



US Visa Application Analysis!

An analysis concentrating on VISA applications in the US

**BY- Jasmine Batra
Navya Jammalamadaka
Suchitra Kollu**

PROBLEM STATEMENT AND DATASET OVERVIEW

- To analyze the US visa applications from across the globe and present a study about the insights retrieved. An unimaginable amount of people apply for US visas every year.
- It is important to understand VISA Distributions with respect to Geography, Time and Category to draw insights on what factors influenced VISA decisions.

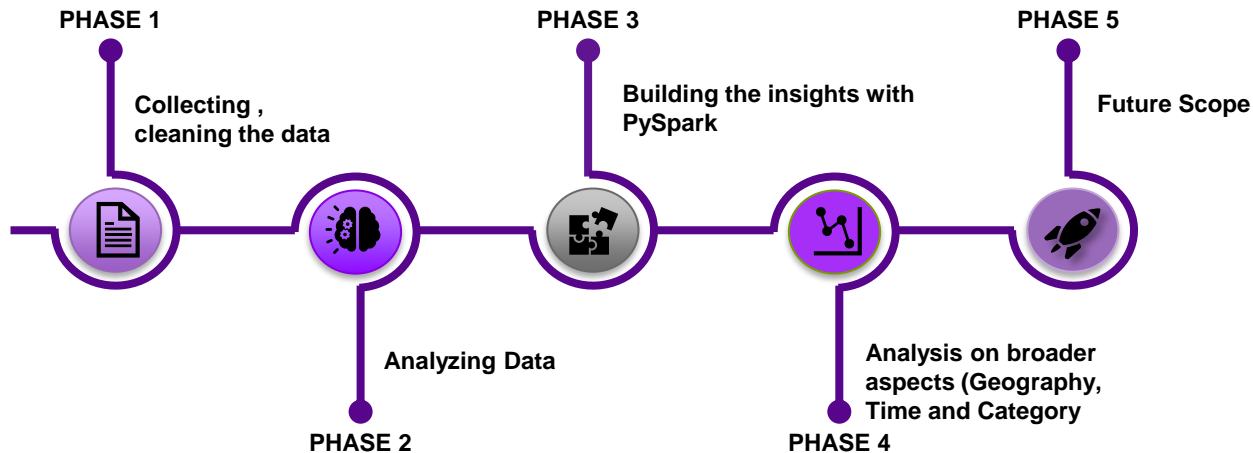
2012-2017

**Data from US Department
of Labor**

374,363

Total number of records

AGENDA AND MOTIVATION



Motivation:

An unimaginable amount of people apply for US Visa every year. The amount of data gathered and information available to process is immense, where in the processed data can have several use cases.

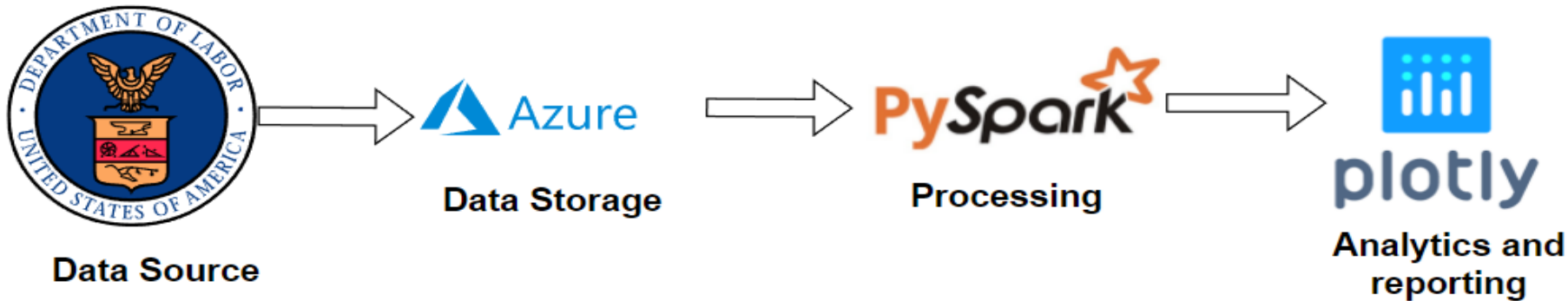
- Decision Support for Applicants.
- Legacy Data for US Immigration Services.
- Action Items for Origin Countries.

WHY IS THIS A BIGDATA PROBLEM?

- Volume: Every year large amount of people apply for US visas from across the globe.
- Value: Several stakeholders can benefit from drawing insights from this data.
- Velocity: Every day there are huge number of applicants, hence generating large data rows at real time.
- Veracity: The data is acquired from US department of labor and hence can be trusted for truthfulness and accuracy.
- Variety: Data deals with different data types and considering the computational time required for visualizing and acquiring useful information, we require big data technologies to draw any insights from it.

APPROACH AND ARCHITECTURE

- Clean the data in the dataset, analyze it and provide a descriptive summary.
- Draw visual insights from data geographically and timely.
- Summarize the overall trend in visa applications through the years 2012-2017.
- Group the data by visa types and draw independent insights, to understand specific visa type related information.
- Draw conclusions from the information acquired and perform required action items.



ANALYSIS BASED ON GEOGRAPHY

- Country

- **India, China and South Korea** are the **top three** countries that are applying for the US VISA's during the years **2012-2017**.
- The VISA application numbers are like-

~189k

India

~27k

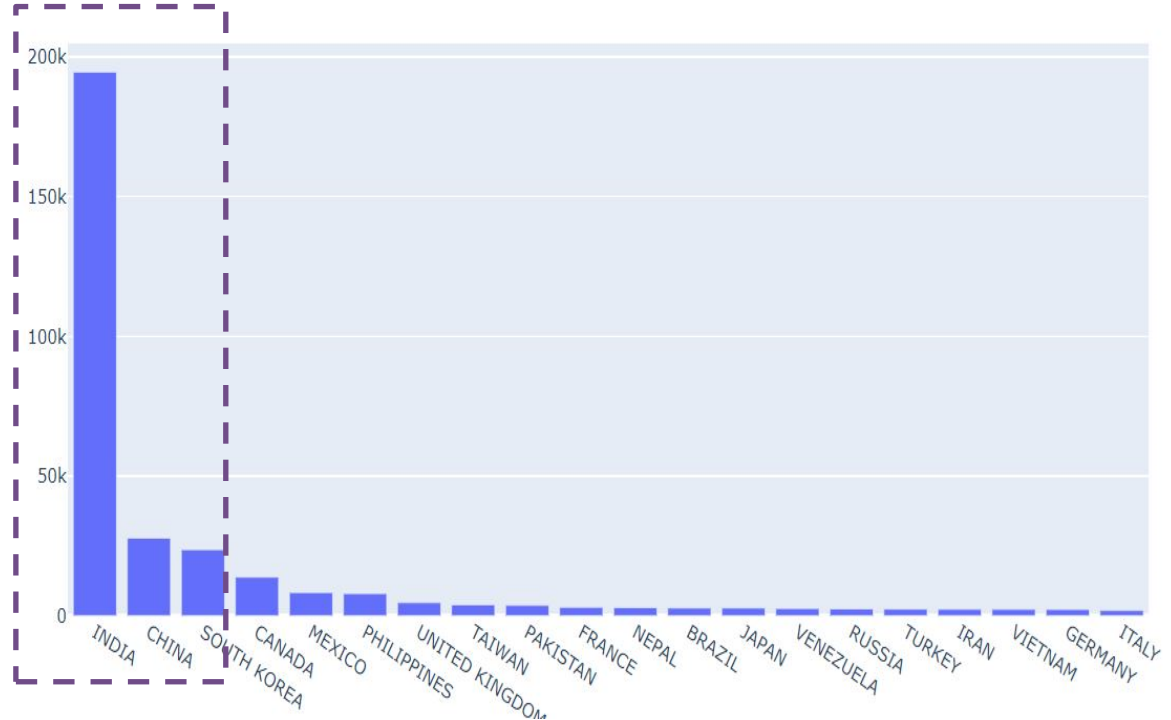
China

~24k

South Korea



Country vs Count

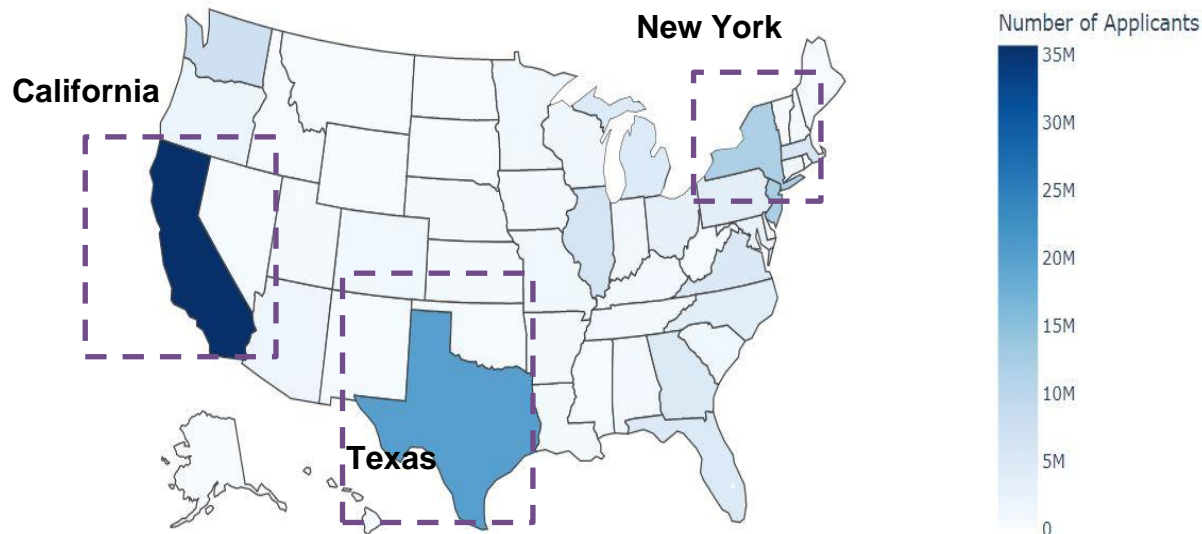


ANALYSIS BASED ON GEOGRAPHY

- State

California, **Texas** and **New York** are the most attracted states for the visa applicants.

US Visa Applications By State



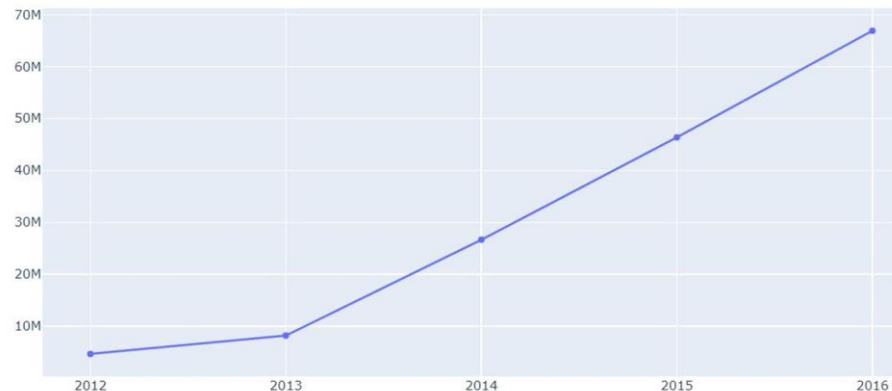
Reasons could be-

- Graduates coming out of Californian universities have gone on to found some of the most well-known tech companies.
- At least 50 countries are represented at NYU, with most international students coming from China, India and South Korea.
- A quarter of all international students enrolled in universities in Texas come from India.

ANALYSIS BASED ON TIME

- Year and Month

Year vs Count



Month vs Count

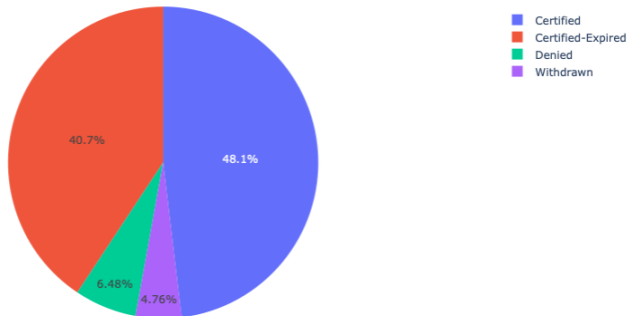


- The number of visa applicants continued to increase across the years.
- **January, March and November** months experienced highest number of VISA applications.

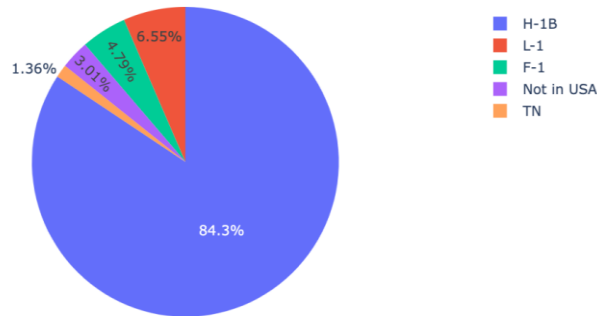
ANALYSIS BASED ON CATEGORY

- Year and Month

Case Status



class of Admission

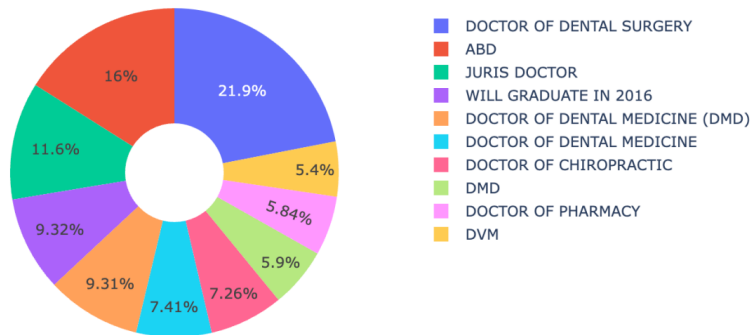


- **41.8%** of the applicants belong to the US Department of Labor **certified** category and **40.7%** of the VISA holders belong to the **Certified- expired**.
- **84.3%** of most visa requests are of the H-1B variety. This indicates that there are a lot of employment options in the US. 2. The **F-1 visa**, which receives about ~5% of applicants, is another lucrative area. This explains the lax regulations governing educational institutions in the US. .

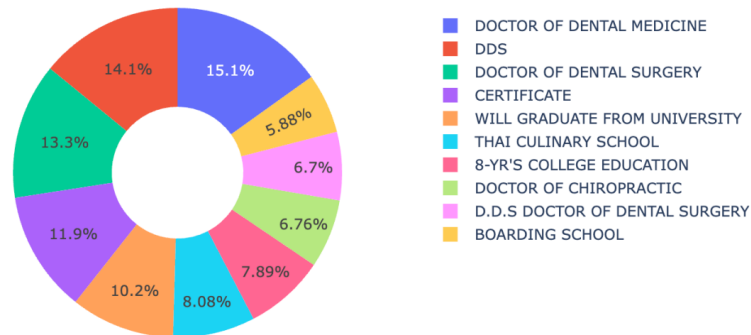
ANALYSIS BASED ON CATEGORY

- Student VISA's & Education

F-1 certified w.r.t Education Background



F-1 Denied w.r.t Education Background

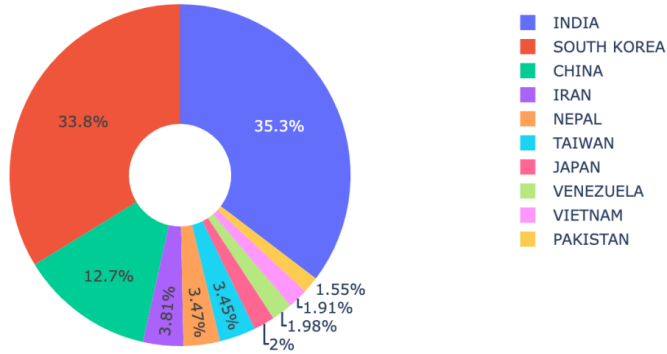


- From a broad perspective, it appears that most candidates have a history in **medicine**. This is due to strong demand among applicants brought on by the US health sector's expanding developments.
- Similarly, **F1 visa category** has the greatest rejection rates for educational backgrounds in the **medical** field as there are so many applications from students in the medical field.

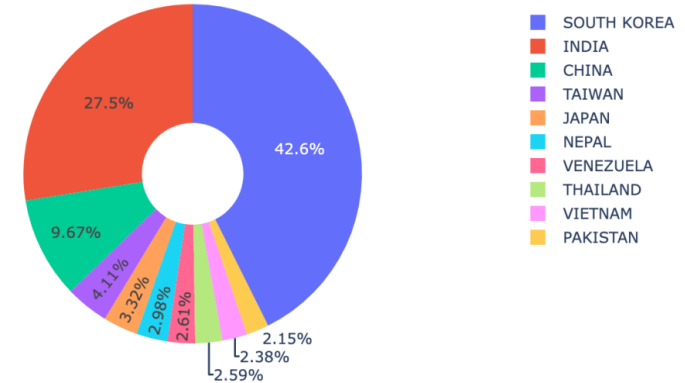
ANALYSIS BASED ON CATEGORY

- Student VISA's and Country

F-1 certified w.r.t Country



F-1 Denied w.r.t Country



- **India** leads in the acceptance of F-1 visas. It is followed by **South Korea** and **China**. The high volume of applications from India, where a sizable number of students are looking for educational opportunities in the US, can be attributed to this.
- We can see that contradictory to acceptance, **South Korea** leads the rejection rate followed by **India** and **China**.

TAKEAWAYS FOR FUTURE

The following recommendations can be implemented in order to contribute towards more VISA Analysis.

First Recommendation

Study COVID-19 data to analyze the impact of the global pandemic on US Immigration statistics.

Second Recommendation

Implementation of a Machine Learning model to classify Visa decisions based on given input attributes.