STUDY ABROAD PROGRAMS DATABASE

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Problem Context

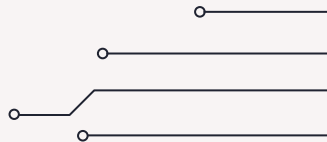Creating an accessible, combined database with information on study abroad programs offered by universities

Looking at different study abroad programs can time and effort because of different formatted websites and sources available (e.g., university websites, study abroad agencies, forums).

Solution Overview

Creating a Unified Mediated Schema

- One place for all study abroad programs

- Allow all university students to access information (requirements, deadlines)

- Spark students' interest in these programs and encourage enrollment and creation of similar programs

- Foster collaboration and cultural exchange opportunities between universities

  - Enhance students' global learning experiences.

Methodology

Webscaping

Public databases stored in tables allowing for web scraping via

- Beautiful Soup
- Pandas

Data Cleaning

- Removing leading commas, colons and spaces
- Turning a comma separated list of cities into individual instances for each city to query by
- Adding a column for the university identification

Schema Creation

Certain study abroad programs visit multiple cities and countries stored in lists. In the original databases, there were misalignments

- Ie. City:New York, Paris, Tokyo Country: Japan, USA, France

New York, Japan?

—> creative schema

Data Integration - SQL

Mediated Schema

Definition: The mediated schema integrates data from PSU and OSU study abroad programs into a single table for unified querying and analysis.

Schema Attributes:

- **Program Name**: Name of the program (e.g., "Study in London").
- **City**: City where the program is hosted (e.g., "London" or "multiple cities").
- **Country**: Country offering the program (e.g., "United Kingdom").
- **Region**: Region where the program is located (e.g., "Europe").
- **College**: The source of the program (PSU or OSU).

Index	Program.Name	City	Country	Region	College
1	Amsterdam, Netherlands: Dutch Criminal and Social Justice (Summer)	multiple cities	Netherlands	Europe	The Pennsylvania State University
2	Arusha, Tanzania: Biology of Eco-Health (Summer)	multiple cities	Tanzania	Africa	The Pennsylvania State University
3	Athens, Greece: History, Culture, and Archaeology of Greece	multiple cities	Greece	Europe	The Pennsylvania State University
4	Barcelona, Spain: Landscape Architecture, Dept LARCH (Summer)	multiple cities	Spain	Europe	The Pennsylvania State University
5	Besancon, France: Intensive French Language and Cultural Immersion (Summer)	Besançon	France	Europe	The Pennsylvania State University
6	Brno, Czech Republic: Business in Central Europe (Summer)	multiple cities	Austria	Europe	The Pennsylvania State University
7	Brno, Czech Republic: Business in Central Europe (Summer)	multiple cities	Czech Republic	Europe	The Pennsylvania State University
8	Brno, Czech Republic: Business in Central Europe (Summer)	multiple cities	Hungary	Europe	The Pennsylvania State University
9	Brno, Czech Republic: Business in Central Europe (Summer)	multiple cities	Poland	Europe	The Pennsylvania State University
10	Cadiz, Spain: Spanish Language and Culture (Summer)	multiple cities	Spain	Europe	The Pennsylvania State University

Examples

```sql
SELECT * FROM study_abroad_psu_osu WHERE city = 'London';
```

Index	Program.Name	City	Country	Region	College
186	IES: London, Queen Mary University	London	United Kingdom	Europe	The Pennsylvania State University
187	IES: London, Study London	London	United Kingdom	Europe	The Pennsylvania State University
188	IES: London, University College London	London	United Kingdom	Europe	The Pennsylvania State University
227	London: FSU, Theatre Academy London	London	United Kingdom	Europe	The Pennsylvania State University
307	London, United Kingdom: Adulthood and Families ...	London	United Kingdom	Europe	The Ohio State University
310	London, United Kingdom: Theatre Studies Program ...	London	United Kingdom	Europe	The Ohio State University

Query: Retrieve All Study Abroad Programs in London

```sql
SELECT * FROM study_abroad_psu_osu WHERE region = 'Asia';
```

Index	Program.Name	City	Country	Region	College
246	SFS: Cambodia	Siem Reap	Cambodia	Asia	The Pennsylvania State University
255	Singapore: National University of Singapore...	Singapore	Singapore	Asia	The Pennsylvania State University
266	University of Minnesota LAC: Thailand, Studies in ...	Chiang Mai	Thailand	Asia	The Pennsylvania State University
303	Korea/Japan: Summer Study Abroad for Design Majors ...	multiple cities	Japan	Asia	The Ohio State University
304	Korea/Japan: Summer Study Abroad for Design Majors ...	multiple cities	South Korea	Asia	The Ohio State University
322	Seoul, Korea: Sociology and Culture in Korea (Maymester)	multiple cities	South Korea	Asia	The Ohio State University

Query: Retrieve All Study Abroad Programs in Asia

```sql
SELECT * FROM study_abroad_psu_osu WHERE country = 'Japan';
```

Index	Program.Name	City	Country	Region	College
212	IES: Tokyo, Language and Culture	Tokyo	Japan	Asia	The Pennsylvania State University
233	Mito: Ibaraki University...	Mito	Japan	Asia	The Pennsylvania State University
303	Korea/Japan: Summer Study Abroad for Design Majors ...	multiple cities	Japan	Asia	The Ohio State University
371	CIEE: Open Campus	multiple cities	Japan	multiple regions	The Ohio State University
393	CRCC Asia: Tokyo Internship (Summer)	Tokyo	Japan	Asia	The Ohio State University
401	Dept ENGR & EMS: Sendai, Tohoku University...	Sendai	Japan	Asia	The Ohio State University

Query: Retrieve All Study Abroad Programs in Japan

```sql
SELECT region, COUNT(*) as program_count
FROM study_abroad_psu_osu
GROUP BY region;
```

Region	program_count
Africa	30
Asia	64
Europe	300
Latin America	34
Middle East	14
North America	2

Query: Count Programs by Region

```sql
SELECT College, country, COUNT(*) as program_count
FROM study_abroad_psu_osu
GROUP BY College, country;
```

College	Country	program_count
The Ohio State University	Turks and Caicos Islands	1
The Ohio State University	United Kingdom	30
The Ohio State University	Various	1
The Ohio State University	Virtual	2
The Pennsylvania State University	Argentina	7
The Pennsylvania State University	Australia	11

Query: Count Programs by College and Country

FUTURE WORK

Adding Sources

Adding additional University programs to the database

UI

Adding a nice interface (website) for easy and enjoyable use

Variable Addition

Finding further ways to query the data by academic majors, GPA requirements, etc.

References

1. https://ea.psu.edu/index.cfm?FuseAction=programs.ListAll

    (Penn State Global- Program List)

2. https://globaleducation.osu.edu/index.cfm?FuseAction=Programs.ListAll

    (OSU Global Education- Program List)