

ISM 671 – Final Project Report

# **Designing a Comprehensive Database for the Global Education Exchange Center (GEEC)**

APR 11, 2024

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## 1. DESCRIPTION OF THE ORGANIZATION

The Global Education Exchange Center (GEEC) is the conduit for students aspiring to enrich their academic journey with international study experiences. GEEC acts as the cornerstone for students aiming to expand their global awareness and academic pursuits through structured overseas programs.

In managing the complexities of global education, GEEC leverages a detailed database that encompasses a range of entities to ensure meticulous planning and execution of study abroad initiatives. Key entities such as **Students**, **Terms**, and **Study Abroad Programs** are foundational to our database, with specific attributes for each entity to support precise program alignment with student aspirations.

The **Application** entity captures the critical pathway of student applications to various programs, establishing relationships with both the **Student** and **Study Abroad Program** entities. The **Advisor** entity connects students with expert counselors, while the **Financial Aid** entity addresses affordability and accessibility of global study opportunities.

Living arrangements are a paramount consideration, addressed within the **Housing** entity, providing secure and comfortable accommodations for the study period. Pre-departure preparedness is facilitated through the **Travel Insurance** and **Orientation Session** entities, ensuring student safety and readiness.

GEEC also prioritizes linguistic competence through the **Language Proficiency** entity, documenting each student's language skills to assist in cultural immersion. The vital **Emergency Contact** entity ensures all students have immediate support accessible, regardless of their location.

With this robust database, the Global Education Exchange Center (GEEC) exemplifies a commitment to delivering a comprehensive service that not only facilitates educational opportunities abroad but also fosters the growth of global citizens.

## 2. PROBLEM STATEMENT

Knowing how to navigate different cultures is not only an essential ability in today's globalized society, but it additionally serves as an essential requirement for higher education. Also in an increasingly interconnected global economy, the value of international educational experiences cannot be overstated. However, a significant number of students come across major obstacles whenever trying to take advantage of opportunities for studying abroad, such as but not limited to:

- **Information Overload:** The broad spectrum of possibilities for programs and the thorough preparation needed for each can often leave students feeling overloaded.
- **Challenging Application Processes:** Without planned assistance, students may find it difficult to deal with the many requirements, encompassing everything from selecting programs to getting visas and housing. Without clear guidance, the intricate details of the application process, such as meeting numerous deadlines and submitting the necessary paperwork, can be concerning.
- **Financial Limitations:** Given that studying abroad can be expensive, capable students could feel discouraged from taking full advantage of these opportunities.
- **Academic Alignment:** Proper integration of schedules, classes, and program components is essential for guaranteeing that study abroad programs complement the student's educational and personal objectives and hence careful consideration is needed for finding programs that improve students' academic paths and substantially advance their goals for education.
- **Safety and Preparedness:** It is crucial to ensure the safety of students studying abroad, including their health insurance and their capacity to adapt to a foreign culture.
- **Language Barriers:** While communicating the language of the host nation is crucial for both academic success as well as full cultural immersion, not all students hold these abilities.
- **Support Systems:** Inadequate support systems for students studying overseas can cause problems in times of emergency and overall well-being.

The Global Education Exchange Center (GEEC) aims to address these challenges by providing a structured framework that streamlines the application process, offers financial guidance and support, ensures academic relevance, prepares students for cultural immersion, and establishes safety nets. Through its comprehensive database and support system, GEEC strives to make international study a feasible, enriching component of the academic journey for students from diverse backgrounds, fostering the growth of globally competent citizens.

### 3. ENTITIES, ATTRIBUTES, AND THEIR RELATIONSHIPS

#### 3.1 ENTITIES AND ATTRIBUTES

##### I) Study Abroad Program

**Attributes:** Study Abroad Program ID, Study Abroad Program Name, Duration, Start Date, End Date, Program Coordinator

**Primary Key:** Study Abroad Program ID

**Foreign Keys:** Term ID, Country Code

##### II) Application (Composite Entity)

**Attributes:** Application ID, Application Date, Status, Documents Submitted

**Primary Key:** Application ID

**Foreign Keys:** Study Abroad Program ID, Student ID, Term ID

##### III) Student

**Attributes:** Student ID, First Name, Last Name, Email, Gender, Nationality, Major, GPA

**Primary Key:** Student ID

**Foreign Keys:** Advisor ID, Travel Insurance ID

##### IV) Advisor

**Attributes:** Advisor ID, Name, Department, Email

**Primary Key:** Advisor ID

##### V) Language

**Attributes:** Language Proficiency ID, Language Proficiency, Languages, Proficiency Level

**Primary Key:** Language Proficiency ID

**Foreign Key:** Student ID

##### VI) Orientation

**Attributes:** Orientation Session ID, Date

**Primary Key:** Orientation Session ID

**Foreign Key:** Student ID

#### **VII) Financial Aid**

**Attributes:** Financial Aid ID, Scholarship Name, Amount, Approval Status

**Primary Key:** Financial Aid ID

**Foreign Key:** Student ID

#### **VIII) Emergency Contact**

**Attributes:** Emergency Contact ID, First Name, Last Name, Relationship, Contact Number

**Primary Key:** Emergency Contact ID

**Foreign Key:** Student ID

#### **IX) Travel Insurance**

**Attributes:** Travel Insurance ID, Coverage Type, Coverage Period, Insurer Information

**Primary Key:** Travel Insurance ID

#### **X) Country**

**Attributes:** Country Code, Country Name, Currency, Visa Requirements

**Primary Key:** Country Code

#### **XI) Housing**

**Attributes:** Housing ID, Type, Cost

**Primary Key:** Housing ID

**Foreign Key:** Study Abroad Program ID

#### **XII) Term**

**Attributes:** Term ID, Year, Semester

**Primary Key:** Term ID

## 3.2 RELATIONSHIPS

### **Student to Study Abroad Program:**

A student can apply to multiple study abroad programs, and each study abroad program can have multiple applicants. (Many to Many)

### **Student and Study Abroad Program to Application:**

Many applications are associated with one student and one study abroad program, but each application corresponds to a specific student and program. (1 to Many)

### **Term to Study Abroad Program:**

One term can host multiple study abroad programs, but each program is associated with a specific term. (1 to Many)

### **Application to Term:**

Each Application is associated with one specific Term. Each Term can be related to multiple Applications. (Many to 1)

### **Country to Study Abroad Program:**

One country can host multiple study abroad programs, but each program is associated with a specific country. (1 to Many)

### **Advisor to Student:**

One advisor can advise multiple students, but each student has one assigned advisor. (1 to Many)

### **Financial Aid to Student:**

One financial aid can be offered to multiple students, but a student can have only one financial aid. (1 to Many)

### **Housing to Study Abroad Program:**

One housing arrangement is associated with one study abroad program, but each program may have one housing arrangement. (1 to 1)

### **Travel Insurance to Student:**

Travel insurance can be offered to multiple students, but a student can have only one insurance policy. (1 to Many)

### **Orientation Session to Student**

A student must attend one orientation session. Multiple students can attend an orientation session. (1 to Many)

### **Emergency Contact to Student:**

A student must have one emergency contact and one emergency contact is associated with one student. (1 to 1)

**Language Proficiency to Student:**

A student can have many proficiency records in multiple languages. The language proficiency records are associated with one student. (Many to 1)



## Conceptual Database Design:

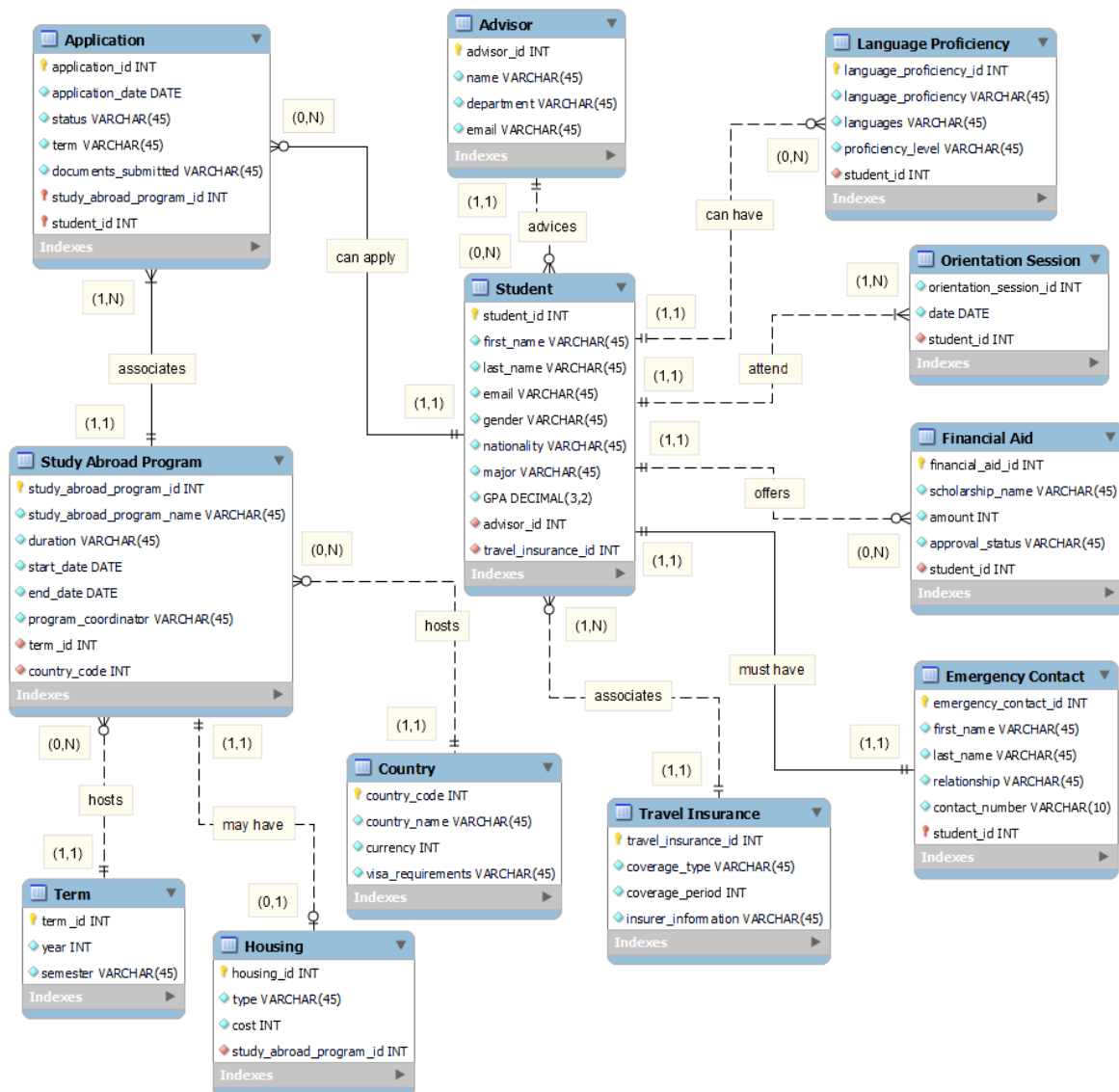
<p><b>Study Abroad Program</b></p> <ul style="list-style-type: none"> <li>• Study Abroad Program ID (Primary Key)</li> <li>• Study Abroad Program Name</li> <li>• Duration</li> <li>• Start Date</li> <li>• End Date</li> <li>• Program Coordinator</li> <li>• Term ID (Foreign Key)</li> <li>• Country Code (Foreign Key)</li> </ul> <p><b>Application (Composite Entity)</b></p> <ul style="list-style-type: none"> <li>• Application ID (Primary Key)</li> <li>• Application Date</li> <li>• Status</li> <li>• Documents Submitted</li> <li>• Study Abroad Program ID (Foreign Key)</li> <li>• Student ID (Foreign Key)</li> <li>• Term ID (Foreign Key)</li> </ul> <p><b>Student</b></p> <ul style="list-style-type: none"> <li>• Student ID (Primary Key)</li> <li>• First Name</li> <li>• Last Name</li> <li>• Email</li> <li>• Gender</li> <li>• Nationality</li> <li>• Major</li> <li>• GPA</li> <li>• Advisor ID (Foreign Key)</li> <li>• Travel Insurance ID (Foreign Key)</li> </ul> <p><b>Advisor</b></p> <ul style="list-style-type: none"> <li>• Advisor ID (Primary Key)</li> <li>• Name</li> <li>• Department</li> <li>• Email</li> </ul> <p><b>Country</b></p> <ul style="list-style-type: none"> <li>• Country Code (Primary Key)</li> <li>• Country Name</li> <li>• Currency</li> <li>• Visa Requirements</li> </ul>	<p><b>Housing</b></p> <ul style="list-style-type: none"> <li>• Housing ID (Primary Key)</li> <li>• Type</li> <li>• Cost</li> <li>• Study Abroad Program ID (Foreign Key)</li> </ul> <p><b>Language</b></p> <ul style="list-style-type: none"> <li>• Language Proficiency ID (Primary Key)</li> <li>• Language Proficiency</li> <li>• Languages</li> <li>• Proficiency Level</li> <li>• Student ID (Foreign Key)</li> </ul> <p><b>Orientation</b></p> <ul style="list-style-type: none"> <li>• Orientation Session ID (Primary Key)</li> <li>• Date</li> <li>• Student ID (Foreign Key)</li> </ul> <p><b>Financial Aid</b></p> <ul style="list-style-type: none"> <li>• Financial Aid ID (Primary Key)</li> <li>• Scholarship Name</li> <li>• Amount</li> <li>• Approval Status</li> <li>• Student ID (Foreign Key)</li> </ul> <p><b>Emergency Contact</b></p> <ul style="list-style-type: none"> <li>• Emergency Contact ID (Primary Key)</li> <li>• First Name</li> <li>• Last Name</li> <li>• Relationship</li> <li>• Contact Number</li> <li>• Student ID (Foreign Key)</li> </ul> <p><b>Travel Insurance</b></p> <ul style="list-style-type: none"> <li>• Travel Insurance ID (Primary Key)</li> <li>• Coverage Type</li> <li>• Coverage Period</li> <li>• Insurer Information</li> </ul> <p><b>Term</b></p> <ul style="list-style-type: none"> <li>• Term ID (Primary Key)</li> <li>• Year</li> <li>• Semester</li> </ul>
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**Relationship table:**

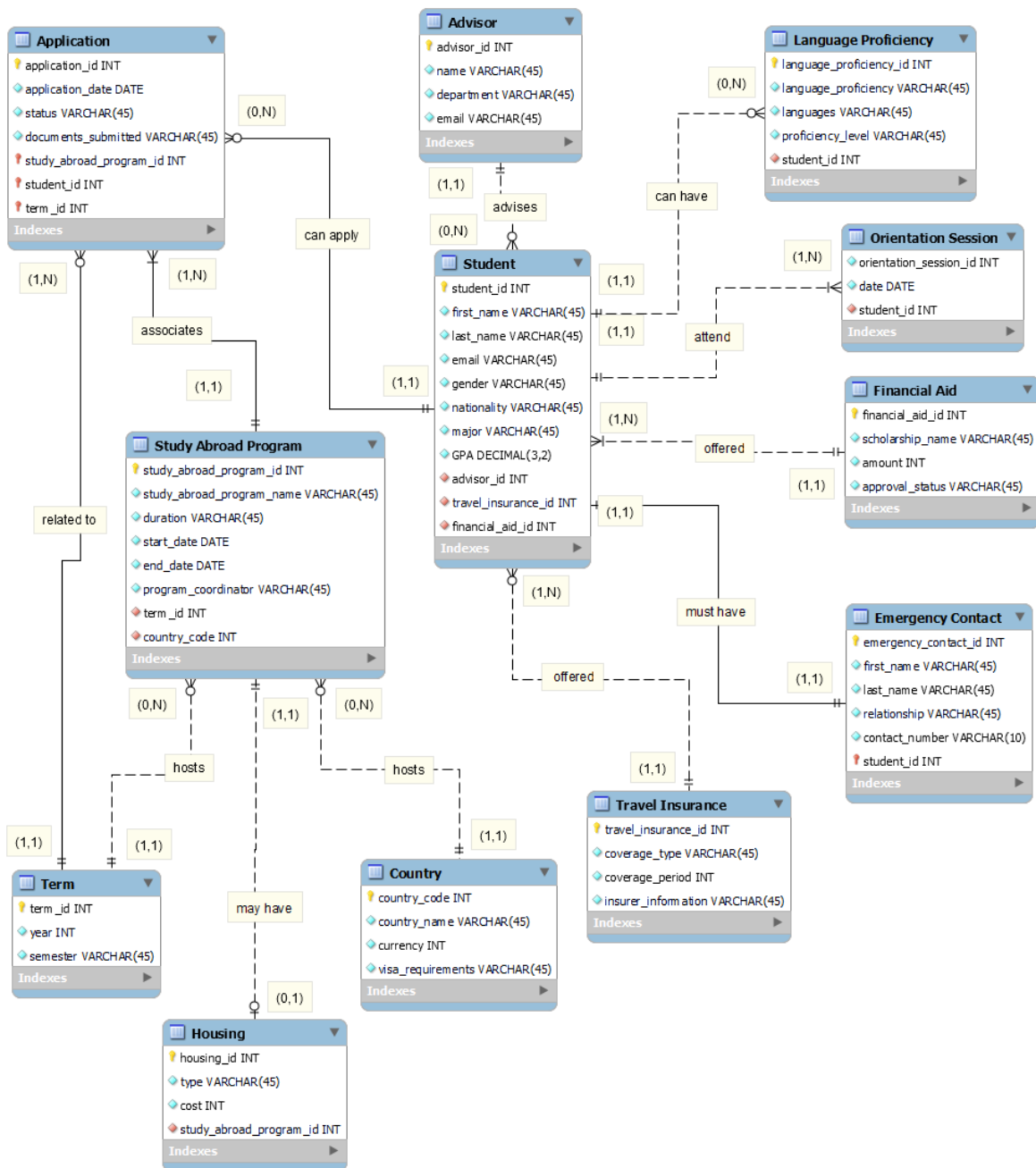
Entity	Relationship	Connectivity	Entity
Student	Can apply	M:N	Student abroad program
Student	Associated with	1:M	Application
Student abroad program	Associates	1:M	Application
Term	Hosts	1:M	Student abroad program
Application	Related to	M:1	Term
Country	Can host	1:M	Student abroad program
Advisor	Advises	1:M	Student
Financial Aid	Offered	1:M	Student
Housing	May have	1:1	Student abroad program
Travel Insurance	Offered	1:M	Student
Orientation Session	Attend	1:M	Student
Emergency Contact	Must have	1:1	Student
Language Proficiency	Can have	M:1	Student

## 4. PRELIMINARY ERD

Previous ERD:



## Updated ERD:



## 5) Database Implementation:

### Instance Charts

I) Application (application\_id, application\_date, status, documents\_submitted, study\_abroad\_program\_id, student\_id, term\_id)

Column Name	Key Type (PK/FK)	Null/Unique	Data Type	Max length	FK Reference Table
application_id	PK	NN, U	INT	10	
application_date		NN	DATE		
status		NN	VARCHAR	45	
documents_submitted		NN	VARCHAR	45	
study_abroad_program_id		NN	INT	10	studyabroadprogram
student_id		NN	INT	10	student
term_id		NN	INT	10	term

II) Study Abroad Program (study\_abroad\_program\_id, study\_abroad\_program\_name, duration, start\_date, end\_date, program\_coordinator, term\_id, country\_code)

Column Name	Key Type (PK/FK)	Null/Unique	Data Type	Max length	FK Reference Table
study_abroad_program_id	PK	NN, U	INT	10	
study_abroad_program_name		NN	VARCHAR	45	
duration		NN	VARCHAR	45	
start_date		NN	DATE		
end_date		NN	DATE		
program_coordinator		NN	VARCHAR	45	
term_id		NN	INT	10	term
country_code		NN	INT	10	country

III) Term (term\_id, year, semester)

Column Name	Key Type (PK/FK)	Null/Unique	Data Type	Max length	FK Reference Table
term_id	PK	NN, U	INT	10	
year		NN	INT	4	
semester		NN	VARCHAR	45	

IV) Student (student\_id, first\_name, last\_name, email, gender, nationality, major, gpa, advisor\_id, travel\_insurance\_id)

Column Name	Key Type (PK/FK)	Null/Unique	Data Type	Max length	FK Reference Table
student_id	PK	NN, U	INT	45	
first_name		NN	VARCHAR	45	
last_name		NN	VARCHAR	45	
email		NN	VARCHAR	45	
gender		NN	VARCHAR	45	
nationality		NN	VARCHAR	45	
major		NN	VARCHAR	45	
gpa		NN	VARCHAR	45	
advisor_id		NN	INT	10	advisor
travel_insurance_id		NN	INT	10	travelinsurance

V) Country (country\_id, country\_name, currency, visa\_requirements)

Column Name	Key Type (PK/FK)	Null/Unique	Data Type	Max length	FK Reference Table
country_id	PK	NN, U	INT	4	
country_name		NN	VARCHAR	45	
currency		NN	VARCHAR	45	
visa_requirements		NN	VARCHAR	45	

VI) Housing (housing\_id, type, cost, study\_abroad\_program\_id)

Column Name	Key Type (PK/FK)	Null/Unique	Data Type	Max length	FK Reference Table
housing_id	PK	NN, U	INT	4	
type		NN	VARCHAR	45	
cost		NN	INT	45	
study_abroad_program_id		NN	INT	10	studyabroadprogram

VII) Advisor (advisor\_id, name, department, email)

Column Name	Key Type (PK/FK)	Null/Unique	Data Type	Max length	FK Reference Table
advisor_id	PK	NN, U	INT	10	
advisor_name		NN	VARCHAR	45	
department		NN	VARCHAR	45	
email		NN	VARCHAR	45	

VIII) Travel Insurance (travel\_insurance\_id, coverage\_type, coverage\_period, insurer\_information)

Column Name	Key Type (PK/FK)	Null/Unique	Data Type	Max length	FK Reference Table
travel_insurance_id	PK	NN, U	INT	10	
coverage_type		NN	VARCHAR	45	
coverage_period		NN	INT	10	
insurer_information		NN	VARCHAR	45	

IX) Emergency Contact (emergency\_contact\_id, first\_name, last\_name, relationship, contact\_number)

Column Name	Key Type (PK/FK)	Null/Unique	Data Type	Max length	FK Reference Table
emergency_contact_id	PK	NN, U	INT	10	
first_name		NN	VARCHAR	45	
last_name		NN	VARCHAR	45	
relationship		NN	VARCHAR	45	
contact_number		NN	VARCHAR	10	
student_id		NN	INT	10	student

X) Orientation Session (Orientation\_session\_id, date, student\_id)

Column Name	Key Type (PK/FK)	Null/Unique	Data Type	Max length	FK Reference Table
Orientation_session_id	PK	NN, U	INT	10	
date		NN	DATE		
student_id		NN	INT	10	student

XI) Financial Aid (financial\_aid\_id, scholarship\_name, amount, approval\_status, student\_id)

Column Name	Key Type (PK/FK)	Null/Unique	Data Type	Max length	FK Reference Table
financial_aid_id	PK	NN, U	INT	10	
scholarship_name		NN	VARCHAR	45	
amount		NN	INT	40	
approval_status		NN	VARCHAR	45	
student_id		NN	INT	10	student

XII) Language Proficiency (language\_proficiency\_id, language\_proficiency, languages, proficiency\_level, student\_id)

Column Name	Key Type (PK/FK)	Null/Unique	Data Type	Max length	FK Reference Table
language_proficiency_id	PK	NN, U	INT	10	
language_proficiency		NN	VARCHAR	45	
languages		NN	VARCHAR	45	
proficiency_level		NN	VARCHAR	45	
student_id		NN	INT	10	student



## Create Database and Data Insert Scripts:

### **/\*Create Database\*/**

```
CREATE DATABASE IF NOT EXISTS studyabroadprogram;
```

### **/\* Create Tables \*/**

#### **/\*Advisor\*/**

```
CREATE TABLE advisor (  
    advisor_id INT PRIMARY KEY UNIQUE,  
    advisor_name VARCHAR(45) NOT NULL,  
    department VARCHAR(45) NOT NULL,  
    email VARCHAR(45) NOT NULL  
);
```

#### **/\*Country\*/**

```
CREATE TABLE country (  
    country_code INT PRIMARY KEY UNIQUE,  
    country_name VARCHAR(45) NOT NULL,  
    currency VARCHAR(45) NOT NULL,  
    visa_requirements VARCHAR(45) NOT NULL  
);
```

#### **/\*Term\*/**

```
CREATE TABLE term (  
    term_id INT PRIMARY KEY UNIQUE,
```

```
year INT NOT NULL,  
semester VARCHAR(45) NOT NULL  
);
```

### **/\*Travel Insurance\*/**

```
CREATE TABLE travel_insurance (  
    travel_insurance_id INT PRIMARY KEY UNIQUE,  
    coverage_type VARCHAR(45) NOT NULL,  
    coverage_period INT NOT NULL,  
    insurer_information VARCHAR(45) NOT NULL  
);
```

### **/\*Student\*/**

```
CREATE TABLE student (  
    student_id INT PRIMARY KEY UNIQUE,  
    first_name VARCHAR(45) NOT NULL,  
    last_name VARCHAR(45) NOT NULL,  
    email VARCHAR(45) NOT NULL,  
    gender VARCHAR(45) NOT NULL,  
    nationality VARCHAR(45) NOT NULL,  
    major VARCHAR(45) NOT NULL,  
    gpa VARCHAR(45) NOT NULL,  
    advisor_id INT NOT NULL,  
    travel_insurance_id INT NOT NULL,  
    FOREIGN KEY (advisor_id) REFERENCES advisor(advisor_id),
```

```
FOREIGN KEY (travel_insurance_id) REFERENCES  
travel_insurance(travel_insurance_id)  
);
```

#### **/\*Study abroad program\*/**

```
CREATE TABLE studyabroadprogram (  
    study_abroad_program_id INT PRIMARY KEY UNIQUE,  
    study_abroad_program_name VARCHAR(45) NOT NULL,  
    duration VARCHAR(45) NOT NULL,  
    start_date DATE NOT NULL,  
    end_date DATE NOT NULL,  
    program_coordinator VARCHAR(45) NOT NULL,  
    term_id int NOT NULL,  
    country_code INT NOT NULL,  
    FOREIGN KEY (country_code) REFERENCES country (country_code),  
    FOREIGN KEY (term_id) REFERENCES term (term_id)  
);
```

#### **/\*Application\*/**

```
CREATE TABLE application (  
    application_id INT PRIMARY KEY UNIQUE,  
    application_date DATE NOT NULL,  
    status VARCHAR(45) NOT NULL,  
    documents_submitted VARCHAR(45) NOT NULL,  
    study_abroad_program_id INT NOT NULL,
```

```
student_id INT NOT NULL,  
term_id INT NOT NULL,  
FOREIGN KEY (term_id) REFERENCES term (term_id),  
FOREIGN KEY (student_id) REFERENCES student (student_id),  
FOREIGN KEY (study_abroad_program_id) REFERENCES  
studyabroadprogram (study_abroad_program_id)  
);
```

#### **/\*Housing\*/**

```
CREATE TABLE housing (  
housing_id INT PRIMARY KEY UNIQUE,  
type VARCHAR(45) NOT NULL,  
cost INT NOT NULL,  
study_abroad_program_id int NOT NULL,  
FOREIGN KEY (study_abroad_program_id) REFERENCES  
studyabroadprogram (study_abroad_program_id)  
);
```

#### **/\*Emergency Contact\*/**

```
CREATE TABLE emergency_contact (  
emergency_contact_id INT PRIMARY KEY UNIQUE,  
first_name VARCHAR(45) NOT NULL,  
last_name VARCHAR(45) NOT NULL,  
relationship VARCHAR(45) NOT NULL,  
contact_number VARCHAR(20) NOT NULL,
```

```
    student_id INT NOT NULL,  
    FOREIGN KEY (student_id) REFERENCES student(student_id)  
);
```

#### **/\*Orientation Session\*/**

```
CREATE TABLE orientation_session (  
    Orientation_session_id INT PRIMARY KEY UNIQUE,  
    date DATE NOT NULL,  
    student_id INT NOT NULL,  
    FOREIGN KEY (student_id) REFERENCES Student(student_id)  
);
```

#### **/\*Financial Aid\*/**

```
CREATE TABLE financial_aid (  
    financial_aid_id INT PRIMARY KEY UNIQUE,  
    scholarship_name VARCHAR(45) NOT NULL,  
    amount INT NOT NULL,  
    approval_status VARCHAR(45) NOT NULL,  
    student_id INT NOT NULL,  
    FOREIGN KEY (student_id) REFERENCES Student(student_id)  
);
```

#### **/\*Language Proficiency\*/**

```
CREATE TABLE language_proficiency (  
    language_proficiency_id INT PRIMARY KEY UNIQUE,
```

```
language_proficiency VARCHAR(45) NOT NULL,  
languages VARCHAR(45) NOT NULL,  
proficiency_level VARCHAR(45) NOT NULL,  
student_id INT NOT NULL,  
FOREIGN KEY (student_id) REFERENCES Student(student_id)  
);
```

**/\*Insert data rows in tables\*/**

**/\*Advisor\*/**

```
INSERT INTO advisor (advisor_id, advisor_name, department, email)  
VALUES  
  
  (501, 'John Doe', 'Academic Advising', 'johndoe@outlook.com'),  
  (502, 'Jane Smith', 'Student Services', 'janesmith@uncg.edu'),  
  (503, 'Michael Johnson', 'International Programs',  
'michaeljohnson@outlook.com'),  
  
  (504, 'Emily Brown', 'Student Affairs', 'emilybrown@yahoo.com'),  
  (505, 'David Wilson', 'Career Services', 'davidwilson@gmail.com'),  
  (506, 'Sarah Taylor', 'Residence Life', 'sarahtaylor@gmail.com'),  
  (507, 'Olivia Martinez', 'Financial Aid', 'oliviamartinez@hotmail.com'),  
  (508, 'Daniel Garcia', 'Counseling Services', 'danielgarcia@yahoo.com'),  
  (509, 'Sophia Rodriguez', 'Health Center', 'sophiarodriguez@idk.com'),  
  (510, 'Matthew Lopez', 'Student Activities',  
'matthewlopez@latinedu.com');
```

**/\*Travel Insurance\*/**

```
INSERT INTO travel_insurance (travel_insurance_id, coverage_type,
coverage_period, insurer_information)
```

```
VALUES
```

```
(401, 'Health Insurance', 30, 'SecureGuard Insurance'),
(402, 'Travel Protection', 60, 'ShieldSure Assurance'),
(403, 'Emergency Evacuation', 90, 'GuardianProtect Insurance'),
(404, 'Trip Cancellation', 45, 'SafeHarbor Underwriters'),
(405, 'Accidental Death', 30, 'TrustShield Insurance'),
(406, 'Lost Luggage', 45, 'FortifySure Insurance'),
(407, 'Flight Delay', 60, 'CoveragePro Assurance'),
(408, 'Emergency Assistance', 30, 'SentinelSafe Underwriters'),
(409, 'Repatriation Coverage', 90, 'SureGuardian Insurance'),
(410, 'Medical Expenses', 45, 'ProtectFirst Assurance');
```

```
/*country*/
```

```
INSERT INTO country (country_code, country_name, currency,
visa_requirements)
```

```
VALUES (1001, 'United States', 'USD', 'No visa '),
(1002, 'Canada', 'CAD', 'No visa'),
(1003, 'United Kingdom', 'GBP', 'Visa required'),
(1004, 'France', 'EUR', 'Visa required'),
(1005, 'Germany', 'EUR', 'Visa required'),
(1006, 'India', 'INR', 'Visa required'),
(1007, 'Australia', 'AUD', 'Visa required'),
(1008, 'Japan', 'JPY', 'Visa required'),
```

```
(1009, 'China', 'CNY', 'Visa required'),  
(1010, 'Italy', 'EUR', 'Visa required');
```

### **/\*term\*/**

```
INSERT INTO term (term_id, year, semester)  
VALUES (111, 2024, 'Spring'),  
      (222, 2024, 'Summer'),  
      (333, 2024, 'Fall'),  
      (444, 2025, 'Spring'),  
      (555, 2025, 'Summer'),  
      (666, 2025, 'Fall'),  
      (777, 2026, 'Spring'),  
      (888, 2026, 'Summer'),  
      (999, 2026, 'Fall'),  
      (1000, 2027, 'Spring');
```

### **/\*Student\*/**

```
INSERT INTO student (student_id, first_name, last_name, email, gender,  
nationality, major, gpa, advisor_id, travel_insurance_id)  
VALUES  
(101, 'Emma', 'Johnson', 'emma.johnson@gmail.com', 'Female',  
'American', 'Biology', '3.8', 503, 401),  
  
(102, 'Michael', 'Brown', 'michael.brown@icloud.com', 'Male',  
'Canadian', 'Engineering', '3.5', 504, 402),  
  
(103, 'Sophia', 'Garcia', 'sophia.garcia@protonmail.com', 'Female',  
'British', 'Psychology', '3.9', 505, 403),
```



(104, 'Daniel', 'Martinez', 'daniel.martinez@yahoo.com', 'Male', 'French',  
'Business', '3.6', 506, 404),

(105, 'Olivia', 'Taylor', 'olivia.taylor@aol.com', 'Female', 'German',  
'Computer Science', '3.7', 507, 405),

(106, 'David', 'Wilson', 'david.wilson@zoho.com', 'Male', 'Indian',  
'Economics', '3.9', 508, 406),

(107, 'Sarah', 'Rodriguez', 'sarah.rodriguez@outlook.com', 'Female',  
'Australian', 'Sociology', '3.4', 509, 407),

(108, 'Emily', 'Lee', 'emily.lee@yahoomail.com', 'Female', 'Japanese',  
'Political Science', '3.8', 510, 408),

(109, 'Matthew', 'Lopez', 'matthew.lopez@protonmail.com', 'Male',  
'Chinese', 'English Literature', '3.6', 501, 409),

(110, 'Ava', 'Perez', 'ava.perez@zoho.com', 'Female', 'Italian', 'History',  
'3.7', 502, 410);

### **/\*Study abroad program\*/**

```
INSERT INTO studyabroadprogram (study_abroad_program_id,  
study_abroad_program_name, duration, start_date, end_date,  
program_coordinator, term_id, country_code)
```

VALUES

(111, 'Summer in USA', '6 weeks', '2024-06-01', '2024-07-15', 'Jane Doe',  
111, 1001), -- United States

(112, 'Spring in Canada', '4 months', '2024-02-15', '2024-06-15', 'John  
Smith', 222, 1002), -- Canada

(113, 'Fall in UK', '1 semester', '2024-09-01', '2024-12-15', 'Emily Johnson',  
333, 1003), -- United Kingdom

(114, 'Winter in France', '2 months', '2024-12-01', '2025-01-31', 'Michael  
Brown', 444, 1004), -- France

(115, 'Year-long in Germany', '1 year', '2024-03-01', '2025-03-01', 'Sarah Wilson', 555, 1005), -- Germany

(116, 'Spring Break in India', '2 weeks', '2024-03-15', '2024-03-31', 'David Lee', 666, 1006), -- India

(117, 'Summer in Australia', '8 weeks', '2024-07-01', '2024-08-31', 'Olivia Taylor', 777, 1007), -- Australia

(118, 'Fall in Japan', '1 semester', '2024-09-01', '2024-12-15', 'Daniel Martinez', 888, 1008), -- Japan

(119, 'Winter in China', '3 months', '2024-12-01', '2025-02-28', 'Sophia Garcia', 999, 1009), -- China

(120, 'Summer in Italy', '6 weeks', '2024-06-01', '2024-07-15', 'Matthew Rodriguez', 1000, 1010); -- Italy

### **/\*Application\*/**

INSERT INTO application (application\_id, application\_date, status, documents\_submitted, study\_abroad\_program\_id, student\_id, term\_id)

VALUES

(1001, '2024-01-15', 'Pending', 'Transcripts', 111, 101, 111),

(1002, '2024-02-10', 'Approved', 'Passport Copy', 112, 102, 222),

(1003, '2024-03-05', 'Pending', 'Recommendation Letters', 113, 103, 333),

(1004, '2024-04-20', 'Approved', 'Financial Statement', 114, 104, 444),

(1005, '2024-05-25', 'Pending', 'Health Clearance', 115, 105, 555),

(1006, '2024-06-30', 'Approved', 'Insurance Documents', 116, 106, 666),

(1007, '2024-07-15', 'Pending', 'Visa Application', 117, 107, 777),

(1008, '2024-08-20', 'Approved', 'Acceptance Letter', 118, 108, 888),

(1009, '2024-09-10', 'Pending', 'Essay', 119, 109, 999),

```
(1010, '2024-10-05', 'Approved', 'Language Proficiency Certificate', 120, 110, 1000);
```

### **/\*Housing\*/**

```
INSERT INTO housing (housing_id, type, cost, study_abroad_program_id)
VALUES
```

```
(1111, 'Apartment', 800, 111),
(2222, 'Dormitory', 600, 112),
(3333, 'Shared House', 700, 113),
(4444, 'Homestay', 900, 114),
(5555, 'Apartment', 850, 115),
(6666, 'Dormitory', 600, 116),
(7777, 'Shared House', 750, 117),
(8888, 'Homestay', 950, 118),
(9999, 'Apartment', 820, 119),
(10000, 'Dormitory', 650, 120);
```

### **/\*Language Proficiency\*/**

```
INSERT INTO language_proficiency (language_proficiency_id,
language_proficiency, languages, proficiency_level, student_id)
VALUES
```

```
(11, 'Advanced', 'English', 'Advanced', 101),
(22, 'Intermediate', 'Spanish', 'Intermediate', 102),
(33, 'Basic', 'French', 'Basic', 103),
(44, 'Fluent', 'German', 'Fluent', 104),
(55, 'Advanced', 'Chinese', 'Advanced', 105),
```

(66, 'Intermediate', 'Japanese', 'Intermediate', 106),  
(77, 'Basic', 'Italian', 'Basic', 107),  
(88, 'Fluent', 'Portuguese', 'Fluent', 108),  
(99, 'Advanced', 'Russian', 'Advanced', 109),  
(100, 'Intermediate', 'Arabic', 'Intermediate', 110);

### **/\*Emergency Contact\*/**

INSERT INTO emergency\_contact (emergency\_contact\_id, first\_name,  
last\_name, relationship, contact\_number, student\_id)

VALUES

(201, 'John', 'Diaz', 'Parent', '123-456-7890', 101),  
(202, 'Jane', 'Smith', 'Sibling', '987-654-3210', 102),  
(203, 'Michael', 'Johnson', 'Friend', '456-789-0123', 103),  
(204, 'Emily', 'Brown', 'Guardian', '789-012-3456', 104),  
(205, 'David', 'Wilson', 'Parent', '234-567-8901', 105),  
(206, 'Sarah', 'Taylor', 'Sibling', '890-123-4567', 106),  
(207, 'Olivia', 'Martinez', 'Friend', '567-890-1234', 107),  
(208, 'Daniel', 'Garcia', 'Guardian', '901-234-5678', 108),  
(209, 'Sophia', 'Rodriguez', 'Parent', '345-678-9012', 109),  
(210, 'Matthew', 'Lopez', 'Sibling', '012-345-6789', 110);

### **/\*Financial Aid\*/**

INSERT INTO financial\_aid (financial\_aid\_id, scholarship\_name, amount,  
approval\_status, student\_id)

VALUES

(301, 'Merit Scholarship', 5000, 'Approved', 101),

(302, 'Need-Based Grant', 3000, 'Approved', 102),  
(303, 'Athletic Scholarship', 6000, 'Pending', 103),  
(304, 'Research Fellowship', 7000, 'Approved', 104),  
(305, 'Study Abroad Stipend', 4000, 'Pending', 105),  
(306, 'Service Award', 3500, 'Approved', 106),  
(307, 'Leadership Grant', 4500, 'Pending', 107),  
(308, 'Community Scholarship', 5500, 'Approved', 108),  
(309, 'Artistic Achievement Award', 6500, 'Pending', 109),  
(310, 'Travel Fund', 2500, 'Approved', 110);

**/\*Orientation Session\*/**

INSERT INTO orientation\_session (Orientation\_session\_id, date,  
student\_id)

VALUES

(601, '2024-05-01', 101),  
(602, '2024-05-05', 102),  
(603, '2024-05-10', 103),  
(604, '2024-05-15', 104),  
(605, '2024-05-20', 105),  
(606, '2024-05-25', 106),  
(607, '2024-05-30', 107),  
(608, '2024-06-01', 108),  
(609, '2024-06-05', 109),  
(610, '2024-06-10', 110);

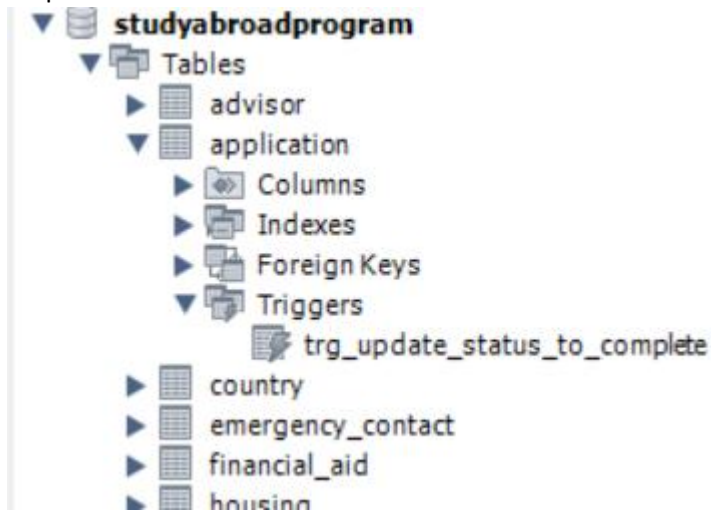
## SQL Queries to Modify the Table Structure:

**/\*1 Altering Student Table to add a column for Last Login Date; this column will store the date of the last time a student logged into the system.\*/**

```
ALTER TABLE student
```

```
ADD COLUMN last_login DATE;
```

Output:



**/\*2 Altering Student Table to add a constraint to check gender; this constraint ensures that the values entered into the 'gender' column\*/**

```
ALTER TABLE student
```

```
ADD CONSTRAINT chk_gender CHECK (gender IN ('Male', 'Female', 'Other'));
```

**/\*3 Creating additional column as required documents in the application table\*/**

```
ALTER TABLE application
```

```
ADD COLUMN required_documents VARCHAR(45) NOT NULL DEFAULT '0';
```

Output:

Table Name:  Schema: **studyabroadprogram**

Charset/Collation:   Engine:

Comments:

Column Name	Datatype	PK	NN	UQ	B	UN	ZF	AI	G	Default/Expression
application_id	INT	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
application_date	DATE	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
status	VARCHAR(45)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
documents_submitted	VARCHAR(45)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
study_abroad_program_id	INT	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
student_id	INT	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
term_id	INT	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
required_documents	VARCHAR(45)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	'0'

**studyabroadprogram**

- Tables
  - advisor
  - application
    - Columns
      - application\_id
      - application\_date
      - status
      - documents\_submitted
      - study\_abroad\_program\_id
      - student\_id
      - term\_id
      - required\_documents
    - Indexes

## SQL Statements for Retrieving Information

1. When a student's application has the required number of documents submitted, the application status should automatically update to 'Complete'.

DELIMITER //

CREATE TRIGGER trg\_update\_status\_to\_complete

AFTER UPDATE ON application

FOR EACH ROW

BEGIN

IF NEW.documents\_submitted >= NEW.required\_documents AND NEW.status != 'Complete' THEN

UPDATE application

```

SET status = 'Complete'

WHERE application_id = NEW.application_id;

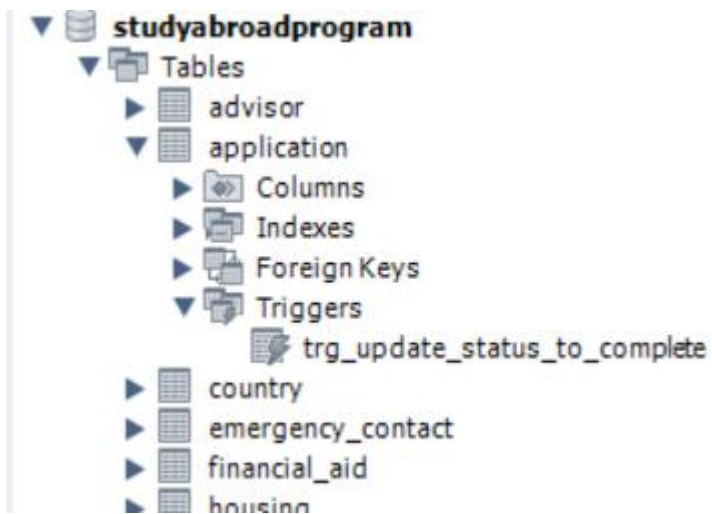
END IF;

END //

DELIMITER ;

```

Output:



2. For each country, list the number of study abroad programs available, the average cost of housing, the start date, end date associated with these programs and then create a view of this.

```

CREATE VIEW CountryStudyProgramInfo AS

SELECT

    c.country_name,

    COUNT(sap.study_abroad_program_id) AS num_programs,

    COALESCE(AVG(h.cost), 0) AS avg_housing_cost,

    MIN(sap.start_date) AS earliest_start_date,

```



```

MAX(sap.end_date) AS latest_end_date

FROM

country c

JOIN

studyabroadprogram sap ON c.country_code = sap.country_code

LEFT JOIN

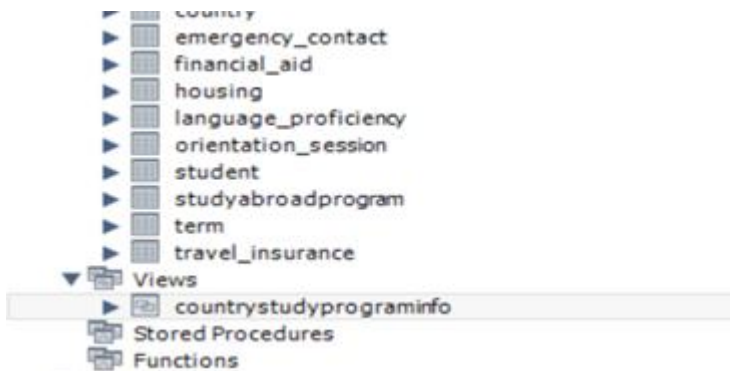
housing h ON sap.study_abroad_program_id = h.study_abroad_program_id

GROUP BY

c.country_name;

```

country_name	num_programs	avg_housing_cost	earliest_start_date	latest_end_date
United States	1	800	2024-06-01	2024-07-15
Canada	1	600	2024-02-15	2024-06-15
United Kingdom	1	700	2024-09-01	2024-12-15
France	1	900	2024-12-01	2025-01-31
Germany	1	850	2024-03-01	2025-03-01
India	1	600	2024-03-15	2024-03-31
Australia	1	750	2024-07-01	2024-08-31
Japan	1	950	2024-09-01	2024-12-15
China	1	820	2024-12-01	2025-02-28
Italy	1	650	2024-06-01	2024-07-15



**3. List all students with their respective study abroad program details, advisor, and insurance coverage information.**

```
SELECT
    s.student_id,
    CONCAT(s.first_name, ' ', s.last_name) AS student_name,
    s.email,
    s.major,
    sap.study_abroad_program_name,
    sap.start_date,
    sap.end_date,
    a.advisor_name,
    a.department,
    ti.coverage_type,
    ti.coverage_period
FROM
    student s
JOIN
    advisor a ON s.advisor_id = a.advisor_id
JOIN
    travel_insurance ti ON s.travel_insurance_id = ti.travel_insurance_id
JOIN
    application app ON s.student_id = app.student_id
JOIN
    studyabroadprogram sap ON app.study_abroad_program_id = sap.study_abroad_program_id
WHERE
    app.status = 'Approved';
```

student_id	student_name	email	major	study_abroad	start_date	end_date	advisor_name	department	coverage_type	coverage_period
102	Michael Brown	michael.bro	Engineering	Spring in Can	2024-02-15	2024-06-15	Emily Brown	Student Affairs	Travel Protection	60
104	Daniel Martinez	daniel.mart	Business	Winter in Fra	2024-12-01	2025-01-31	Sarah Taylor	Residence Life	Trip Cancellation	45
106	David Wilson	david.wilso	Economics	Spring Break	2024-03-15	2024-03-31	Daniel Garcia	Counseling Services	Lost Luggage	45
108	Emily Lee	emily.lee@	Political Science	Fall in Japan	2024-09-01	2024-12-15	Matthew Lopez	Student Activities	Emergency Assistance	30
110	Ava Perez	ava.perez@	History	Summer in I	2024-06-01	2024-07-15	Jane Smith	Student Services	Medical Expenses	45

student_id	student_name	email	major	study_abroad_program_name	start_date	end_date	advisor_name	department	coverage_type	c
102	Michael Brown	michael.brown@icloud.com	Engineering	Spring in Canada	2024-02-15	2024-06-15	Emily Brown	Student Affairs	Travel Protection	60
104	Daniel Martinez	daniel.martinez@yahoo.com	Business	Winter in France	2024-12-01	2025-01-31	Sarah Taylor	Residence Life	Trip Cancellation	45
106	David Wilson	david.wilson@zoho.com	Economics	Spring Break in India	2024-03-15	2024-03-31	Daniel Garcia	Counseling Services	Lost Luggage	45
108	Emily Lee	emily.lee@yahoo.com	Political Science	Fall in Japan	2024-09-01	2024-12-15	Matthew Lopez	Student Activities	Emergency Assistance	30
110	Ava Perez	ava.perez@zoho.com	History	Summer in Italy	2024-06-01	2024-07-15	Jane Smith	Student Services	Medical Expenses	45

**4. Find the most popular destination of the Study Abroad Program for each major based on the number of students enrolled in study abroad programs.**

```

SELECT
    s.major,
    c.country_name,
    COUNT(*) AS number_of_students
FROM
    student s
JOIN
    application app ON s.student_id = app.student_id
JOIN
    studyabroadprogram sap ON app.study_abroad_program_id = sap.study_abroad_program_id
JOIN
    country c ON sap.country_code = c.country_code
WHERE
    app.status = 'Approved'
GROUP BY
    s.major, c.country_name
ORDER BY
    s.major, number_of_students DESC;

```

major	country_name	number_of_students
Business	France	1
Economics	India	1
Engineering	Canada	1
History	Italy	1
Political Science	Japan	1

major	country_name	number_of_students
Business	France	1
Economics	India	1
Engineering	Canada	1
History	Italy	1
Political Science	Japan	1