# BCIS 5420-002 Foundations of Database Management Systems (Spring 2022)
## Project Part-2 (Team-11)

Workspace     :  Queries executed in SSMS server BCIS5420.cob.internal.unt.edu
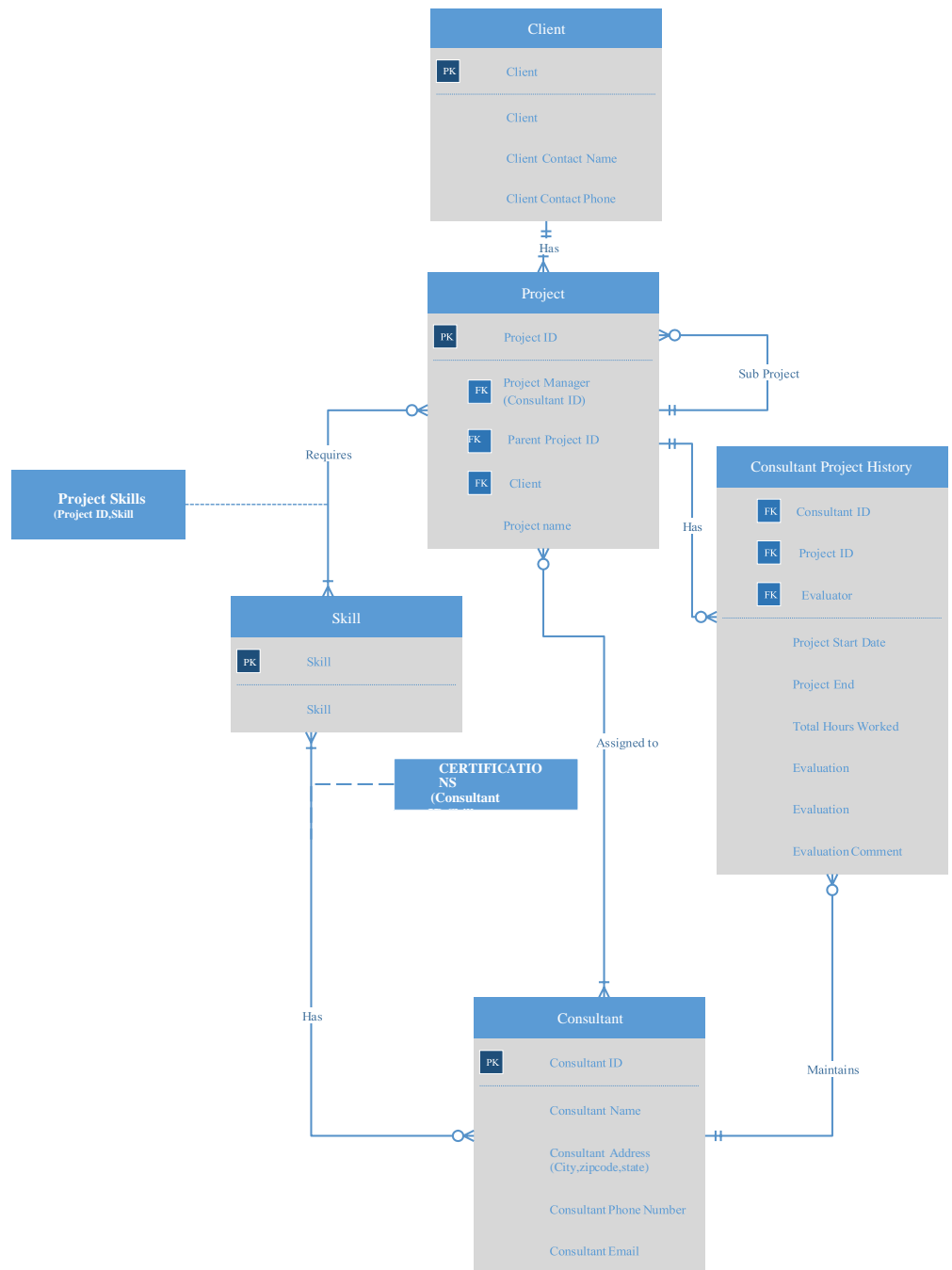
User ID /Database:  ap1403

Submission Date: 04/08/2022

Team Members:

| NAME |
| --- |
| MADANA NAREN GURU SAI |
| KOTHA MANISHA REDDY |
| SINDU PRIYA ANEGONDI SRINIVASULU |
| NIKITHA MAHALAKSHMI ATHINARAPU |
| ARYA PADMA KUMAR |

## 2) Logical design of the database: Updated ERD

**Project Part 1 : Conceptual Design**
**ERD for SR Consulting Firm**



Assumptions:

1. Evaluator ID is the Consultant ID of the project manager.

**3) SQL codes for creating all tables (with all PK and FK constraints specified).**

CREATE TABLE Client

(ClientID integer,

ClientName varchar(25),

ClientContact_Name varchar(25),

ClientContact_phone varchar(10),

CONSTRAINT Client_PK PRIMARY KEY (ClientID));

CREATE TABLE Consultant

(ConsultantID Integer NOT NULL,

ConsultantName VARCHAR(30) ,

ConsultantAddress VARCHAR(50) ,

ConsultantPhoneNumber VARCHAR(30),

ConsultantEmailAddress VARCHAR(30),

CONSTRAINT Consultant_PK PRIMARY KEY (ConsultantID));

CREATE TABLE Skills

(SkillID Integer NOT NULL,

SkillName VARCHAR(50) ,

CONSTRAINT Skills_PK PRIMARY KEY (SkillID));

```
CREATE TABLE Certifications

(ConsultantID Integer,

SkillID Integer,

CertificationNo Integer,

Certification_Status varchar(50),

CONSTRAINT PKC PRIMARY KEY (ConsultantID,SkillID),

CONSTRAINT FK1 FOREIGN KEY (ConsultantID) REFERENCES Consultant(ConsultantID),

CONSTRAINT FK2 FOREIGN KEY (SkillID) REFERENCES Skills(SkillID));



CREATE TABLE Project

(ProjectID integer NOT NULL,

ProjectManager integer UNIQUE ,

ParentProjectID integer,

ClientID integer,

ProjectName varchar(25),

CONSTRAINT Project_ID_PK PRIMARY KEY (ProjectID),

CONSTRAINT FK3 FOREIGN KEY (ClientID) REFERENCES Client(ClientID),

CONSTRAINT FK4 FOREIGN KEY (ProjectManager) REFERENCES
Consultant(ConsultantID),

CONSTRAINT FK5 FOREIGN KEY (ParentProjectID) REFERENCES project(ProjectID));
```

CREATE TABLE ProjectSkills

(ProjectID Integer,

SkillID Integer,

CONSTRAINT FK6 FOREIGN KEY (ProjectID) REFERENCES Project(ProjectID),

CONSTRAINT FK7 FOREIGN KEY (SkillID) REFERENCES Skills(SkillID));


CREATE TABLE ConsultantProjectHistory

(ProjectID integer NOT NULL,

EvaluatorID integer NOT NULL ,

ConsultantID integer NOT NULL,

projectStartDate Date,

projectEndDate Date,

totalHoursWorked integer,

evaluationScore integer,

evaluationDate Date,

evaluationComment varchar(25),

CONSTRAINT PK1 PRIMARY KEY (ProjectID,EvaluatorID,ConsultantID),

CONSTRAINT FK1_CP FOREIGN KEY (ProjectID) REFERENCES Project(ProjectID),

CONSTRAINT FK2_CP FOREIGN KEY (EvaluatorID) REFERENCES Project(ProjectManager),

CONSTRAINT FK3_CP FOREIGN KEY (ConsultantID) REFERENCES Consultant(ConsultantID));

**4) SQL codes for inserting at least 5 rows of data into each table. You must insert data for Consultant ID 100, Mark Meyers. You must also insert data for SKILL ID 1, 2, and 3. Ensure that each skill is possessed by at least one consultant.**

INSERT INTO Client (ClientID,ClientName,ClientContact_Name ,ClientContact_phone)

VALUES (900,'Mark Consultancy','Jacobs','9404567981');

INSERT INTO Client (ClientID,ClientName,ClientContact_Name ,ClientContact_phone)

VALUES (901,'Jeff Pvt Ltd','Steve','9402585371');

INSERT INTO Client (ClientID,ClientName,ClientContact_Name ,ClientContact_phone)

VALUES (902,'Clara Services','Bezos','9400007663');

INSERT INTO Client (ClientID,ClientName,ClientContact_Name ,ClientContact_phone)

VALUES (903,'Linda Group Ltd','Sara','9405555717');

INSERT INTO Client (ClientID,ClientName,ClientContact_Name ,ClientContact_phone)

VALUES (904,'Ben Consultancy','Jenny','9401498431');

INSERT INTO Consultant
(ConsultantID,ConsultantName,ConsultantAddress,ConsultantPhoneNumber,ConsultantEmailAddress)

VALUES (100,'Mark Meyers','Dallas,75001,Texas',9404569981,'markmeyers@yahoo.com');

INSERT INTO Consultant (ConsultantID,ConsultantName,ConsultantAddress ,ConsultantPhoneNumber,ConsultantEmailAddress)

VALUES (101,'Michael Kors','Buffalo,14201,NewYork',9404563382,'michaelkors@yahoo.com');

INSERT INTO Consultant (ConsultantID,ConsultantName,ConsultantAddress ,ConsultantPhoneNumber,ConsultantEmailAddress)

VALUES (102,'Serena Williams','Los Angeles,90001,California',9404769983,'serenawilliams@yahoo.com');

INSERT INTO Consultant (ConsultantID,ConsultantName,ConsultantAddress ,ConsultantPhoneNumber,ConsultantEmailAddress)

VALUES (103,'Katty Perry','Miami,33101,Florida',9404349984,'kattyperry@gmail.com');

INSERT INTO Consultant (ConsultantID,ConsultantName,ConsultantAddress ,ConsultantPhoneNumber,ConsultantEmailAddress)

VALUES (104,'Cheng Yu','Baltimore,21201,Maryland',9404009985,'chengyu@gmail.com');

INSERT INTO Skills( SkillID,SkillName) VALUES (1,'Python');

INSERT INTO Skills( SkillID,SkillName) VALUES (2,'Java');

INSERT INTO Skills( SkillID,SkillName) VALUES (3,'Angular');

INSERT INTO Skills( SkillID,SkillName) VALUES (4,'AWS');

INSERT INTO Skills( SkillID,SkillName) VALUES (5,'Azure');

INSERT INTO Certifications( ConsultantID,SkillID,CertificationNo,Certification_Status) VALUES (100,2,00002346,'Completed');

INSERT INTO Certifications( ConsultantID,SkillID,CertificationNo,Certification_Status ) VALUES (100,3,00002779,'Not_completed');

INSERT INTO Certifications( ConsultantID,SkillID,CertificationNo,Certification_Status ) VALUES (102,2,00002346,'Pending');

INSERT INTO Certifications( ConsultantID,SkillID,CertificationNo,Certification_Status ) VALUES (103,5,00008900,'Completed');

INSERT INTO Certifications( ConsultantID,SkillID,CertificationNo,Certification_Status) VALUES (104,1,00002765,'Pending');

INSERT INTO Project (ProjectID,ProjectManager,ParentProjectID,ClientID,ProjectName)

VALUES (701,100,701,900,'ProjectA');

INSERT INTO Project (ProjectID,ProjectManager,ParentProjectID,ClientID,ProjectName)

VALUES (702,101,701,900,'ProjectA1');

INSERT INTO Project (ProjectID,ProjectManager,ParentProjectID,ClientID,ProjectName)

VALUES (703,102,703,902,'ProjectC');

INSERT INTO Project (ProjectID,ProjectManager,ParentProjectID,ClientID,ProjectName)

VALUES (704,103,704,903,'ProjectD');

INSERT INTO Project (ProjectID,ProjectManager,ParentProjectID,ClientID,ProjectName)

VALUES (705,104,705,904,'ProjectE');


INSERT INTO ProjectSkills(ProjectID,SkillID) VALUES (701,1);

INSERT INTO ProjectSkills(ProjectID,SkillID) VALUES (701,3);

INSERT INTO ProjectSkills(ProjectID,SkillID) VALUES (702,4);

INSERT INTO ProjectSkills(ProjectID,SkillID) VALUES (703,5);

INSERT INTO ProjectSkills(ProjectID,SkillID) VALUES (703,2);

INSERT INTO ProjectSkills(ProjectID,SkillID) VALUES (704,3);

INSERT INTO ProjectSkills(ProjectID,SkillID) VALUES (705,1);

INSERT INTO ProjectSkills(ProjectID,SkillID) VALUES (705,2);

INSERT INTO ConsultantProjectHistory(ProjectID,EvaluatorID,ConsultantID,projectStartDate,projectEndDate,totalHoursWorked,evaluationScore,evaluationDate,evaluationComment)

VALUES (701,100,101,'2022-01-01','2022-10-01',200,95,'2022-10-10','Excellent');

INSERT INTO ConsultantProjectHistory(ProjectID,EvaluatorID,ConsultantID,projectStartDate,projectEndDate,totalHoursWorked,evaluationScore,evaluationDate,evaluationComment)

VALUES (702,101,103,'2022-02-02','2022-10-02',150,100,'2022-10-12','Commendable');

INSERT INTO ConsultantProjectHistory(ProjectID,EvaluatorID,ConsultantID,projectStartDate,projectEndDate,totalHoursWorked,evaluationScore,evaluationDate,evaluationComment)

VALUES (703,102,100,'2022-03-01','2022-10-03',95,90,'2022-10-13','Good Work');

INSERT INTO ConsultantProjectHistory(ProjectID,EvaluatorID,ConsultantID,projectStartDate,projectEndDate,totalHoursWorked,evaluationScore,evaluationDate,evaluationComment)

VALUES (704,103,102,'2022-04-01','2022-10-04',250,80,'2022-10-14','Satisfactory');

INSERT INTO ConsultantProjectHistory(ProjectID,EvaluatorID,ConsultantID,projectStartDate,projectEndDate,totalHoursWorked,evaluationScore,evaluationDate,evaluationComment)

VALUES (705,104,101,'2022-05-01','2022-11-05',65,60,'2022-11-15','Can do better');

## 5) Queries

**Query 5a:**

SELECT  DISTINCT
SUBSTRING(consultantAddress,1,(CHARINDEX(',',ConsultantAddress+',')-1)) AS
City,ConsultantName  FROM Consultant ORDER BY City;

**Result:**

| | City | ConsultantName |
|---|---|---|
| 1 | Baltimore | Cheng Yu |
| 2 | Buffalo | Michael Kors |
| 3 | Dallas | Mark Meyers |
| 4 | Los Angeles | Serena Williams |
| 5 | Miami | Katty Perry |

Qu...  |  BCIS5420.cob.internal.unt.e...  |  STUDENTS\ap1403 (72)  |  ap1403  |  00:00:00  |  5 rows

**Query 5b:**

SELECT ConsultantID,SkillID,Certification_status AS CertificationStatus FROM Certifications
WHERE SkillID<4 ORDER BY SkillID;

**Result:**

| | ConsultantID | SkillID | CertificationStatus |
|---|---|---|---|
| 1 | 104 | 1 | Pending |
| 2 | 102 | 2 | Pending |
| 3 | 100 | 2 | Completed |
| 4 | 100 | 3 | Not_completed |

Que...  |  BCIS5420.cob.internal.unt.e...  |  STUDENTS\ap1403 (51)  |  ap1403  |  00:00:00  |  4 rows

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**Query 5c:**
```
SELECT DISTINCT SUBSTRING(ConsultantName, (SELECT CHARINDEX(' ', ConsultantName)+1), 10) AS
ConsultantLastName FROM Consultant WHERE ConsultantName LIKE '%A' OR ConsultantName LIKE
'%E' OR ConsultantName  LIKE '%I'OR ConsultantName LIKE '%O' OR ConsultantName LIKE '%U';
```

**Result:**

| | ConsultantLastName |
|---|---|
| 1 | Yu |

Que... | BCIS5420.cob.internal.unt.e... | STUDENTS\ap1403 (82) | ap1403 | 00:00:00 | 1 rows

INS

**Query 5d**
```
SELECT SUBSTRING(ConsultantName, (SELECT CHARINDEX(' ', ConsultantName)+1), 10) AS
ConsultantLastName, Project.ProjectName
FROM consultant
JOIN consultantprojecthistory
  ON consultant.ConsultantID = consultantprojecthistory.ConsultantID
JOIN Project
  ON Project.ProjectID = consultantprojecthistory.ProjectID ORDER BY ConsultantLastName
DESC;
```
**Result:**

| | ConsultantLastName | ProjectName |
|---|---|---|
| 1 | Williams | ProjectD |
| 2 | Perry | ProjectA1 |
| 3 | Meyers | ProjectC |
| 4 | Kors | ProjectE |
| 5 | Kors | ProjectA |

Que... | BCIS5420.cob.internal.unt.e... | STUDENTS\ap1403 (52) | ap1403 | 00:00:00 | 5 rows

## Query 5e:
```sql
SELECT Consultant.ConsultantName FROM Consultant WHERE Consultant.ConsultantID IN
(
SELECT CP.ConsultantID FROM ConsultantProjectHistory CP
INNER JOIN Consultant C ON
CP.EvaluatorID = C.ConsultantID WHERE C.ConsultantName = 'Mark Meyers'

);
```

### Result:

| | ConsultantName |
|---|---|
| 1 | Michael Kors |

Que... | BCIS5420.cob.internal.unt.e... | STUDENTS\ap1403 (70) | ap1403 | 00:00:00 | 1 rows

## Query 5f:
```sql
SELECT ProjectID, totalHoursWorked FROM ConsultantProjectHistory WHERE totalHoursWorked >50 AND
totalHoursWorked < 100;
```

### Result:

Results | Messages

| | ProjectID | totalHoursWorked |
|---|---|---|
| 1 | 703 | 95 |
| 2 | 705 | 65 |

Que... | BCIS5420.cob.internal.unt.e... | STUDENTS\ap1403 (59) | ap1403 | 00:00:00 | 2 rows

INS

## Query 5g:
```sql
SELECT * FROM Client FULL OUTER JOIN Project ON Client.ClientID = Project.ClientID;
```

**Result:**

| | ClientID | ClientName | ClientContact_Name | ClientContact_phone | ProjectID | ProjectManager | ParentProjectID | ClientID | ProjectName |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 900 | Mark Consultancy | Jacobs | 9404567981 | 701 | 100 | 701 | 900 | ProjectA |
| 2 | 900 | Mark Consultancy | Jacobs | 9404567981 | 702 | 101 | 701 | 900 | ProjectA1 |
| 3 | 901 | Jeff Pvt Ltd | Steve | 9402585371 | NULL | NULL | NULL | NULL | NULL |
| 4 | 902 | Clara Services | Bezos | 9400007663 | 703 | 102 | 703 | 902 | ProjectC |
| 5 | 903 | Linda Group Ltd | Sara | 9405555717 | 704 | 103 | 704 | 903 | ProjectD |
| 6 | 904 | Ben Consultancy | Jenny | 9401498431 | 705 | 104 | 705 | 904 | ProjectE |

Query executed successfully.    BCIS5420.cob.internal.unt.e...   STUDENTS\ap1403 (60)   ap1403   00:00:00   6 rows

## Query 5h:
```sql
SELECT ConsultantID ,COUNT(ConsultantID) AS No_Of_projects_working FROM
ConsultantProjectHistory GROUP BY ConsultantID HAVING COUNT(ConsultantID)>1;
```

**Result:**

| | ConsultantID | No_Of_projects_working |
|---|---|---|
| 1 | 101 | 2 |

Que...   BCIS5420.cob.internal.unt.e...   STUDENTS\ap1403 (55)   ap1403   00:00:00   1 rows

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**Query 5i:**
```
SELECT ConsultantName FROM Consultant WHERE ConsultantID NOT IN (SELECT ConsultantID FROM
ConsultantProjectHistory);
```

R

| | ConsultantName |
|---|---|
| 1 | Cheng Yu |

Que... | BCIS5420.cob.internal.unt.e... | STUDENTS\ap1403 (99) | ap1403 | 00:00:00 | 1 rows

**Query 5j:**
```
SELECT DISTINCT ParentProjectID AS List_Of_IndividualProjects FROM PROJECT;
```

**Result:**

| | List_Of_IndividualProjects |
|---|---|
| 1 | 701 |
| 2 | 703 |
| 3 | 704 |
| 4 | 705 |

Qu... | BCIS5420.cob.internal.unt.e... | STUDENTS\ap1403 (102) | ap1403 | 00:00:00 | 4 rows

# THANK YOU