BCIS 5420

Project Part – II

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SSMS EUID: si0210

3. Creating tables:

```
use si0210;
```

PII_Client:

```
CREATE TABLE PII_Client (
    clientID INT,
    clientName VARCHAR(45),
    clientContactName VARCHAR(45),
    clientPhoneNumber VARCHAR(45),
    clientCol VARCHAR(45),
    CONSTRAINT PK_Client PRIMARY KEY (clientID));
```

PII_Project:

```
CREATE TABLE PII_Project (
    ProjectID INT,
    ParentProjectID INT,
    Project_Name VARCHAR(45),
    ProjectManager INT,
    ClientID INT,
    CONSTRAINT PK_Project PRIMARY KEY (ProjectID),
    CONSTRAINT FK_Project_Client FOREIGN KEY (ClientID) REFERENCES PII_Client(clientID));
```

PII_Engineer:

```
CREATE TABLE PII_Engineer (
    EngineerID INT ,
    EngineerName VARCHAR(45),
    EngineerAddress VARCHAR(45),
    EngineerPhoneNumber VARCHAR(45),
    EngineerEmailaddress VARCHAR(45),
    CONSTRAINT PK_Engineer PRIMARY KEY (EngineerID));
```

PII_Engineer_Project_History:

```
CREATE TABLE PII_Engineer_Project_History (
    Project_projectID INT,
    Engineer_EngineerID INT,
    ProjectStartDate VARCHAR(45),
    ProjectEndDate VARCHAR(45),
    TotalHoursWorked VARCHAR(45),
    CONSTRAINT FK_Engineer_Project_History_Project FOREIGN KEY (Project_projectID)
REFERENCES PII_Project(ProjectID),
```

```
    CONSTRAINT FK_Engineer_Project_History_Engineer FOREIGN KEY (Engineer_EngineerID)
REFERENCES PII_Engineer(EngineerID));
```

PII_Skill:

```
CREATE TABLE PII_Skill (
    SkillID INT,
    SkillName VARCHAR(45),
       CONSTRAINT PK_SKILL PRIMARY KEY (SkillID ));
```

PII_Engineer_has_skill:

```
CREATE TABLE PII_Engineer_has_skill (
    SkillID INT,
    EngineerID INT,
    CONSTRAINT FK_Engineer_has_skill_Skill FOREIGN KEY (SkillID) REFERENCES PII_Skill
(SkillID),
    CONSTRAINT FK_Engineer_has_skill_Engineer FOREIGN KEY (EngineerID) REFERENCES
PII_Engineer (EngineerID));
```

PII_Skill_has_project:

```
CREATE TABLE PII_Skill_has_project (
    Skill_SkillID INT,
    Project_projectID INT,
    CONSTRAINT FK_Skill_has_project_Skill FOREIGN KEY (Skill_SkillID) REFERENCES
PII_Skill(SkillID),
    CONSTRAINT FK_Skill_has_project_Project FOREIGN KEY (Project_projectID) REFERENCES
PII_Project (ProjectID));
```

Evaluation:

```
CREATE TABLE PII_Evaluation (
    Evaluator_EngineerID INT,
    EngineerbeingEvaluatedID INT,
    Project_ProjectID INT,
    Evaluation_date VARCHAR(45),
    Evaluation_score VARCHAR(45),
    Evaluation_comment VARCHAR(45),
    CONSTRAINT FK_Evaluation_Evaluator FOREIGN KEY (Evaluator_EngineerID) REFERENCES
PII_Engineer (EngineerID),
    CONSTRAINT FK_Evaluation_EngineerbeingEvaluated FOREIGN KEY
(EngineerbeingEvaluatedID) REFERENCES PII_Engineer (EngineerID),
    CONSTRAINT FK_Evaluation_Project FOREIGN KEY (Project_ProjectID) REFERENCES
PII_Project (ProjectID));
```

Certification:

```
CREATE TABLE PII_Certification (
    CertificationID int,
```

```
    CertificationDate VARCHAR(45),
    CertificationName VARCHAR(45),
    Skill_SkillID1 INT,
    Engineer_EngineerID1 INT,
       CONSTRAINT PK_CERTIFICATION PRIMARY KEY (CertificationID),
    CONSTRAINT FK_Certification_Skill FOREIGN KEY (Skill_SkillID1) REFERENCES PII_Skill
(SkillID),
    CONSTRAINT FK_Certification_Engineer FOREIGN KEY (Engineer_EngineerID1) REFERENCES
PII_Engineer (EngineerID)
);
```

4. Inserting Records.

1. PII_Client:

```
INSERT INTO PII_Client (clientID, clientName, clientContactName, clientPhoneNumber,
clientCol)
VALUES
(1, 'Client1', 'John Smith', '1234567890', 'Col1'),
(2, 'Client2', 'Jane Doe', '9876543210', 'Col2'),
(3, 'Client3', 'Mike Johnson', '5555555555', 'Col3'),
(4, 'Client4', 'Sarah Williams', '1112223333', 'Col4'),
(5, 'Client5', 'David Brown', '4444444444', 'Col5'),
(6,'Client6','michele','9546812587','Col6'),
(7,'Client7','Shalbey','8796521486','Col7');
```

```
select*from PII_Client;
```

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Results | Messages

	clientID	clientName	clientContactName	clientPhoneNumber	clientCol
1	1	Client1	John Smith	1234567890	Col1
2	2	Client2	Jane Doe	9876543210	Col2
3	3	Client3	Mike Johnson	5555555555	Col3
4	4	Client4	Sarah Williams	1112223333	Col4
5	5	Client5	David Brown	4444444444	Col5
6	6	Client6	michele	9546812587	Col6
7	7	Client7	Shalbey	8796521486	Col7

2. PII_Project:

```
INSERT INTO PII_Project (ProjectID, ParentProjectID, Project_Name, ProjectManager,
ClientID)
VALUES
(1, NULL, 'Project1', 123, 1),
(2, NULL, 'Project2', 456, 2),
(3, NULL, 'Project3', 789, 3),
(4, NULL, 'Project4', 123, 4),
(5, NULL, 'Project5', 456, 5),
(6, 1, 'Subproject1', 789, 1),
(7, 1, 'Subproject2', 123, 1),
(8, 2, 'Subproject3', 456, 2),
```

```
(9, 2, 'Subproject4', 789, 2),
(10, 3, 'Subproject5', 123, 3),
(11, 3, 'Subproject6', 456, 3),
(12, 4, 'Subproject7', 789, 4),
(13, 4, 'Subproject8', 123, 4),
(14, 5, 'Subproject9', 456, 5),
(15, 5, 'Subproject10', 789, 5);
```

```
select*from PII_Project;
```

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Results | Messages

	ProjectID	ParentProjectID	Project_Name	ProjectManager	ClientID
1	1	NULL	Project1	123	1
2	2	NULL	Project2	456	2
3	3	NULL	Project3	789	3
4	4	NULL	Project4	123	4
5	5	NULL	Project5	456	5
6	6	1	Subproject1	789	1
7	7	1	Subproject2	123	1
8	8	2	Subproject3	456	2
9	9	2	Subproject4	789	2
10	10	3	Subproject5	123	3
11	11	3	Subproject6	456	3
12	12	4	Subproject7	789	4
13	13	4	Subproject8	123	4
14	14	5	Subproject9	456	5
15	15	5	Subproject10	789	5

3. PII_Engineer:

```
INSERT INTO PII_Engineer (EngineerID, EngineerName, EngineerAddress, EngineerPhoneNumber,
EngineerEmailaddress)
VALUES
(1234, 'Jason Binder', 'Fry Street', '6584972598', 'jason.binder@example.com'),
(5678, 'Emily Davis', 'Miller strert', '6587428935', 'emily.davis@example.com'),
(9012, 'Michael Johnson', 'W Hickory', '6874259318', 'michael.johnson@example.com'),
(3456, 'Sarah Thompson', 'Bernard St', '8479625463', 'sarah.thompson@example.com'),
(7890, 'David Wilson', 'Stella St', '4789321548', 'david.wilson@example.com'),
(7867, 'David Miller','Aubrey','7846931478','david.miller@exacmple.com'),
(6549, 'Joel Matthew','Woodhill','7849586479','joel,matthew@example.com'),
(6587, 'Jared simon', 'Bernard St', '8496974253', 'jared.simon@example.com'),
(4587, 'Benjiman Lee', 'Virginia', '8952647986', 'benjiman.lee@example.com');
```

```
select * from PII_Engineer;
```

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Results | Messages

	EngineerID	EngineerName	EngineerAddress	EngineerPhoneNumber	EngineerEmailaddress
1	1234	Jason Binder	Fry street	6584972598	jason.binder@example.com
2	3456	Sarah Thompson	Bernard St	8479625463	sarah.thompson@example.com
3	4587	Benjiman Lee	Virginia	8952647986	benjiman.lee@example.com
4	5678	Emily Davis	Miller strert	6587428935	emily.davis@example.com
5	6549	Joel Matthew	Woodhill	7849586479	joel,matthew@example.com
6	6587	Jared simon	Bernard St	8496974253	jared.simon@example.com
7	7867	David Miller	Aubrey	7846931478	david.miller@exacmple.com
8	7890	David Wilson	Stella St	4789321548	david.wilson@example.com
9	9012	Michael Johnson	W Hickory	6874259318	michael.johnson@example.com

4. PII_Engineer_Project_History:

```
INSERT INTO PII_Engineer_Project_History (Project_projectID, Engineer_EngineerID,
ProjectStartDate, ProjectEndDate, TotalHoursWorked)
VALUES
(1, 1234, '2023-01-01', '2023-02-01', '100'),
(1, 5678, '2023-01-01', '2023-02-01', '80'),
(2, 1234, '2023-02-01', '2023-03-01', '120'),
(2, 5678, '2023-02-01', '2023-03-01', '90'),
(3, 1234, '2023-03-01', '2023-04-01', '110'),
(3, 5678, '2023-03-01', '2023-04-01', '70'),
(4, 5678, '2023-04-01', '2023-05-01', '80'),
(4, 9012, '2023-04-01', '2023-05-01', '120'),
(5, 1234, '2023-05-01', '2023-06-01', '130'),
(5, 7890, '2023-05-01', '2023-06-01', '100'),
(6, 1234, '2023-01-01', '2023-02-01', '90'),
(6, 9012, '2023-01-01', '2023-02-01', '70'),
(7, 1234, '2023-02-01', '2023-03-01', '80'),
(7, 9012, '2023-02-01', '2023-03-01', '110'),
(8, 5678, '2023-03-01', '2023-04-01', '100'),
(8, 9012, '2023-03-01', '2023-04-01', '120');
```

```
select*from PII_Engineer_Project_History;
```

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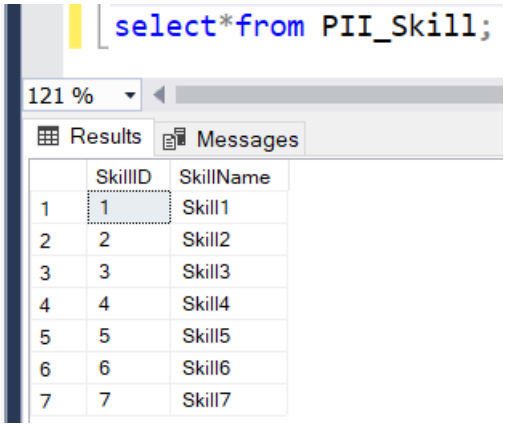
Results | Messages

	Project_projectID	Engineer_EngineerID	ProjectStartDate	ProjectEndDate	TotalHoursWorked
1	1	1234	2023-01-01	2023-02-01	100
2	1	5678	2023-01-01	2023-02-01	80
3	2	1234	2023-02-01	2023-03-01	120
4	2	5678	2023-02-01	2023-03-01	90
5	3	1234	2023-03-01	2023-04-01	110
6	3	5678	2023-03-01	2023-04-01	70
7	4	5678	2023-04-01	2023-05-01	80
8	4	9012	2023-04-01	2023-05-01	120
9	5	1234	2023-05-01	2023-06-01	130
10	5	7890	2023-05-01	2023-06-01	100
11	6	1234	2023-01-01	2023-02-01	90
12	6	9012	2023-01-01	2023-02-01	70
13	7	1234	2023-02-01	2023-03-01	80
14	7	9012	2023-02-01	2023-03-01	110
15	8	5678	2023-03-01	2023-04-01	100
16	8	9012	2023-03-01	2023-04-01	120

5. PII_Skill:

```
INSERT INTO PII_Skill (SkillID, SkillName)
VALUES
(1, 'Skill1'),
(2, 'Skill2'),
(3, 'Skill3'),
(4, 'Skill4'),
(5, 'Skill5'),
(6, 'Skill6'),
(7, 'Skill7');
```



	SkillID	SkillName
1	1	Skill1
2	2	Skill2
3	3	Skill3
4	4	Skill4
5	5	Skill5
6	6	Skill6
7	7	Skill7

6. PII_Engineer_has_skill:

```
INSERT INTO PII_Engineer_has_skill (Skill_SkillID, Engineer_EngineerID)
VALUES
(1, 1234),
(2, 1234),
(3, 1234),
(2, 5678),
(3, 5678),
(4, 5678),
(3, 9012),
(4, 9012),
(5, 9012),
(1, 3456),
(2, 3456),
(1, 7890),
(3, 7890),
(5, 7890),
(4, 7890);
```

```
select*from PII_Engineer_has_skill;
```

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Results | Messages

	Skill_SkillID	Engineer_EngineerID
1	1	1234
2	2	1234
3	3	1234
4	2	5678
5	3	5678
6	4	5678
7	3	9012
8	4	9012
9	5	9012
10	1	3456
11	2	3456
12	1	7890
13	3	7890
14	5	7890
15	4	7890

7. PII_Skill_has_project:

```
INSERT INTO PII_Skill_has_project (Skill_SkillID, Project_projectID)
VALUES
(1, 1),
(1, 2),
(2, 2),
(2, 3),
(3, 3),
(3, 4),
(4, 4),
(4, 5),
(5, 5),
(1, 6),
(2, 6),
(3, 6),
(1, 7),
(2, 7),
(3, 7);
```

```
select*from PII_Skill_has_project;
```

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Results | Messages

	Skill_SkillID	Project_projectID
1	1	1
2	1	2
3	2	2
4	2	3
5	3	3
6	3	4
7	4	4
8	4	5
9	5	5
10	1	6
11	2	6
12	3	6
13	1	7
14	2	7
15	3	7

8. PII_Evaluation:

```
INSERT INTO PII_Evaluation (Evaluator_EngineerID, EngineerbeingEvaluatedID,
Project_ProjectID, Evaluation_date, Evaluation_score, Evaluation_comment)
VALUES
(1234, 5678, 1, '2023-02-15', '8', 'Good job'),
(1234, 5678, 2, '2023-03-15', '9', 'Excellent work'),
(5678, 1234, 2, '2023-03-15', '7', 'Satisfactory'),
(5678, 1234, 3, '2023-04-15', '6', 'Needs improvement'),
(9012, 3456, 4, '2023-05-15', '9', 'Well done'),
(9012, 3456, 5, '2023-06-15', '8', 'Keep it up'),
(5678, 7890, 5, '2023-06-15', '7', 'Fair performance'),
(5678, 7890, 6, '2023-02-15', '6', 'Room for improvement'),
(9012, 7890, 7, '2023-03-15', '8', 'Good effort'),
(1234, 9012, 8, '2023-04-15', '9', 'Outstanding work'),
(3456, 9012, 8, '2023-04-15', '7', 'Satisfactory'),
(5678, 9012, 8, '2023-04-15', '8', 'Well done'),
(3456, 5678, 9, '2023-05-15', '6', 'Needs improvement'),
(3456, 5678, 10, '2023-05-15', '7', 'Fair performance'),
(7890, 3456, 10, '2023-05-15', '8', 'Keep it up');
```

```
select*from PII_Evaluation;
```

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Results | Messages

	Evaluator_EngineerID	EngineerbeingEvaluatedID	Project_ProjectID	Evaluation_date	Evaluation_score	Evaluation_comment
1	1234	5678	1	2023-02-15	8	Good job
2	1234	5678	2	2023-03-15	9	Excellent work
3	5678	1234	2	2023-03-15	7	Satisfactory
4	5678	1234	3	2023-04-15	6	Needs improvement
5	9012	3456	4	2023-05-15	9	Well done
6	9012	3456	5	2023-06-15	8	Keep it up
7	5678	7890	5	2023-06-15	7	Fair performance
8	5678	7890	6	2023-02-15	6	Room for improvement
9	9012	7890	7	2023-03-15	8	Good effort
10	1234	9012	8	2023-04-15	9	Outstanding work
11	3456	9012	8	2023-04-15	7	Satisfactory
12	5678	9012	8	2023-04-15	8	Well done
13	3456	5678	9	2023-05-15	6	Needs improvement
14	3456	5678	10	2023-05-15	7	Fair performance
15	7890	3456	10	2023-05-15	8	Keep it up

9. PII_Certification:

```
INSERT INTO PII_Certification (CertificationID, CertificationDate, CertificationName,
Skill_SkillID1, Engineer_EngineerID1)
VALUES
(1, '2022-01-01', 'Certification1', 1, 1234),
(2, '2022-02-01', 'Certification2', 2, 1234),
(3, '2022-03-01', 'Certification3', 3, 1234),
(4, '2022-04-01', 'Certification4', 1, 5678),
(5, '2022-05-01', 'Certification5', 2, 5678),
(6, '2022-06-01', 'Certification6', 3, 5678),
(7, '2022-07-01', 'Certification7', 4, 5678),
(8, '2022-08-01', 'Certification8', 5, 9012),
(9, '2022-09-01', 'Certification9', 1, 9012),
(10, '2022-10-01', 'Certification10', 3, 3456),
```

```
(11, '2022-11-01', 'Certification11', 2, 7890),
(12, '2022-12-01', 'Certification12', 5, 7890),
(13, '2023-01-01', 'Certification13', 4, 7890),
(14, '2023-02-01', 'Certification14', 1, 3456),
(15, '2023-03-01', 'Certification15', 3, 3456);
```

```
select*from PII_Certification;
```

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Results | Messages

	CertificationID	CertificationDate	CertificationName	Skill_SkillID1	Engineer_EngineerID1
1	1	2022-01-01	Certification1	1	1234
2	2	2022-02-01	Certification2	2	1234
3	3	2022-03-01	Certification3	3	1234
4	4	2022-04-01	Certification4	1	5678
5	5	2022-05-01	Certification5	2	5678
6	6	2022-06-01	Certification6	3	5678
7	7	2022-07-01	Certification7	4	5678
8	8	2022-08-01	Certification8	5	9012
9	9	2022-09-01	Certification9	1	9012
10	10	2022-10-01	Certification10	3	3456
11	11	2022-11-01	Certification11	2	7890
12	12	2022-12-01	Certification12	5	7890
13	13	2023-01-01	Certification13	4	7890
14	14	2023-02-01	Certification14	1	3456
15	15	2023-03-01	Certification15	3	3456

5. Queries:

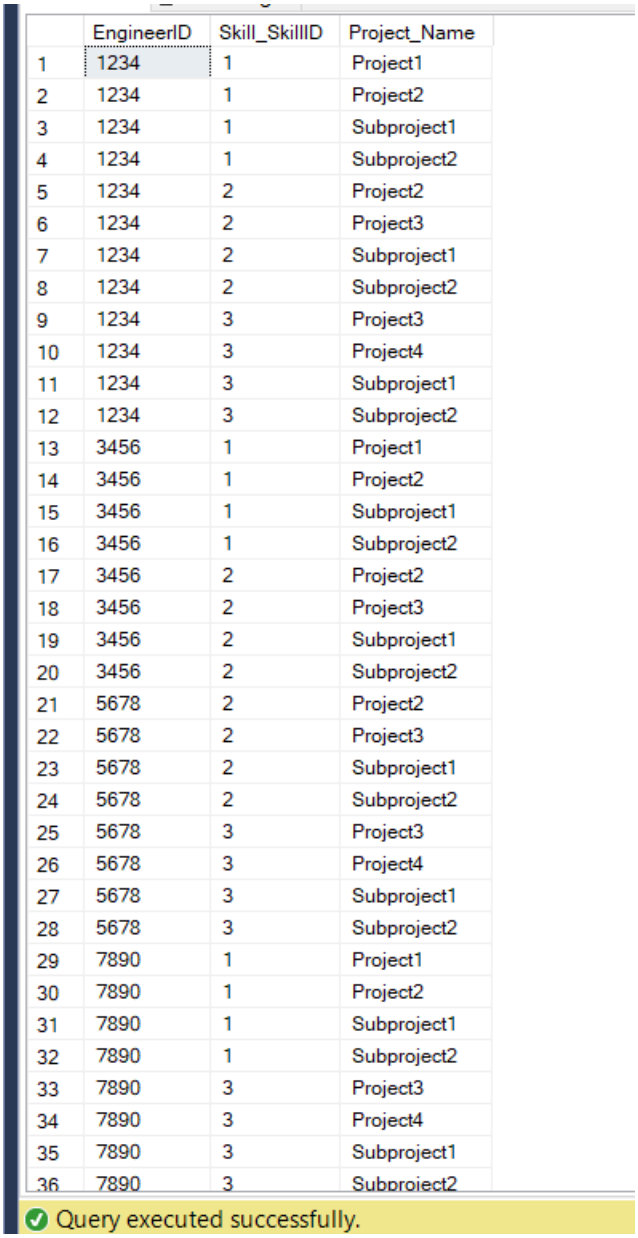
5a) Find the names of all unique projects that have recorded engineering project history?

```
SELECT DISTINCT P.Project_Name
FROM PII_Project P
INNER JOIN PII_Engineer_Project_History EPH ON P.ProjectID = EPH.Project_projectID
ORDER BY P.Project_Name ASC;
```

	Project_Name
1	Project1
2	Project2
3	Project3
4	Project4
5	Project5
6	Subproject1
7	Subproject2
8	Subproject3

5b) Find the engineers who have the skills required for specific projects, particularly those with skill IDs 1, 2, or 3?

```
SELECT distinct E.EngineerID, ES.Skill_SkillID, P.Project_Name
FROM PII_Engineer E
JOIN PII_Engineer_has_skill ES ON E.EngineerID = ES.Engineer_EngineerID
JOIN PII_Skill_has_project SP ON ES.Skill_SkillID = SP.Skill_SkillID
JOIN PII_Project P ON SP.Project_projectID = P.ProjectID
WHERE ES.Skill_SkillID IN (1, 2, 3);
```



	EngineerID	Skill_SkillID	Project_Name
1	1234	1	Project1
2	1234	1	Project2
3	1234	1	Subproject1
4	1234	1	Subproject2
5	1234	2	Project2
6	1234	2	Project3
7	1234	2	Subproject1
8	1234	2	Subproject2
9	1234	3	Project3
10	1234	3	Project4
11	1234	3	Subproject1
12	1234	3	Subproject2
13	3456	1	Project1
14	3456	1	Project2
15	3456	1	Subproject1
16	3456	1	Subproject2
17	3456	2	Project2
18	3456	2	Project3
19	3456	2	Subproject1
20	3456	2	Subproject2
21	5678	2	Project2
22	5678	2	Project3
23	5678	2	Subproject1
24	5678	2	Subproject2
25	5678	3	Project3
26	5678	3	Project4
27	5678	3	Subproject1
28	5678	3	Subproject2
29	7890	1	Project1
30	7890	1	Project2
31	7890	1	Subproject1
32	7890	1	Subproject2
33	7890	3	Project3
34	7890	3	Project4
35	7890	3	Subproject1
36	7890	3	Subproject2

Query executed successfully.

5c) Find the engineers have names ending with a vowel, excluding those whose names end with 'y'?

```
SELECT EngineerName
FROM PII_Engineer
WHERE (EngineerName LIKE '%a'
       OR EngineerName LIKE '%e'
       OR EngineerName LIKE '%i'
       OR EngineerName LIKE '%o'
       OR EngineerName LIKE '%u')
      AND EngineerName NOT LIKE '%y';
```

	EngineerName
1	Benjiman Lee

5d) Find the projects each engineer has worked on, listed in reverse alphabetical order of project names and sorted by engineer names within each project?

```
SELECT E.EngineerName, P.Project_Name
FROM PII_Engineer E
JOIN PII_Engineer_Project_History EPH ON E.EngineerID = EPH.Engineer_EngineerID
JOIN PII_Project P ON EPH.Project_projectID = P.ProjectID
ORDER BY P.Project_Name DESC, E.EngineerName ASC;
```

	EngineerName	Project_Name
1	Emily Davis	Subproject3
2	Michael Johnson	Subproject3
3	Jason Binder	Subproject2
4	Michael Johnson	Subproject2
5	Jason Binder	Subproject1
6	Michael Johnson	Subproject1
7	David Wilson	Project5
8	Jason Binder	Project5
9	Emily Davis	Project4
10	Michael Johnson	Project4
11	Emily Davis	Project3
12	Jason Binder	Project3
13	Emily Davis	Project2
14	Jason Binder	Project2
15	Emily Davis	Project1
16	Jason Binder	Project1

5e) Which engineers have collaborated on projects with Jason Binder, excluding Jason Binder himself?

```
SELECT E.EngineerName
FROM PII_Engineer E
WHERE E.EngineerID IN (
    SELECT EPH.Engineer_EngineerID
    FROM PII_Engineer_Project_History EPH
    JOIN PII_Engineer Jason ON Jason.EngineerName = 'Jason Binder'
    WHERE EPH.Project_projectID IN (
        SELECT EPH2.Project_projectID
        FROM PII_Engineer_Project_History EPH2
        JOIN PII_Engineer Jason2 ON Jason2.EngineerName = 'Jason Binder'
        WHERE Jason2.EngineerID = EPH2.Engineer_EngineerID
    )
    AND EPH.Engineer_EngineerID != Jason.EngineerID
);
```

Results | Messages

	EngineerName
1	Emily Davis
2	David Wilson
3	Michael Johnson

5f) How many unique engineers have been assigned to each project?

```
SELECT Project_projectID, COUNT(DISTINCT Engineer_EngineerID) AS TotalEngineers
FROM PII_Engineer_Project_History
GROUP BY Project_projectID;
```

	Project_projectID	TotalEngineers
1	1	2
2	2	2
3	3	2
4	4	2
5	5	2
6	6	2
7	7	2
8	8	2

5g) What are the project assignments for each engineer, including those without any project assignments?

```
SELECT E.EngineerName, P.Project_Name
FROM PII_Engineer E
LEFT JOIN PII_Engineer_Project_History EPH ON E.EngineerID = EPH.Engineer_EngineerID
LEFT JOIN PII_Project P ON EPH.Project_projectID = P.ProjectID;
```

Results | Messages

	EngineerName	Project_Name
1	Jason Binder	Project1
2	Jason Binder	Project2
3	Jason Binder	Project3
4	Jason Binder	Project5
5	Jason Binder	Subproject1
6	Jason Binder	Subproject2
7	Sarah Thompson	NULL
8	Emily Davis	Project1
9	Emily Davis	Project2
10	Emily Davis	Project3
11	Emily Davis	Project4
12	Emily Davis	Subproject3
13	Joel Matthew	NULL
14	David Miller	NULL
15	David Wilson	Project5
16	Michael Johnson	Project4
17	Michael Johnson	Subproject1
18	Michael Johnson	Subproject2
19	Michael Johnson	Subproject3

5h) Which projects have involved multiple engineers?

```
SELECT Project_projectID, COUNT(Engineer_EngineerID) AS EngineerCount
FROM PII_Engineer_Project_History
GROUP BY Project_projectID
HAVING COUNT(Engineer_EngineerID) > 1;
```

	Project_projectID	EngineerCount
1	1	2
2	2	2
3	3	2
4	4	2
5	5	2
6	6	2
7	7	2
8	8	2

5i) Which projects have not received any evaluations?

```
SELECT P.Project_Name
FROM PII_Project P
LEFT JOIN PII_Evaluation E ON P.ProjectID = E.Project_ProjectID
WHERE E.Evaluation_date IS NULL
GROUP BY P.Project_Name;
```

	Project_Name
1	Subproject10
2	Subproject6
3	Subproject7
4	Subproject8
5	Subproject9

5j) What are the unique names of engineers in the database?

```
SELECT DISTINCT EngineerName
FROM PII_Engineer;
```

	EngineerName
1	David Miller
2	David Wilson
3	Emily Davis
4	Jason Binder
5	Joel Matthew
6	Michael Johnson
7	Sarah Thompson

Project Achievements:

- Successfully created a normalized relational database schema that accurately represents the company's operational data.
- Implemented various SQL queries for data insertion, retrieval, and analysis, showcasing the database's capability to support complex operations and reporting needs.

Conclusion:

This project demonstrates the effective use of SSMS and SQL for managing and analyzing construction project data. The insights gained from the data can help Broadway Construction optimize its operations, improve project execution, and enhance client satisfaction.