Introduction

Background

India is known for its cultured society along with its goal-oriented and ambitious citizens. One of the biggest trends in the education sector right now is to pursue a Master's degree in a foreign country. The very first batch of brave students who took up the challenge of studying abroad, stand as an inspiration to other. Their success soon becomes a legendary story that is often repeated which in turn aspires others to replicate it as their own tale.

There are several reasons why students prefer studying abroad. A few of those reasons are: exposure, creating new networks, living independently, experiencing new cultures and so on. According to one of the leading newspapers in India, between Oct 2012 and Feb 2013, 5,600 student visas were issued in India for students. There has also been a 50% growth in the total number of visas offered since the previous year. These facts state clearly that the trend is moving in an uphill direction.

Foreign institutions offer numerous courses under one field of study with various kinds of specializations and practical experience than the ones in India. They have unique teaching methods and a syllabus that is structured based on the student's needs and preferences. Concepts such as a double degree is new and exciting to Indian students and the absence of the constant pressure to be on the top stimulates their learning experience.

Problem

Though the students benefit from pursuing their education abroad, India stands to lose its large number of student population, that is not replaced by the incoming foreign students. It causes a problem since most students who are successful in another country tend to settle down and start a new life there, which does not benefit India.

Interest

Knowing why students are unable to find the right course and university in India could help the Government to make the necessary changes and update the education system. This could in turn help build the country with the assistance of well-learned students.

Data Acquisition and Cleaning

Data Sources

The data for this project was sourced from various sites hosted by the Government of India (https://www.mea.gov.in/lok-sabha.htm?dtl/29313/QUESTION+NO2755+INDIAN+STUDENTS+ABROAD) as well as other Non-Governmental Organizations (https://www.iie.org/Research-and-Insights/Project-Atlas/Explore-Data/India/Outbound-Mobility---Past-Years). The data retrieved from the first site consists of the number of foreign students studying in India between the years 2014 – 2017. The data sourced from the next website contains the various countries Indian students have migrated to, which is also ranked in ascending order. This will help build a reliable database with which data analysis can be performed.

Foursquare API was used for further data analysis towards the end. The data extracted from this was used to analyse one of the possible reasons for students' preference to study abroad.

Data Cleaning and Formatting

The first step was to import all the necessary libraries used for the data analysis. This was followed by converting the acquired data which was in tables into data frames. The tables were organized and inserted with the correct indices. The data frames were put through the basic formatting and cleaning processes to bring it to the expected format. Data visualization is an important part of the analysis so all the values were converted to the necessary datatype in order to plot them.

Below are the final data frames:

	Year	Number of Students
1	2014	65602
2	2015	74061
3	2016	72542
4	2017	69322

Fig. 1

Destination	Rank	Number of Students
United States	1	97613
Australia	2	25562
United Kingdom	3	19604
Canada	4	13626
New Zealand	5	10255

Fig. 2

Fig. 1 shows the number of foreign students studying in India between the years 2014 – 2017
Fig. 2 shows the countries where Indian students chose to pursue their education in, along with the number of students.

The FourSquare data collected was the details regarding the universities in New York, USA (one of the four states with the most number of universities) and Rajasthan, India (state with most universities in India). These data were extracted and converted into a data frame. This was followed by formatting and cleaning the data.

The final data frames are as below:

	name	categories	address	city	country	distance	formattedAddress	lat	lng	state	id
0	Pace University	University	1 Pace Plz	New York	United States	224	[1 Pace Plz (btwn Nassau & Gold St), New York,...	40.710720	-74.005743	NY	49e7c7c6f964a5201b651fe3
1	New York University	University	25 W 4th St	New York	United States	2162	[25 W 4th St, New York, NY 10012, United States]	40.729518	-73.993122	NY	5058de7be4b007870dd7ad7a
2	Columbia University	University	116th St & Broadway	New York	United States	11137	[116th St & Broadway, New York, NY 10027, Unit...	40.807282	-73.962849	NY	4227a500f964a520c51f1fe3
3	Pace University - William St	University	163 William St	New York	United States	298	[163 William St (at Ann St), New York, NY 1003...	40.710052	-74.006267	NY	4cd03c7ca03a9eb0b458b103
4	Pace University Gym	College Gym	1 Pace Plz	New York	United States	143	[1 Pace Plz (btwn Nassau & Gold St), New York,...	40.711573	-74.005255	NY	4cc0aa4522ce4688e6c63847

Fig. 3

	name	categories	address	city	country	distance	formattedAddress	lat	lng	state	id
0	university Staff Colony, Jodhpur	None	NaN	NaN	India	94576	[India]	26.267945	73.037710	NaN	50268a84e4b0a90de240b15f
1	SPUP - Sardar Patel University of Police, Secu...	University	NaN	NaN	India	83891	[India]	26.397253	73.063681	NaN	55a0e3d7498e818b3cb719eb
2	university Staff Colony, Jodhpur	None	NaN	NaN	India	95675	[India]	26.261844	73.029049	NaN	50268b0ce4b08ea913aca0ed
3	National Law University	Law School	NLU	Jodhpur	India	86116	[NLU (Nau meel road), Jodhpur, Rājasthān, India]	26.361829	73.063791	Rājasthān	4e09fbd52271dfa46bc0244f
4	M D S University	University	NaN	Ajmer	India	97704	[Ajmer, Rājasthān, India]	26.499952	74.686970	Rājasthān	4e38e72014959f8577a3df50

Fig. 4

Fig. 3 shows the details of the universities in New York
Fig. 4 shows the details of the universities in Rajasthan