Project Report

Course Title : Database Systems, Course Code : CSE 211, Section : C

Topic Name : Bangladeshi Student's Abroad Database Management System

List of Members :

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"Bangladeshi Scholar's Abroad Database Management System"

Description: A government institution in Bangladesh is seeking data related to all students who have studied or studying abroad from their country, along with details about their educational journeys. Their primary focus is on students. Each Student has a unique student ID, and we maintain records of their personal information, such as their full name, gender, address, email, phone number, and passport ID. We track our students' progress in their academic programs. Each student can have multiple Academic Profiles, which include details like the study program name, the year of accomplishment of that study program, and their grade or credit earned on that program of study. Some of their students do Abroad Journey for educational purposes. We keep track of the start year and end year for each journey. Many students can travel abroad in the same year and come back to their home country in the same year. Many journeys can be done to a specific Country; they need details about these countries, like a unique country name and their official language, currency, and time zone. A student may receive multiple Scholarships to go abroad and may not receive any scholarship, and we maintain records of these awards. Each scholarship is assigned a unique scholarship ID and has a corresponding scholarship name. A foreign educational institution can offer various scholarships, and after getting one or many scholarships, their students get admitted to Foreign Institutions for further higher studies. We gather information about these institutions, including a unique institution ID, institution name, program of study, and admission year. Furthermore, many foreign institutions are connected to a specific Country. Many of their students often take various International Exams, and they need records of their exam results. Each exam is identified by a unique exam ID and includes information such as the exam name, exam year, and score. They also need tabs on their students' involvement in Extracurricular activities. Some students can have one or more extracurricular activities, and an activity can be associated with many students. Each activity has a unique activity ID and a name describing the activity.

List of entities and their relationships:

Entities:

1. **Student**
   - Student ID (PK)
   - Full Name
   - Gender
   - Address
   - Email
   - Passport ID
2. **Academic Profile**

- Program Name (PK)
- Year Accomplished
- Grade/Credit Earned

3. **Abroad Journey**
   - Journey ID (PK)
   - Start Year
   - End Year
4. **Scholarship**
   - Scholarship ID (PK)
   - Scholarship Name
5. **Abroad Journey**
   - Start Year
   - End Year
6. **Foreign Institution**
   - Institution ID (PK)
   - Institution Name
   - Program of Study
   - Admission Year
7. **Country**
   - Country Name (PK)
   - Official Language
   - Currency
   - Time Zone
8. **International Exam**
   - Exam ID (PK)
   - Exam Name
   - Exam Year
   - Score
9. **Extra-Curricular Activity**
   - Activity ID (PK)
   - Activity Name

Relationships:

One-to-Many Relationship: Student to Academic Profile

- A student can have multiple academic profiles.

One-to-Many Relationship: Student to Scholarship

- A student can have multiple scholarships.

Many-to-One Relationship: Scholarship to Foreign Institution

- Many scholarships are associated with a specific foreign institution.

Many-to-One Relationship: Foreign Institution to Country

- Many foreign institutions are connected to a specific country. (Total Participation Double Line)

Many-to-Many Relationship: Student to Abroad Journey

- Many students can be associated with many abroad journey.

Many-to-One Relationship: Abroad Journey to Country

- Many journey can be done to one country.

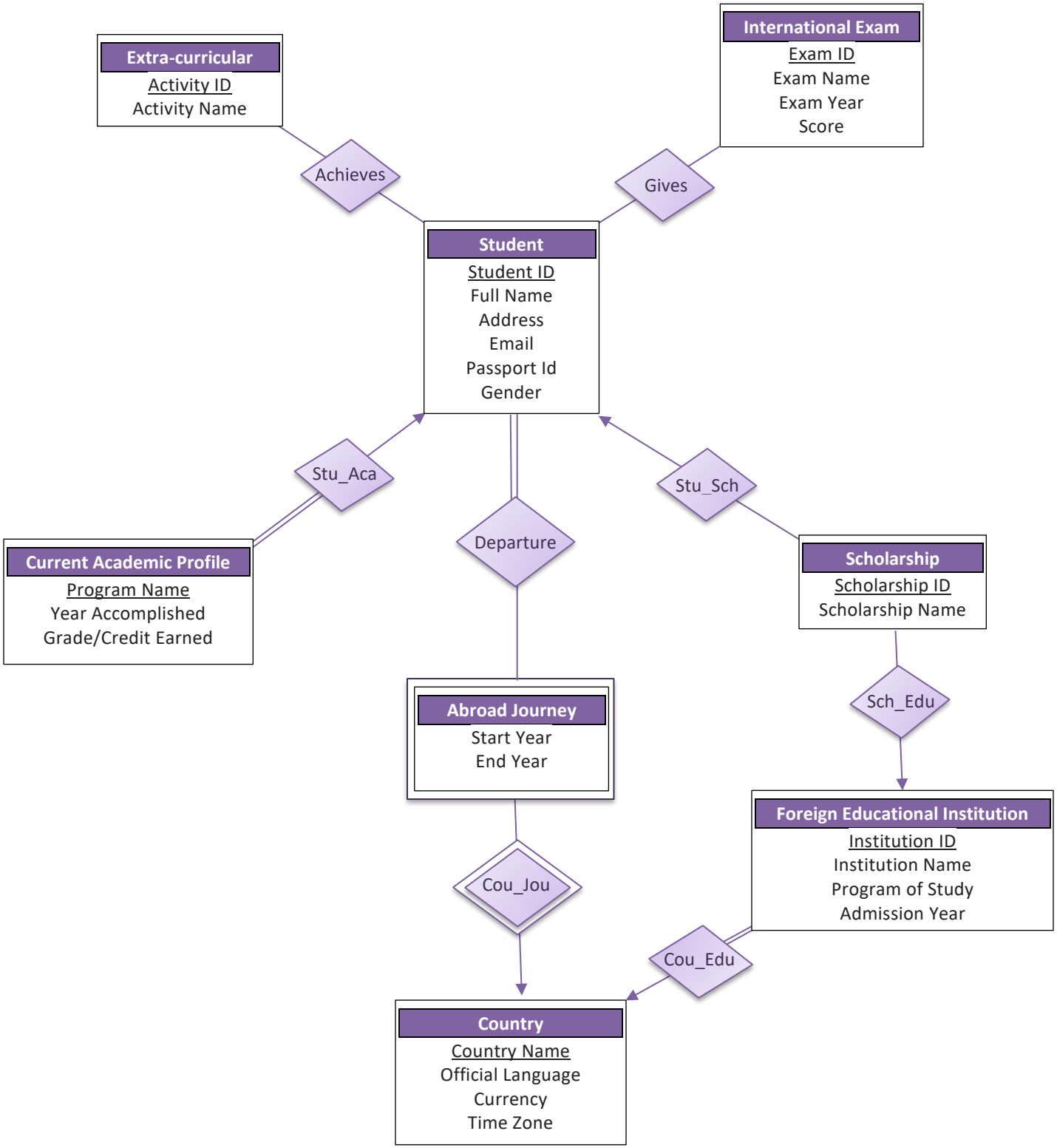
Many-to-Many Relationship: Student to International Exam

- A student can take multiple international exams, and each exam can be taken by multiple students. We will create a new table of primary keys to represent this relationship.

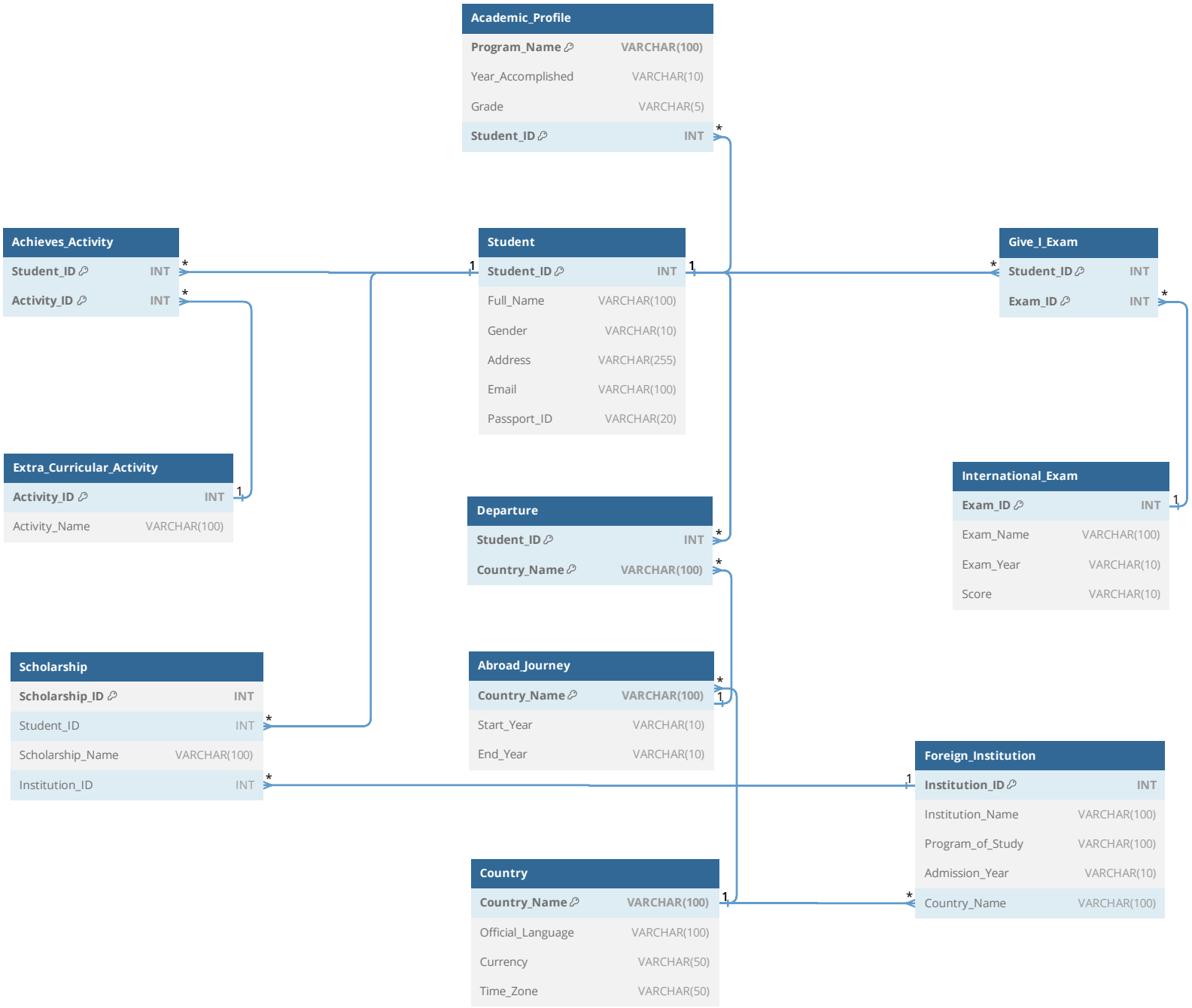
Many-to-Many Relationship: Student to Extra-Curricular Activity

- A student can be involved in one or more extracurricular activities, and an activity can involve many students. We will create a new table of primary keys to represent this relationship.

ER Diagram:


Extra-curricular
Activity ID
Activity Name
Achieves
International Exam
Exam ID
Exam Name
Exam Year
Score
Gives
Student
Student ID
Full Name
Address
Email
Passport Id
Gender
Stu_Aca
Current Academic Profile
Program Name
Year Accomplished
Grade/Credit Earned
Departure
Abroad Journey
Start Year
End Year
Cou_Jou
Stu_Sch
Scholarship
Scholarship ID
Scholarship Name
Sch_Edu
Foreign Educational Institution
Institution ID
Institution Name
Program of Study
Admission Year
Cou_Edu
Country
Country Name
Official Language
Currency
Time Zone

Schema Diagram:



SQL Code:

```
-- Create the database
USE master;
GO
IF EXISTS (SELECT name FROM master.dbo.sysdatabases WHERE name = N'Bangladeshi_Scholars_Abroad')
    DROP DATABASE Bangladeshi_Scholars_Abroad;
CREATE DATABASE Bangladeshi_Scholars_Abroad;
GO

-- Use the database
USE Bangladeshi_Scholars_Abroad; USE master;
GO

-- Create the Student table
CREATE TABLE Student (
    Student_ID INT PRIMARY KEY,
    Full_Name VARCHAR(100),
    Gender VARCHAR(10),
    Address VARCHAR(255),
    Email VARCHAR(100),
    Passport_ID VARCHAR(20)
);
GO

-- Create the Academic Profile table
CREATE TABLE Academic_Profile (
    Program_Name VARCHAR(100),
    Year_Accomplished VARCHAR(10),
    Grade VARCHAR(5),
    Student_ID INT,
    CONSTRAINT PK_Academic_Profile PRIMARY KEY (Program_Name, Student_ID),
    CONSTRAINT FK_Student_AcademicProfile FOREIGN KEY (Student_ID) REFERENCES Student(Student_ID)
);
GO

-- Create the Extra-Curricular Activity table
CREATE TABLE Extra_Curricular_Activity (
    Activity_ID INT PRIMARY KEY,
```

```
    Activity_Name VARCHAR(100)
);
GO

-- Create the Achieves_Activity table (Many-to-Many Relationship)
CREATE TABLE Achieves_Activity (
    Student_ID INT,
    Activity_ID INT,
    CONSTRAINT PK_Achieves PRIMARY KEY (Student_ID, Activity_ID),
    CONSTRAINT FK_Student_Achieves FOREIGN KEY (Student_ID) REFERENCES Student (Student_ID),
    CONSTRAINT FK_Activity_Achieves FOREIGN KEY (Activity_ID) REFERENCES
      Extra_Curricular_Activity(Activity_ID)
);
GO

-- Create the International Exam table
CREATE TABLE International_Exam (
    Exam_ID INT PRIMARY KEY,
    Exam_Name VARCHAR(100),
    Exam_Year VARCHAR(10),
    Score VARCHAR(10)
);
GO

-- Create the Give_I_Exam table (Many-to-Many Relationship)
CREATE TABLE Give_I_Exam (
    Student_ID INT,
    Exam_ID INT,
    CONSTRAINT PK_GiveExam PRIMARY KEY (Student_ID, Exam_ID),
    CONSTRAINT FK_Student_GiveIExam FOREIGN KEY (Student_ID) REFERENCES Student (Student_ID),
    CONSTRAINT FK_Exam_GiveIExam FOREIGN KEY (Exam_ID) REFERENCES
      International_Exam(Exam_ID)
);
GO

-- Create the Country table
CREATE TABLE Country (
```

```
    Country_Name VARCHAR(100) PRIMARY KEY,
    Official_Language VARCHAR(100),
    Currency VARCHAR(50),     Time_Zone VARCHAR(50)
);
GO

-- Create the Foreign Institution table
CREATE TABLE Foreign_Institution (
    Institution_ID INT PRIMARY KEY,
    Institution_Name VARCHAR(100),
    Program_of_Study VARCHAR(100),
    Admission_Year VARCHAR(10),
    Country_Name VARCHAR(100),
    CONSTRAINT FK_Country_ForeignInstitution FOREIGN KEY (Country_Name) REFERENCES Country(Country_Name)
);
GO

-- Create the Scholarship table
CREATE TABLE Scholarship (
    Scholarship_ID INT PRIMARY KEY,
    Student_ID INT,
    Scholarship_Name VARCHAR(100),
    Institution_ID INT,
    CONSTRAINT FK_Student_Scholarship FOREIGN KEY (Student_ID) REFERENCES Student (Student_ID),
    CONSTRAINT FK_Institution_Scholarship FOREIGN KEY (Institution_ID) REFERENCES Foreign_Institution(Institution_ID)
);
GO

-- Create the Abroad Journey table
CREATE TABLE Abroad_Journey (
    Country_Name VARCHAR(100) PRIMARY KEY,
    Start_Year VARCHAR(10),
    End_Year VARCHAR(10),
    CONSTRAINT FK_Country_AbroadJourney FOREIGN KEY (Country_Name) REFERENCES Country(Country_Name)
);
GO
```

```sql
-- Create the Departure table
CREATE TABLE Departure (
    Student_ID INT,
    Country_Name VARCHAR(100),
    CONSTRAINT PK_Departure PRIMARY KEY (Student_ID, Country_Name),
    CONSTRAINT FK_Student_Departure FOREIGN KEY (Student_ID) REFERENCES Student (Student_ID),
    CONSTRAINT FK_Country_Departure FOREIGN KEY (Country_Name) REFERENCES Country (Country_Name)
);
GO

-- Insert data into Student table
INSERT INTO Student (Student_ID, Full_Name, Gender, Address, Email, Passport_ID) VALUES
    (1, 'Md Arafat Kabir', 'Male', '123 Gulshan Avenue, Dhaka', 'arafat@email.com',  'AB123456'),
    (2, 'Nishat Tasnim', 'Female', '763 Station Road, Sylhet', 'nishat@email.com', 'CD789012'),
    (3, 'Nazneen Nahar', 'Female', '011 GHI Avenue, Comilla', 'nazneen.nahar@email.com', 'EF345678'),
    (4, 'Suriya Islam Afrin', 'Female', '101 Pine St, City4', 'suriya.afrin@email.com', 'GH901234'),
    (5, 'Mujahid Hasan', 'Male', '768 Duramari, Thakurgaon', 'hasanmujahid@email.com', 'IJ567890'),
    (6, 'Mehedi Hasan', 'Male', '12 Hazipara, Sirajganj', 'mehedi238@email.com', 'KL123456'),
    (7, 'Foysal Hossain', 'Male', '54 Nabinagar Savar, Dhaka', 'foysal.hossain@email.com', 'MN234567'),
    (8, 'Soma Das', 'Female', '234 MNO Lane, Narayanganj', 'das.soma@email.com', 'OP345678'),
    (9, 'Sheikh Muhammad Ashik', 'Male', '393 Agrabad C/A, Chittagong', 'muhammadashik2@email.com', 'QR456789'),
    (10, 'Naimul Islam', 'Male', '686 Khilgaon, Dhaka', 'naimul@email.com', 'ST567890');

-- Insert data into Academic_Profile table
INSERT INTO Academic_Profile (Program_Name, Year_Accomplished, Grade, Student_ID)
VALUES
  ('SSC', '2017', 'A+', 1),
  ('HSC', '2019', 'A+', 1),
  ('BSC', '2023', 'A+', 1),
  ('BSC', '2022', 'A+', 2),
  ('MSC', '2019', 'A+', 3),
  ('SSC', '2021', 'A', 4),
  ('BSC', '2020', 'B+', 5),
  ('HSC', '2022', 'A', 6),
  ('BSC', '2018', 'C+', 7),
  ('MSC', '2021', 'B', 8),
  ('BSC', '2021', 'B', 9),
```

```
  ('BSC', '2018', 'B', 10);

-- Insert data into Extra_Curricular_Activity table
INSERT INTO Extra_Curricular_Activity (Activity_ID, Activity_Name)
VALUES
  (1, 'Drama Club'),
  (2, 'Poetry Club'),
  (3, 'Research Club'),
  (4, 'Debate Team'),
  (5, 'Math Club'),
  (6, 'Drama Club'),
  (7, 'Environmental Club'),
  (8, 'Music Band'),
  (9, 'Sports Team - Basketball'),
  (10, 'Student Council');

-- Insert data into Achieves_Activity table
INSERT INTO Achieves_Activity (Student_ID, Activity_ID)
VALUES
  (1, 1),
  (2, 2),
  (2, 4),
  (2, 5),
  (3, 6),
  (4, 7),
  (4, 8),
  (4, 9),
  (5, 10),
  (6, 1),
  (6, 2),
  (7, 3),
  (7, 4),
  (8, 5),
  (8, 6),
  (9, 7),
  (9, 8),
  (9, 9),
  (10, 10);
```

```sql
-- Insert data into International_Exam table
INSERT INTO International_Exam (Exam_ID, Exam_Name, Exam_Year, Score)
VALUES
  (1, 'TOEFL', '2022', '95.5'),
  (2, 'IELTS', '2021', '7.5'),
  (3, 'SAT', '2023', '1450'),
  (4, 'GRE', '2022', '320'),
  (5, 'GMAT', '2021', '680'),
  (6, 'ACT', '2023', '28'),
  (7, 'DELE', '2022', '85.0'),
  (8, 'HSK', '2021', '200'),
  (9, 'MCAT', '2021', '520'),
  (10, 'PTE Academic', '2022', '79.5');

-- Insert data into Give_I_Exam table
INSERT INTO Give_I_Exam (Student_ID, Exam_ID)
VALUES
  (1, 1),
  (1, 2),
  (2, 3),
  (2, 4),
  (3, 5),
  (3, 6),
  (4, 7),
  (4, 8),
  (6, 1),
  (6, 2),
  (7, 3),
  (7, 4),
  (8, 5),
  (8, 6),
  (10, 9),
  (10, 10);

-- Insert data into Country table
INSERT INTO Country (Country_Name, Official_Language, Currency, Time_Zone) VALUES
  ('United States', 'English', 'USD', 'GMT-5'),
  ('United Kingdom', 'English', 'GBP', 'GMT+0'),
```

```
  ('Canada', 'English, French', 'CAD', 'GMT-4'),
  ('Australia', 'English', 'AUD', 'GMT+10'),
  ('Germany', 'German', 'EUR', 'GMT+1'),
  ('Japan', 'Japanese', 'JPY', 'GMT+9'),
  ('France', 'French', 'EUR', 'GMT+1'),
  ('Brazil', 'Portuguese', 'BRL', 'GMT-3'),
  ('China', 'Mandarin', 'CNY', 'GMT+8'),
  ('India', 'Hindi, English', 'INR', 'GMT+5.5');

-- Insert data into Foreign_Institution table
INSERT INTO Foreign_Institution (Institution_ID, Institution_Name,
  Program_of_Study, Admission_Year, Country_Name)
VALUES
  (1, 'Harvard University', 'Computer Science', '2020', 'United States'),
  (2, 'University of Toronto', 'Business Administration', '2019', 'Canada'),
  (3, 'University of Oxford', 'Physics', '2021', 'United Kingdom'),
  (4, 'University of Sydney', 'Engineering', '2020', 'Australia'),
  (5, 'Technical University of Munich', 'Mechanical Engineering', '2022', 'Germany'),
  (6, 'University of Tokyo', 'Mathematics', '2018', 'Japan'),
  (7, 'Sorbonne University', 'French Literature', '2019', 'France'),
  (8, 'Peking University', 'Economics', '2021', 'China'),
  (9, 'Indian Institute of Technology Delhi', 'Computer Engineering', '2020', 'India'),
  (10, 'University of São Paulo', 'Medicine', '2017', 'Brazil');

-- Insert data into Scholarship table
INSERT INTO Scholarship (Scholarship_ID, Student_ID, Scholarship_Name, Institution_ID)
VALUES
  (1, 1, 'Merit Scholarship', 1),
  (2, 2, 'Achievement Scholarship', 2),
  (3, 3, 'Excellence Scholarship', 3),
  (4, 4, 'Leadership Scholarship', 4),
  (5, 5, 'Innovation Scholarship', 5),
  (6, 6, 'Diversity Scholarship', 6),
  (7, 7, 'Community Service Scholarship', 7),
  (8, 8, 'Research Scholarship', 8),
  (9, 9, 'Sports Scholarship', 9),
  (10, 10, 'Need-Based Scholarship', 10);
```

```sql
-- Insert data into Abroad Journey table
INSERT INTO Abroad_Journey (Country_Name, Start_Year, End_Year)
VALUES
  ('United States', '2023', '2029'),
  ('Canada', '2023', '2028'),
  ('United Kingdom', '2022', '2027'),
  ('Australia', '2022', '2027'),
  ('Germany', '2023', '2028'),
  ('Japan', '2023', '2027'),
  ('France', '2019', '2022'),
  ('China', '2023', '2026'),
  ('India', '2021', '2026'),
  ('Brazil', '2018', '2022');

-- Insert data into Departure table
INSERT INTO Departure (Student_ID, Country_Name)
VALUES
  (1, 'United States'),
  (2, 'Canada'),
  (3, 'United Kingdom'),
  (4, 'Australia'),
  (5, 'Germany'),
  (6, 'Japan'),
  (7, 'France'),
  (8, 'China'),
  (9, 'India'),
  (10, 'Brazil');

 -- Select data from the Student table
SELECT * FROM Student;

-- Select data from the Academic_Profile table
SELECT * FROM Academic_Profile;

-- Select data from the Extra_Curricular_Activity table
SELECT * FROM Extra_Curricular_Activity;
```

```sql
-- Select data from the Achieves_Activity table
SELECT * FROM Achieves_Activity;

-- Select data from the International_Exam table
SELECT * FROM International_Exam;

-- Select data from the Give_I_Exam table
SELECT * FROM Give_I_Exam;

-- Select data from the Country table
SELECT * FROM Country;
-- Select data from the Foreign_Institution table
SELECT * FROM Foreign_Institution;

-- Select data from the Scholarship table
SELECT * FROM Scholarship;

-- Select data from the Abroad_Journey table
SELECT * FROM Abroad_Journey;

-- Select data from the Departure table
SELECT * FROM Departure;
```

SQL Code Link : Bangladeshi Scholar's Abroad - Google Drive

Query Question :

```sql
-- 1. Retrieve the full list of students.
SELECT *
FROM Student;
```

Results Messages

	Student_ID	Full_Name	Gender	Address	Email	Passport_ID
1	1	Md Arafat Kabir	Male	123 Gulshan Avenue, Dhaka	arafat@email.com	AB123456
2	2	Nishat Tasnim	Female	763 Station Road, Sylhet	nishat@email.com	CD789012
3	3	Nazneen Nahar	Female	011 GHI Avenue, Comilla	nazneen.nahar@email.com	EF345678
4	4	Suriya Islam Afrin	Female	101 Pine St, City4	suriya.afrin@email.com	GH901234
5	5	Mujahid Hasan	Male	768 Duramari, Thakurgaon	hasanmujahid@email.com	IJ567890
6	6	Mehedi Hasan	Male	12 Hazipara, Sirajganj	mehedi238@email.com	KL123456
7	7	Foysal Hossain	Male	54 Nabinagar Savar, Dhaka	foysal.hossain@email.com	MN234567
8	8	Soma Das	Female	234 MNO Lane, Narayanganj	das.soma@email.com	OP345678
9	9	Sheikh Muhammad Ashik	Male	393 Agrabad C/A, Chittagong	muhammadashik2@email.com	QR456789
10	10	Naimul Islam	Male	686 Khilgaon, Dhaka	naimul@email.com	ST567890

```sql
-- 2. Count the total number of students in the "Student" table.
SELECT COUNT(*) AS Total_Students
FROM Student;
```

Results Messages

	Total_Students
1	10

```sql
-- 3. Retrieve all the female students whose full names start with the letter 'N'.
SELECT *
FROM Student
WHERE Full_name LIKE 'N%' AND Gender = 'Female';
```

Results Messages

	Student_ID	Full_Name	Gender	Address	Email	Passport_ID
1	2	Nishat Tasnim	Female	763 Station Road, Sylhet	nishat@email.com	CD789012
2	3	Nazneen Nahar	Female	011 GHI Avenue, Comilla	nazneen.nahar@email.com	EF345678

```sql
-- 4. Retrieve a list of distinct scholarship names from the Scholarship table, sorted in alphabetical order.
SELECT DISTINCT Scholarship_name
FROM Scholarship
ORDER BY Scholarship_Name;
```

Results Messages

	Scholarship_name
1	Achievement Scholarship
2	Community Service Scholarship
3	Diversity Scholarship
4	Excellence Scholarship
5	Innovation Scholarship
6	Leadership Scholarship
7	Merit Scholarship
8	Need-Based Scholarship
9	Research Scholarship
10	Sports Scholarship

```sql
-- 5. Count the number of students who received scholarships.
SELECT COUNT(DISTINCT Student_ID) AS Scholarship_Count
FROM Scholarship;
```

Results | Messages

	Scholarship_Count
1	10

```sql
-- 6. Retrieve the Student IDs and Full Names of students who have achieved multiple activities.
SELECT Student_ID, Full_Name
FROM Student
WHERE Student_ID IN
(
    SELECT Student_ID
    FROM Achieves_Activity
    GROUP BY Student_ID
    HAVING COUNT(*) > 1
);
```

Results | Messages

	Student_ID	Full_Name
1	2	Nishat Tasnim
2	4	Suriya Islam Afrin
3	6	Mehedi Hasan
4	7	Foysal Hossain
5	8	Soma Das
6	9	Sheikh Muhammad Ashik

```sql
-- 7. Select the students who went to abroad without participating in any international exam.
SELECT * FROM Student
WHERE Student_ID NOT IN (SELECT Student_ID FROM Give_I_Exam);
```

Results | Messages

	Student_ID	Full_Name	Gender	Address	Email	Passport_ID
1	5	Mujahid Hasan	Male	768 Duramari, Thakurgaon	hasanmujahid@email.com	IJ567890
2	9	Sheikh Muhammad Ashik	Male	393 Agrabad C/A, Chittagong	muhammadashik2@email.com	QR456789

```sql
-- 8. Find the highest score among all students in international exams.
SELECT MAX(CAST(Score AS FLOAT)) AS Maximum_International_Exams_Score
FROM International_Exam;
```

Results | Messages

	Maximum_International_Exams_Score
1	1450

```sql
-- 9. Retrieve the information of students who have either a scholarship or have taken an international exam.
SELECT *
FROM Student
WHERE Student_ID IN (SELECT Student_ID FROM Scholarship)
OR Student_ID IN (SELECT Student_ID FROM Give_I_Exam);
```

Results Messages

	Student_ID	Full_Name	Gender	Address	Email	Passport_ID
1	1	Md Arafat Kabir	Male	123 Gulshan Avenue, Dhaka	arafat@email.com	AB123456
2	2	Nishat Tasnim	Female	763 Station Road, Sylhet	nishat@email.com	CD789012
3	3	Nazneen Nahar	Female	011 GHI Avenue, Comilla	nazneen.nahar@email.com	EF345678
4	4	Suriya Islam Afrin	Female	101 Pine St, City4	suriya.afrin@email.com	GH901234
5	5	Mujahid Hasan	Male	768 Duramari, Thakurgaon	hasanmujahid@email.com	IJ567890
6	6	Mehedi Hasan	Male	12 Hazipara, Sirajganj	mehedi238@email.com	KL123456
7	7	Foysal Hossain	Male	54 Nabinagar Savar, Dhaka	foysal.hossain@email.com	MN234567
8	8	Soma Das	Female	234 MNO Lane, Narayanganj	das.soma@email.com	OP345678
9	9	Sheikh Muhammad Ashik	Male	393 Agrabad C/A, Chittagong	muhammadashik2@email.com	QR456789
10	10	Naimul Islam	Male	686 Khilgaon, Dhaka	naimul@email.com	ST567890

```sql
-- 10. Retrieve the students who got into Harvard University
SELECT Student_ID, Full_Name
FROM Student
WHERE Student_ID IN (
    SELECT Student_ID
    FROM Scholarship
    WHERE Institution_ID = (
        SELECT Institution_ID
        FROM Foreign_Institution
        WHERE Institution_Name = 'Harvard University'
    )
);
```

Results Messages

	Student_ID	Full_Name
1	1	Md Arafat Kabir

```sql
--- 11. Retrieve a list of all countries from the Country table, ordered in descending alphabetical order by country name.
SELECT *
FROM Country
ORDER BY Country_Name DESC;
```

Results Messages

	Country_Name	Official_Language	Currency	Time_Zone
1	United States	English	USD	GMT-5
2	United Kingdom	English	GBP	GMT+0
3	Japan	Japanese	JPY	GMT+9
4	India	Hindi, English	INR	GMT+5.5
5	Germany	German	EUR	GMT+1
6	France	French	EUR	GMT+1
7	China	Mandarin	CNY	GMT+8
8	Canada	English, French	CAD	GMT-4
9	Brazil	Portuguese	BRL	GMT-3
10	Australia	English	AUD	GMT+10

```sql
-- 12. Count and list the number of abroad journeys that started each year.
SELECT start_year, COUNT(*) AS year_statistics_count
FROM abroad_journey
GROUP BY start_year
ORDER BY start_year;
```

Results | Messages

	start_year	Year_Statistics_Count
1	2018	1
2	2019	1
3	2021	1
4	2022	2
5	2023	5

```sql
-- 13. Calculate the students average score for each exam type and show their information.
SELECT exam_name, AVG(CAST(score AS FLOAT)) AS average_score
FROM Student s
JOIN Give_I_Exam ge ON s.student_id = ge.student_id
JOIN International_Exam ie ON ge.exam_id = ie.exam_id
GROUP BY exam_name;
```

Results | Messages

	exam_name	average_score
1	ACT	28
2	DELE	85
3	GMAT	680
4	GRE	320
5	HSK	200
6	IELTS	7.5
7	MCAT	520
8	PTE Academic	79.5
9	SAT	1450
10	TOEFL	95.5

```sql
-- 14. List the academic programs that have the highest number of students who accomplished them.
SELECT ap.Program_Name, COUNT(*) AS Student_Count
FROM Academic_Profile ap
GROUP BY ap.Program_Name
ORDER BY Student_Count DESC;
```

Results | Messages

	Program_Name	Student_Count
1	BSC	6
2	HSC	2
3	MSC	2
4	SSC	2

```sql
-- 15. List the student IDs and full names of students who have not traveled abroad.
SELECT Student_ID, Full_Name
FROM Student
WHERE Student_ID NOT IN (SELECT DISTINCT Student_ID FROM Abroad_Journey);
```

Results | Messages

	Student_ID	Full_Name

CEP MAPPING

Knowledge Profile (K's) addressed through our project and mapping among K's, CO (Course Outcomes), PO (Program Outcomes):

K's	Attributes	How K's are Addressed Through Our Project	CO	PO
K2	Mathematics	Mathematics and statistics knowledge is necessary for various aspects of the project. This includes data analysis, ensuring data accuracy, and making informed decisions based on statistical information. Proficiency in mathematics and statistics is essential for effectively managing the database and scholarship data.	CO2, CO3, CO4	PO1, PO3, PO5, PO6, PO7, PO8
K3	Engineering Fundamentals	In the context of the project, engineering fundamentals refer to a deep understanding of database fundamentals, which is essential for designing a suitable database model to manage information related to Bangladeshi students studying abroad. This knowledge ensures that the database is structured efficiently and securely.	CO2, CO3, CO4	PO1
K4	Specialist Knowledge	Specialist knowledge pertains to expertise related to scholarship management. The project requires knowledge about how scholarships are managed, allocated, and tracked for Bangladeshi students studying abroad. This knowledge helps in implementing the scholarship component of the database system, ensuring it caters to the needs of stakeholders.	CO2, CO3, CO4	PO1
K5	Engineering Design	Engineering design knowledge involves the use of ER (Entity-Relationship) diagrams and schema diagrams to design the database. These design elements are essential for organizing and structuring the database to efficiently store and retrieve information. Proper design contributes to the success of the project by ensuring data accuracy and accessibility.	CO3, CO4	PO3, PO5
K6	Engineering Practice	Engineering practice refers to the practical implementation of the project using SQL in SQL Server Management Studio. This knowledge is necessary for creating and maintaining the database, ensuring data integrity, and optimizing performance. Implementing the project successfully relies on a strong grasp of SQL and database management practices.	CO1, CO2, CO5	PO5
K7	Comprehension	Comprehension knowledge extends to understanding the positive societal impact achieved by facilitating access to education data. It involves recognizing the role the project plays in providing essential information about Bangladeshi students studying abroad. This knowledge ensures that the project aligns with its societal impact goals.	CO6, CO7	PO6, PO7, PO8

Complex Engineering Problems (P's) addressed through our project and mapping among P's, CO (Course Outcomes), PO (Program Outcomes):

P's	Attributes	How P's are Addressed Through Our Project	CO	PO
P1	Depth of Knowledge Required	The project addresses complex engineering problems by requiring in-depth knowledge in various areas, including database fundamentals, scholarship management, ER and schema diagrams, SQL implementation, and societal impact. These aspects are essential for solving the complex problems of efficiently managing information about students studying abroad. The successful resolution of these problems aligns with the project's core objectives.	CO1, CO2, CO3, CO4, CO5	PO1, PO3, PO5, PO6, PO7, PO8
P3	Depth of Analysis Required	The project calls for further analysis to optimize integrity constraints and efficiency in managing the database. This analysis ensures that the database remains robust and that the information is accurate and accessible. These optimizations contribute to achieving the desired project outcomes.	CO3, CO4, CO5	PO6, PO7, PO8, PO12
P6	Extent of Stakeholders	The project caters to the needs of multiple stakeholders, primarily Bangladeshi students studying abroad and the government institution seeking access to their data. These stakeholders have diverse requirements related to scholarship management, educational journeys, and academic profiles. Addressing these diverse needs aligns with complex engineering problems and helps achieve the project objectives.	CO6, CO7	PO9, PO10
P7	Interdependence	To address complex problems efficiently, the project breaks down the database into smaller tables. This modular approach enables better problem-solving, as it allows for a more focused and systematic approach to data management. Breaking down the project into smaller components aligns with specific project objectives.	CO8	PO11

Complex Engineering Activities (A's) addressed through our project and mapping among A's, CO (Course Outcomes), PO (Program Outcomes):

A's	Attributes	How A's are Addressed Through Our Project	CO	PO
A1	Range of Resources	The project involves utilizing a diverse range of resources, including data, technologies, people, and financial investments, to build and maintain the database system. This comprehensive approach ensures that the project has the necessary resources to succeed and meet its objectives. The efficient utilization of these resources contributes to the project's success.	CO8	PO11
A4	Consequences for Society and Environment	The project has positive consequences for society by improving the management of information related to Bangladeshi students studying abroad. It contributes to educational and societal development, as it enhances access to education data and scholarship information. This positive societal impact aligns with several project objectives.	CO6	PO6, PO7, PO8
A5	Familiarity	One of the primary complex engineering activities of the project is the development of an online system for managing information related to Bangladeshi students studying abroad. This activity requires familiarity with database design and management practices, software development, and user interface design. Ensuring that the project team is familiar with these activities contributes to project success.	CO9	