



Overview

Each year, over 12,000 Lawful Permanent Residents (LPRs, or Green Card holders) apply for citizenship in the United States and are declined because they fail the naturalization exam. While these individuals can reapply, the initial test and each additional attempt cost \$680 apiece. Thus, passing the first time is a high priority for low-income LPRs in the United States.

In a Pew Research Hispanic Trends Project survey in 2013, 45% of the LPRs surveyed reported either personal reasons or administrative barriers when asked why they were not currently pursuing naturalization. The most common personal reasons included needing to learn English (65%) and finding the naturalization test too difficult (23%). The most common administrative barrier was the cost of the naturalization application at an overwhelming 94% - strong impetus for passing on the first attempt.

Current and Prospective Solutions

The United States government provides a vast amount of data relating to the content of the naturalization exam. For instance, all 100 of the possible civics questions are available to review on a government website, 10 of which will be asked during the exam. Furthermore, likely vocabulary words are provided for all three stages of the English portion of the exam -- reading, writing, and oral. For the civics portion of the exam, while the government provides all of the possible questions, current naturalization test preparation options present the materials in ineffective ways. For instance, though this portion of the exam is given verbally, current test prep options present questions in writing. Furthermore, users learn how to recognize the written answers from a list of multiple choices, while they will need to recall the answers from memory and verbalize them during the actual exam. While trying to be helpful, these tools do not adequately prepare LPRs for the actual civics portion of the naturalization exam. For the English proficiency portion of the exam, the US Citizenship and Immigration Services website does offer interactive practice tests that succeed at mirroring the format of the actual test. While these practice tests help individuals prepare for the naturalization exam effectively, they are not personalizable, evolving, or engaging.

CitizenMe would strive to help LPRs in the United States prepare effectively for their naturalization exams. By encouraging users to practice in ways that mirror the actual exam, they will be more comfortable and prepared during the exam, leading to higher passing rates. Furthermore, CitizenMe will allow users to customize their test preparation experience by allowing them to keep a calendar with important test dates and deadlines, modular question frequencies so that the questions a user struggles with can appear more often, and an informal incentive program.

Architectural Details

Following the model-view-controller pattern, a website front-end and mobile web app implemented with standard web programming languages like HTML, CSS, Javascript, and associated toolkits like MochaUI will serve as the view, an interface for users to take practice tests and monitor their progress. Server-side processes written in Java with associated libraries like JOpenID will be the controller that regulates information retrieval from the database by the web UI. The server will validate the user and determine practice test contents based on their previous performance. The database, queried by any of the available SQL implementations like MySQL, will act as the model that stores user login information and scores from previously-taken practice tests. The distribution of individual scores within the test material topics will be used by the server to produce weighted probabilities for inclusion of certain questions within the practice tests, allowing improvement in areas of greatest need.

Risks and Challenges

While CitizenMe will be a valuable addition to the test preparation of all LPRs, it comes with a unique set of challenges and risks. A significant risk is the implementation of voice-recognition for the civics and oral English parts of the naturalization exam. While current tools and packages exist to help developers handle voice-recognition, these tools often require the user to speak slowly and clearly, which can be extremely difficult for a vast majority of the LPRs in the United States. While these limitations will encourage users to practice their English skills, especially with regard to the answers to the civic portion of the exam, they may prove to be too restrictive and cause users to get frustrated. To reduce this frustration, we could offer multiple tries -- if our program does not recognize their initial response, it could prompt the user to try again, perhaps slower. If our program is still unable to recognize what the user is trying to say, we could prompt them to speak the word or phrase in their natural language, translate it, and read it back to them in English while also verifying the correctness of their response. This would encourage users by offering gentle correction and positive reinforcement of the correct answers.