

PREDICTION OF H1-B VISA APPLICATION USING CLASSIFICATION

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Abstract- H-1B Visa is the most sought-after non-immigrant visa that allows foreign workers to work in United States in specialty occupation. In 2019, more than 1 million applicants applied to get an H-1B visa including new applications, renewals and transfer of H-1B to another company. There were more than 180,000 new applicants for H-1B, however, only 80,000 applications were picked up in the lottery process for taking it further to USCIS for approval. The uncertainty in getting an H-1B visa creates employment and legal status uncertainties for a job application and high legal and visa processing fees for the organization over the period of employment. We plan to use the anonymized dataset for 2019 that United States Department of Labor publishes publicly and apply data science techniques to improve predictability of approval in this project.

Keywords – H-1B visa, preprocessing; classification; machine learning

I. INTRODUCTION

The US H1-B visa is a non-migrant visa that permits US organizations to utilize graduate level laborers in forte occupations that require hypothetical or specialized aptitude in particular fields like IT, finance, bookkeeping, design, designing, arithmetic, science, medication, and so on. This is one of the exceptionally utilized visa classifications, and organizations that typically require unfamiliar ability depend on it by and large. The development of IT, Research and Development and different areas influencing US economy has constrained US set up firms to recruit unfamiliar ability and henceforth the pace of H1-B visa request documenting has increment generously.

Visa is the aide of approval on an authorization to travel that gives a license to the holder to move in, leave or stay in the country for a foreordained time period. There are unmistakable sorts of outsider visas, the required designs, and the means in the laborer visa measure dependent upon the country one necessities to move. Moving to America is an essential and complex choice. The U.S of America has various classes for pioneer visas like H-1B, L1, and J1, etc. To be able to apply for a specialist visa, an external local should be upheld by a USA subject family member, U.S. authentic ceaseless occupant, or an arranged business, two or three uncommon cases. The assistance starts the development methodology by recording an interest to for the far off occupant's motivation with U.S. Residency and Colonization Facilities (USCIS). Among the better piece of this H-1B are incredibly remarkable beginning late due to makes no of petitions and wrong framework for getting assent. H-1B is a visa portrayal in America under development and ethnicity act (INA). Enables U.S chiefs to yield outside specialists with high degrees and

able to do "recognizing strength occupations". H-1B is a business based non-transient visa gathering for brief far off experts in the US. For an external public to apply for H1B visa, a US business should offer an occupation and solicitation to for H-1B visa with the US development office. This is the most generally perceived visa status associated with and held by widespread understudies once they finish school/high level training (Masters, Ph.D.) and work in a full-time position. The Office of Foreign Labor Certification (OFLC), makes program data that is useful information about the development programs including the H1-B visa.

II. LITERATURE SURVEY

It's difficult to exaggerate the importance — and intricacy — of the H-1B visa framework in the U.S. It is the country's biggest visitor specialist visa program, and a significant channel for high-gifted movement. It permits organizations to employ unfamiliar laborers for particular positions that can be trying to fill. It has profited the tech business immensely, and different areas, including medical services, science, and money, have likewise utilized it to fill holes in their work forces. But in April, soon after U.S. Resident and Immigration Services (USCIS) led its yearly lottery for choosing H-1B visas (it got 199,000 petitions for the accessible 85,000 visas), President Trump marked a chief request that will put H-1B and comparative projects under new examination. Named "Purchase American and Hire American," it guides government organizations to audit whether existing arrangements enough focus on American items and ensure American workers. The request is the most recent advancement in a long-running discussion over how organizations utilize the H-1B program and what it means for American specialists. A significant part of the question encompasses whether organizations exploit the program to employ unfamiliar specialists for lower pay, dislodging Americans from those positions. Yet, comprehend the fundamental components of this discussion: one level lays on the hefty utilization of H-1B visas by rethinking firms; another lays on the conflict about whether the program builds organizations' admittance to scant abilities, or simply assists them with limiting expenses.

H-1B visas are conceded through a business driven framework, which means bosses request the public authority for visas attached to explicit jobs. These should qualify as "strength occupations," which normally require a four year certification (or the same) and are found in fields like science, designing, data innovation, medication, and business. Organizations need to authenticate that they won't pay a H-1B specialist short of what they would an American, and that H-1B laborers won't "antagonistically influence the functioning conditions" of different specialists — however it's normal said that this scarcely capacities generally speaking and isn't stringently (if by any means) authorized. There is likewise analysis that it opens up different provisos that organizations can misuse.

III. PROPOSED SOLUTION

We plan to fabricate other characterization models like calculated relapse, Naïve Bayes, Decision Trees and others and furthermore tweak the boundaries of the model. These models would be prepared on an informational collection which will be designed cautiously subsequent to playing out the element designing.

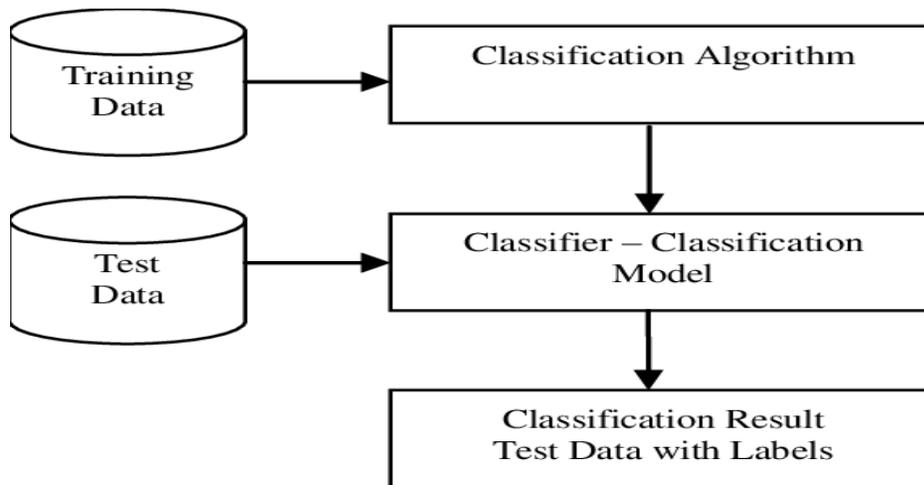


Figure 1. Block Diagram of the Proposed System

IV. RESULT ANALYSIS

The fundamental motivation behind the proposed framework is to give a framework to the understudies for self-surveying purposes and furthermore to decrease the human exertion on making the inquiries for the understudies from the huge sources of info. This gives a way to the understudies to realize how is he getting along in his individual program with no assistance. The greater part of the occasions, understudies use e-learnings and take evaluations where they don't actually know the fundamental arrangement or the information in that subject. However, with the proposed framework, the entertainer doesn't need any support or dread to know and institute. All things being equal, the entertainer can act and the framework will assist him with getting ready for what he is pointing and with the last yield, the understudies can undoubtedly pass judgment and know where they truly remain in that subject.

- The requirement is to come up with novel features based on the functional understanding of the dataset. It is important to keep in mind to avoid correlated features during this process. Each feature should only improve the information contained in the dataset.
- visualize the dataset without cleaning the data and understand the distribution of the dataset.

- Find the attributes that needs to be handled based on the data visualization task.

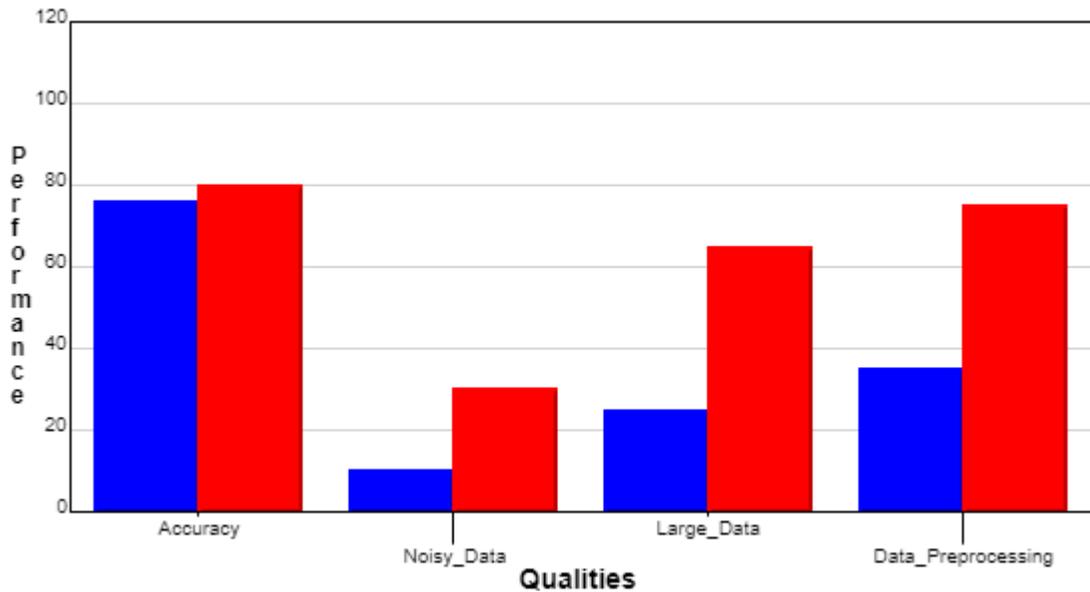


Figure 2 : Graph Showing the differences between existing system proposed system

V. IMPLEMENTATION

Random Forests are a troupe model of AI with their foundations in Decision Trees. These choice trees exclusively may over fit the informational collection and in this manner they meet up to frame a lot more grounded model. Various choice trees are first constructed and in light of these by performing arbitrary inspecting of the qualities, a gathering of choice trees are amassed to shape a Random Forest. The way toward framing Random Forests includes a cycle of bootstrap conglomerating or sacking the information. The interaction of Random Forests is as per the following:

$$\hat{f} = \frac{1}{B} \sum_{b=1}^B f_b(x')$$

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[ ] from sklearn.ensemble import RandomForestClassifier
    RFclassifier = RandomForestClassifier(n_estimators = 20, criterion = 'entropy', random_state = 6)
    RFclassifier.fit(X_train, y_train)
    cls_pred1=RFclassifier.predict(X_test)

    from sklearn.metrics import accuracy_score
    acc2=accuracy_score(y_test,cls_pred1)
    print(acc2)
```

0.8087535680304472

Figure 3: Output

VI. CONCLUSION

Over the past decade, the demand for H-1B Visas has increased a lot and it keeps getting more every year, so the Scope of this project is to build a system that will give a hope to each individual who are struggling for H-1B visas in America. On that basis we are using the best classification technique and predicting the status of application with good accuracy rate.

Supplemental data concerning the Standard Occupational Classification (SOC) can be gathered and used in coordination with this data set to obtain a more comprehensive analysis of how the H-1B Visa selection process works. By using the wage evaluations and ranges under SOC, the wage attribute in this data set can be correctly put in to a range of salaries which can then be used to classify the visa petitions based on occupation roles rather than location wise. In addition, other classification algorithms other than the discriminative models can be experimented with this tested and their performances can also be analyzed.

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