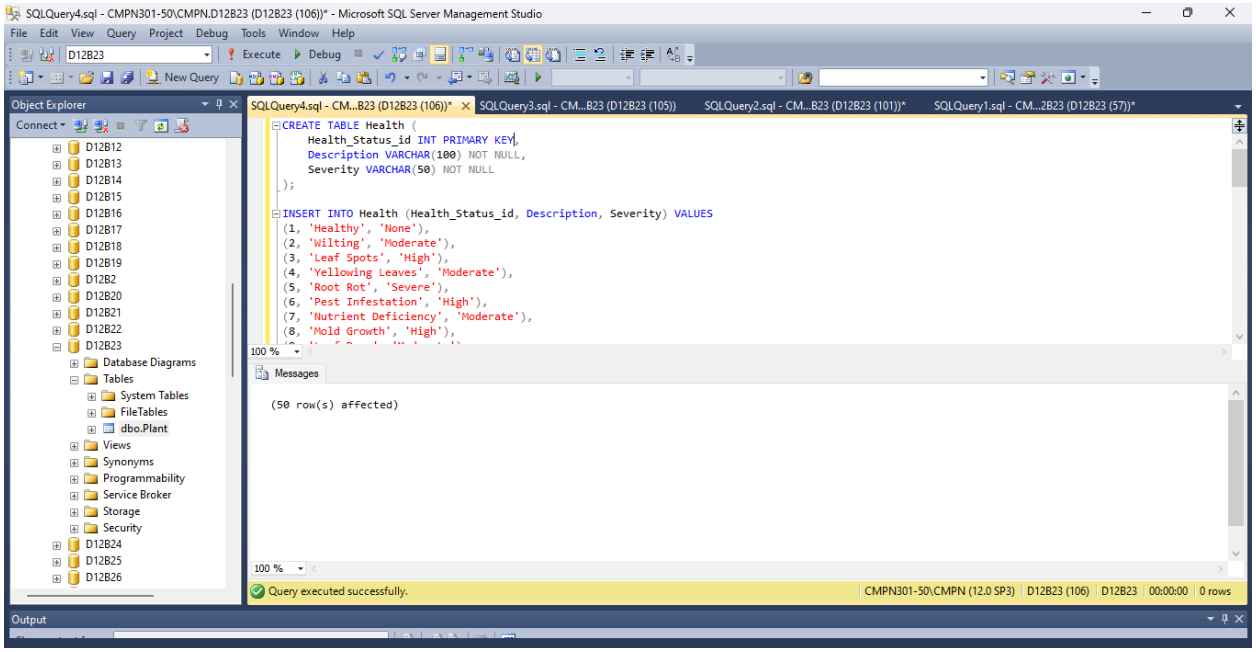
1.Plant:



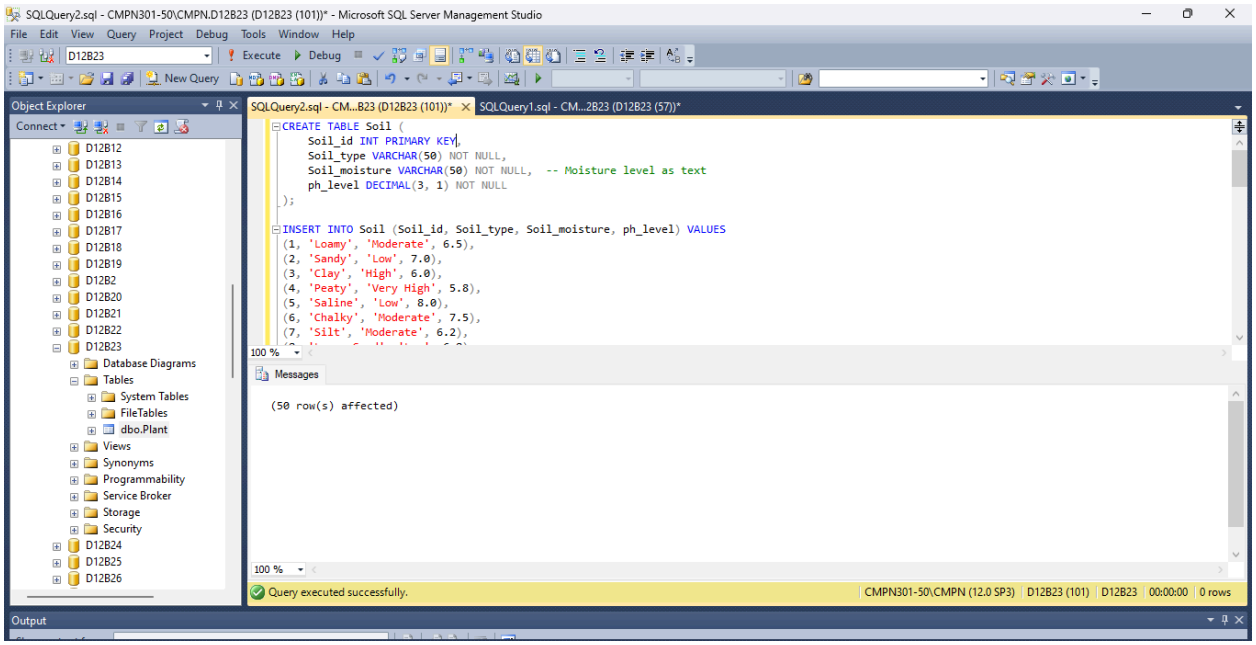
2.Activity Type:



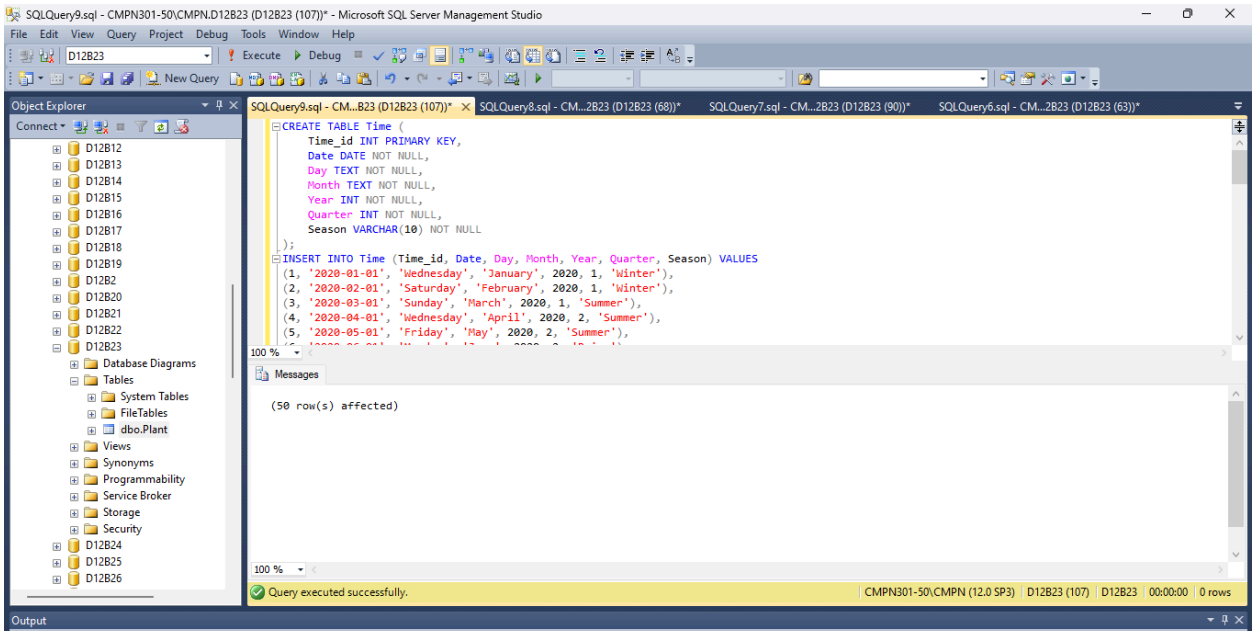
3.Health:



4.Soil:


SQLQuery2.sql - CMPN301-50\CMPN.D12B23 (D12B23 (101))* - Microsoft SQL Server Management Studio
File Edit View Query Project Debug Tools Window Help
D12B23
Execute Debug
New Query
Object Explorer
Connect
D12B12
D12B13
D12B14
D12B15
D12B16
D12B17
D12B18
D12B19
D12B2
D12B20
D12B21
D12B22
D12B23
Database Diagrams
Tables
System Tables
FileTables
dbo.Plant
Views
Synonyms
Programmability
Service Broker
Storage
Security
D12B24
D12B25
D12B26
SQLQuery2.sql - CM...B23 (D12B23 (101))*
SQLQuery1.sql - CM...2B23 (D12B23 (57))*
CREATE TABLE Soil (
Soil_id INT PRIMARY KEY,
Soil_type VARCHAR(50) NOT NULL,
Soil_moisture VARCHAR(50) NOT NULL, -- Moisture level as text
ph_level DECIMAL(3, 1) NOT NULL
);
INSERT INTO Soil (Soil_id, Soil_type, Soil_moisture, ph_level) VALUES
(1, 'Loamy', 'Moderate', 6.5),
(2, 'Sandy', 'Low', 7.0),
(3, 'Clay', 'High', 6.0),
(4, 'Peaty', 'Very High', 5.8),
(5, 'Saline', 'Low', 8.0),
(6, 'Chalky', 'Moderate', 7.5),
(7, 'Silt', 'Moderate', 6.2),
100 %
Messages
(50 row(s) affected)
100 %
Query executed successfully.
CMPN301-50\CMPN (12.0 SP3) D12B23 (101) D12B23 00:00:00 0 rows
Output

5.Time:


SQLQuery9.sql - CMPN301-50\CMPN.D12B23 (D12B23 (107))* - Microsoft SQL Server Management Studio
File Edit View Query Project Debug Tools Window Help
D12B23
Execute Debug
New Query
Object Explorer
Connect
D12B12
D12B13
D12B14
D12B15
D12B16
D12B17
D12B18
D12B19
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D12B21
D12B22
D12B23
Database Diagrams
Tables
System Tables
FileTables
dbo.Plant
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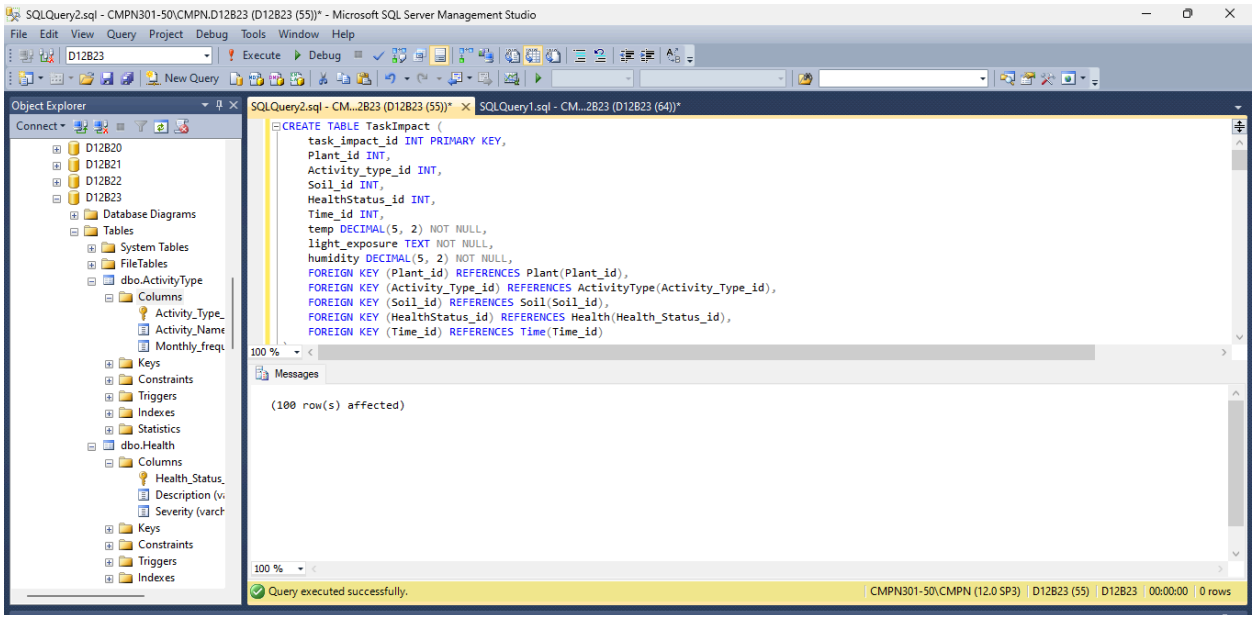
Synonyms
Programmability
Service Broker
Storage
Security
D12B24
D12B25
D12B26
SQLQuery9.sql - CM...B23 (D12B23 (107))*
SQLQuery8.sql - CM...2B23 (D12B23 (68))*
SQLQuery7.sql - CM...2B23 (D12B23 (90))*
SQLQuery6.sql - CM...2B23 (D12B23 (63))*
CREATE TABLE Time (
Time_id INT PRIMARY KEY,
Date DATE NOT NULL,
Day TEXT NOT NULL,
Month TEXT NOT NULL,
Year INT NOT NULL,
Quarter INT NOT NULL,
Season VARCHAR(10) NOT NULL
);
INSERT INTO Time (Time_id, Date, Day, Month, Year, Quarter, Season) VALUES
(1, '2020-01-01', 'Wednesday', 'January', 2020, 1, 'Winter'),
(2, '2020-02-01', 'Saturday', 'February', 2020, 1, 'Winter'),
(3, '2020-03-01', 'Sunday', 'March', 2020, 1, 'Summer'),
(4, '2020-04-01', 'Wednesday', 'April', 2020, 2, 'Summer'),
(5, '2020-05-01', 'Friday', 'May', 2020, 2, 'Summer'),
100 %
Messages
(50 row(s) affected)
100 %
Query executed successfully.
CMPN301-50\CMPN (12.0 SP3) D12B23 (107) D12B23 00:00:00 0 rows
Output

6.TaskImpact:



Conclusion:

The implementation of dimension tables based on Experiment 1 of the Case Study successfully establishes a comprehensive framework for managing and analyzing data within the Garden Management System. By integrating detailed attributes for each dimension—plant, activity type, plant health, soil, and time—the data warehouse is equipped to provide valuable insights into the relationships between various factors and their impact on plant health. This structured approach enables more accurate tracking of plant activities, better understanding of soil and health conditions, and effective temporal analysis.