ECE 225A - Project Proposal

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Title: H1-B Visa Acceptance Rate Analysis and Prediction Using Machine Learning

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Professor: Dr. Orlitsky

Abstract:

According to an article, "*Why International Students Are Good For Colleges, Universities and America,"* from Forbes by Marvin Krislov, non-immigrant visa restrictions and rules had made job-searching more difficult for international students, who studied and graduated from their United States institution [1]. To make the college education spending worthwhile, most of the international graduates not only wanted to receive a world-class education and experience the diversity in the United States colleges and universities but also eager to receive certain fields of job opportunities that might not be available in their home country and to gain valuable long-term work experience in the United States (U.S.). Nevertheless, a temporary non-immigrant working visa, H1-B, is required for international graduates to work legally in the U.S. for a long term, and the annual H1-B visa limit is only 85,000 [2].

The purpose of the "*H1-B Visa Acceptance Rate Analysis and Prediction Using Machine Learning"* project is to predict the probability for an international graduate to receive an H1-B visa based on the degree completed by that graduate, major, annual salary level, state of residency, job title, the university where the student graduated, country of birth, nationality, and company where the H1-B applicant works. Data that will be used in this project is the "H1-B_FY2018.xlsx" and "PERM_Disclosure_Data_FY2018_Q4_EOY.xlsx" data from the Kaggle website [3]. Statistical methods will be applied to perform pre-analysis on the data, and several machine learning techniques will be implemented to determine the correlation between the result and features of each case. Eventually, the project would be able to help international students to better plan which professions to select to maximize their probability of getting an H1-B visa sponsorship based on their field of study and interests.

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Project Timeline:

Period	Tasks
Week 1 (11/4 - 11/7)	● Decided the data exploration topic ● Skimmed through the data from Kaggle ● Wrote a proposal ● Distributed workload
Week 2 (11/8 - 11/14)	● Study, filter, and classify the data ● Conduct several analyses of the data ● Create a Jupyter Notebook to load the data
Week 3 (11/25 - 11/21)	● Perform pre-analysis of the data ● Outputs the results, charts, and graphs. ● Discuss with the professor and teaching assistants to check whether we are on the right track.
Week 4 (11/22 - 11/28)	● Implement machine learning techniques to find the correlations between the result and features of each case. ● Discuss with the professor and teaching assistants to check whether we are on the right track.
Week 5 (11/29 - 12/5)	● Proofread the project and do necessary changes.
Week 6 (12/6 - 12/12)	● Proofread the project and do necessary changes. ● Submit the final project

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Citations:

[1] Krislov, M., 2021. *Why International Students Are Good For Colleges, Universities And America*. [online] Forbes. Available at: <https://www.forbes.com/sites/marvinkrislov/2019/03/22/why-international-students-are-good-for-colleges-universities-and-america/?sh=3544f842f496> [Accessed 3 November 2021].

[2] Anderson, S., 2021. *2021 Might Be A Decisive Year For H-1B Visas*. [online] Forbes. Available at: <https://www.forbes.com/sites/stuartanderson/2021/06/02/2021-might-be-a-decisive-year-for-h-1b-visas/?sh=5ad3d29418df> [Accessed 3 November 2021].

[3] Kaggle. 2018. *Green Card & H1B (2014-2018)*. [online] Available at: <https://www.kaggle.com/jonamjar/green-card-h1b-20142018> [Accessed 3 November 2021].