Travel Companion App

Software Engineering Final Project Proposal

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Travel Companion Github Hyperlink

Abstract—Our team seeks to create a travel companion app that visually displays information about a country's safety using data from the US government.

1 Introduction

1.1 What is our project?

Our project is to make a travel planning app. It will show the travel restrictions placed on every country worldwide by the US government as well as historically why these restrictions are in place.

1.2 Motivations

We decided to make this app because we noticed that the US Department of State website with this information was a bit boring and hard to navigate. As visual learners, we would love to find a way to make the information more visually appealing and interactive.

1.3 Market Context

As an app that simply displays publicly available information, there is no money to be made or a market for an app like this. The only source of income possible is through in-app advertisements.

1.4 Team Background

Our team consists of three computer science undergraduate students at the University of Tennessee, Knoxville seeking to make their first real software development. As students, our team has limited first-hand experience in the software engineering industry.

2 Customer Value

2.1 Customer Need

The primary target audience is people who are interested in traveling internationally as a US citizen. More specifically, we aim to focus on those who are new to traveling abroad and want to research a wide variety of countries based on their safety rating. The customer wants to be able to quickly and easily learn which countries are safer to travel to as well as why this is the case.

2.2 Proposed Solution

Instead of the boring gray scale database on the US Department of State website, we will create a visually appealing map to represent the information with an interactive interface for additional details on each country. By visually displaying the information, customers will be able to assess and compare a countries safety risk more quickly and conveniently.

2.3 Measures of Success

We will know if we are successful based on the reviews left on our app on the app store after downloading. We will feel as if our app succeeded if people who download the app feel as if they are more educated about the relative risk of traveling abroad to one country versus another.

3 Technology

3.1 Backend

For the backend of our project, we plan on using Rust to scrape data from the US Department of State website to keep an up to date log of the restriction levels of each country. Using Rust, this process will be very fast and memory safe. Once the country restriction level data are obtained, we will convert the information into a JSON format so that it can be transferred across languages and platforms.

3.2 Frontend

For the frontend of our project, we plan on using Apple's Swift to receive the JSON information from the backend and assign it to each respective country. The countries will be displayed as an interactive map utilizing Swift's button feature so that each country is clickable.

4 Our Team

Our group has divided responsibilities to ensure efficient progress and collaboration, focusing on three primary components: User Interface (UI), backend development including web scraping, and the logic for connecting Rust to Swift. Each member is assigned based on their strengths and expertise, fostering a balanced workload and allowing us to leverage individual skills effectively.

- User Interface (UI): *All team members* This team will design and develop the frontend, ensuring a user-friendly interface for seamless selecting of countries with accurate information. They will focus on layout, aesthetics, and interaction design to provide an intuitive experience for users.
- Web Scraping and Backend Development: *Justin and Colton* will be responsible for building the backend infrastructure, including web scraping to collect country safety rating information. They will ensure the data is processed, cleaned, and stored efficiently.
- Linking Rust with Swift using JSON objects: *Justin and John* This team will focus on developing the ability for the data gathered in Rust to be transferred to Swift. This will involve setting up a program in Rust that encodes the country data into a cross-language transferrable JSON object.

5 Project Management

5.1 Project Timeline

- Feb. 3 - Feb. 9: Finalize project proposal and overall ideas.
- Feb. 10 - Feb. 16: Set up a shared Github and discuss ideas on more specific app features and components.
- Feb. 17 - Mar. 9: Extract country travel restriction information from the US Department of State website.
- Mar. 10 - Apr. 6: Connect data pulled in Rust to Swift using JSON objects. Prepare a vector image in swift to represent the world map.
- Apr. 7 - Apr. 27: Create a visually appealing and interactive user interface.
- Apr. 28 - May 4th: Prepare and finalize the product and presentation, including analysis of project outcomes, insights, and future developments.

5.2 Constraints

- Legal Constraints: Potential copyright
- Ethical Concerns: None

5.3 Resources

The data we will use in this project is publicly available on the US Department of State's website, so this project will have full accessibility to all the data needed.

5.4 De-scoping

If full functionality is not achievable as we approach the end of our project timeline, our team will change to ensure that the product is functional rather than visually appealing.