Travel Tool

Specifications Document

CSC 490

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Instructor Comments/Evaluation

Table of Contents

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Abstract

The primary purpose of the Travel Tool is to simplify the process of planning modern kinds of lodging and travel via plane within the United States. The Travel Tool collects information from the user such as current location, destination, trip duration, and their preferred budget. The Travel Tool will then give a recommended budget to provide potential combinations of transportation and lodging that would meet their budget preferences. It can often be overwhelming for someone to plan a trip and maintain a budget [1], therefore our Travel Tool project plans to alleviate any stress that may be caused by the traditional travel planning process. There are similar tools that currently use various sites to help establish a budget, however, they don't have user-friendly interfaces [2]. This document will outline the requirements necessary to create the software for the Travel Tool. Every detail of the project will be explained in this document such as specifications, workflow, team details, and product background.

Description of The Document

Purpose and Use

This document is being created to define the specific requirements needed to properly produce our project. This document intends to provide sufficient information on how the final product will perform with accurate descriptions on components we will be using. Acceptance of the terms and conditions displayed in this document will serve as a binding contract for both the client and the project team.

Intended Audience

This document intends to provide users with a descriptive understanding of the intent of our Travel Tool project as well as providing information on individual components and features. Readers are encouraged to seek clarification on any misunderstanding, confusion, or concerns within the document. Specific features, deliverables, and costs associated with the project software will be described within the document. The project development team will refer to this document to enforce priorities and general direction.

System Description

Overview

The software described in this document will provide a variety of options for traveling conditions. After entering their information (location, destination, duration, and preferred budget) they will be given combinations of travel and lodging to select from. The user can also remove certain parts of the combination and replace them with other provided options to explore different options and budgets. Travel tool will be a helpful companion when planning to visit destinations within the United States that can be reached via plan. The interface will be easy to understand and highly descriptive making the user feel confident in their decisions regarding where to go and by what means.

Environment and Constraints

End User Profile

The end users for this project are people planning travel ranging from business trips to family vacations. There is an exception however for local day trips. This means that users who are traveling somewhere in close proximity and not staying anywhere overnight would find little use in this project. This project is also only available in English and would therefore provide no use to someone who cannot use that language. Beyond the prerequisite of understanding English and the specific case of local day trips, the end users for this project include anyone traveling anywhere in the United States.

User Interaction

User interaction will take place on the web application where the user will provide information requested on the interface. The user will input their current location, their desired

destination, duration of their trip, and their preferred budget. Once this information is provided by the user the application provides the combination of recommended travel means and accommodations for lodging. It will also give a recommended budget, based on their location and planned time of stay, which may vary from the user's preferred budget. The user can either choose the recommendation given by the program, or they can create their own combination from other provided results for the fields of lodging and means of travel.

Hardware Constraints

Given that the Travel Tool will be based on a web application, there are no significant hardware constraints. The end-user will only need to have access to any device that can access the Internet and interact with the web application. The types of devices the end-user can use include but are not limited to desktop computers, laptops, and smartphones with the only additional requirement being access to the internet from their chosen device.

Software Constraints

Since the Travel Tool is web based. The primary requirement is a supported version of the Windows operating system or mobile operating system. The only other software requirement is an internet browser so that the web application can be accessed.

Time Constraints

As this project is being built for a multi-semester class, the time constraints are primarily based around the length of the class. The group plans to consistently progress throughout the length of the semester. This work will culminate into a presentable product by the end of the second semester. Once there is a better understanding of certain aspects of this project the group can set milestones to reach at specific points throughout the length of each semester.

Cost Constraints

For the user, a computer or mobile device will be required to use our project, the device used must have a supported version of Windows, IOS, or Android. A stable internet connection is required at all times while using Travel Tool which can be quite costly depending on the user's data plan or internet service plan. Users being unable to afford a vacation or means of travel would be another means of a cost constraint.

For the development team, the main costs would potentially come from registering a domain name as well as hosting a server for the web application to run on if no alternatives can be found to do it for free.

Our Travel Tool will be free to use by anyone with no subscription or membership costs. If the user has an internet connection and a supported device, they can use our tool.

Acceptance Test Criteria

Testers

The project team will be responsible for all testing through development. We plan on testing immediately after each implementation to avoid issues further down the line. Each member can test on different platforms, on different devices, web browsers, mobile devices, etc. to find most compatibility issues. Ideally, having a fully running program in which features can be added one at a time and tested before advancing to another feature will ensure deliverables even if all features could not be implemented into the final product.

Criteria

- The web application can be accessed on supported devices
- The software can access other websites for required data

- The User can select destinations, means of travel, accommodations for lodging, preferred budget
- The User can be provided an estimated cost for the trip

Integration of Separate Parts and Installation

The integration of the software primarily will be between the front and back end of the web application. The front end of the software will be the interface on the web application, where the user can select what they would want as means of travel and accommodations as mentioned previously. Then the interface would need to communicate the user's specifications to the back end so the prices can be looked up and estimates for travel and lodging can be given. The user will not need to install the software as it will be on a web application.

System Modeling

Functional: Use Cases & Scenarios

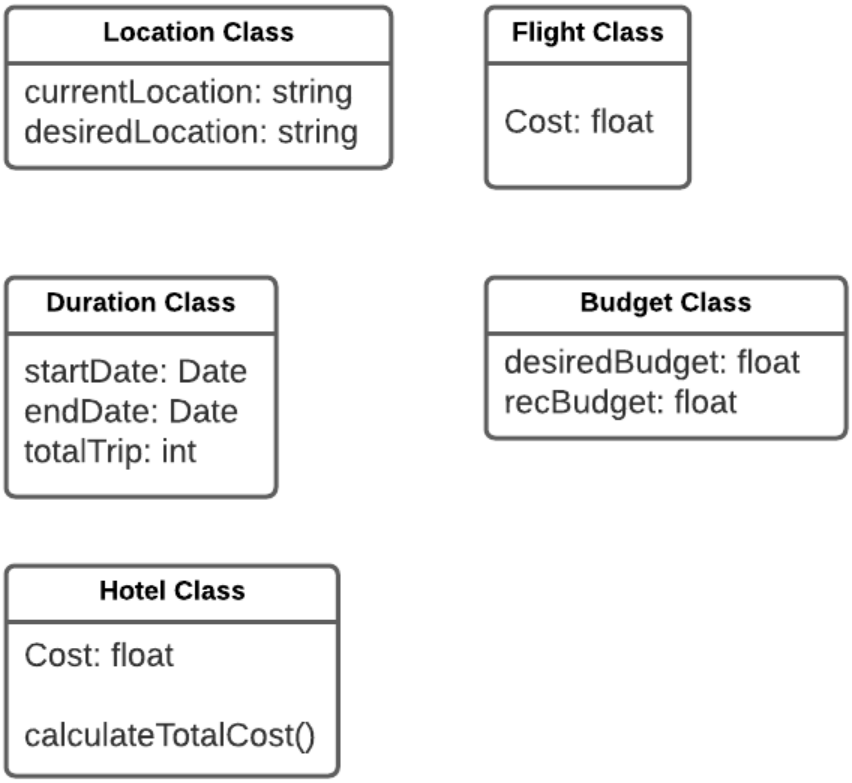
Standard Scenario

1. The user opens the web application on a supported device
2. The user chooses a starting point, destination, trip duration, and preferred budget
3. The user is presented with potential combinations of recommended travel means and accommodations for lodging
4. The user can choose one of the recommended combinations
5. The user can edit the combinations to make their own

Exception Scenario (Nothing within budget)

1. The user opens the web application
2. The user selects a starting point, destination, trip duration, and preferred budget
3. The user us presented with an error message stating there are no accommodations within the desired budget.
4. The user can adjust their budget to be given proper results

Entity: Class Diagrams



Budget Class

The budget class will hold the user set budget.

Location Class

This class will hold both locations the user sets. Those would be the current location and the desired destination.

Duration Class

This class will hold the dates that dictate the duration of the trip. The start date and end date are both set by the user. The dates will be of type Date imported from an open source library.

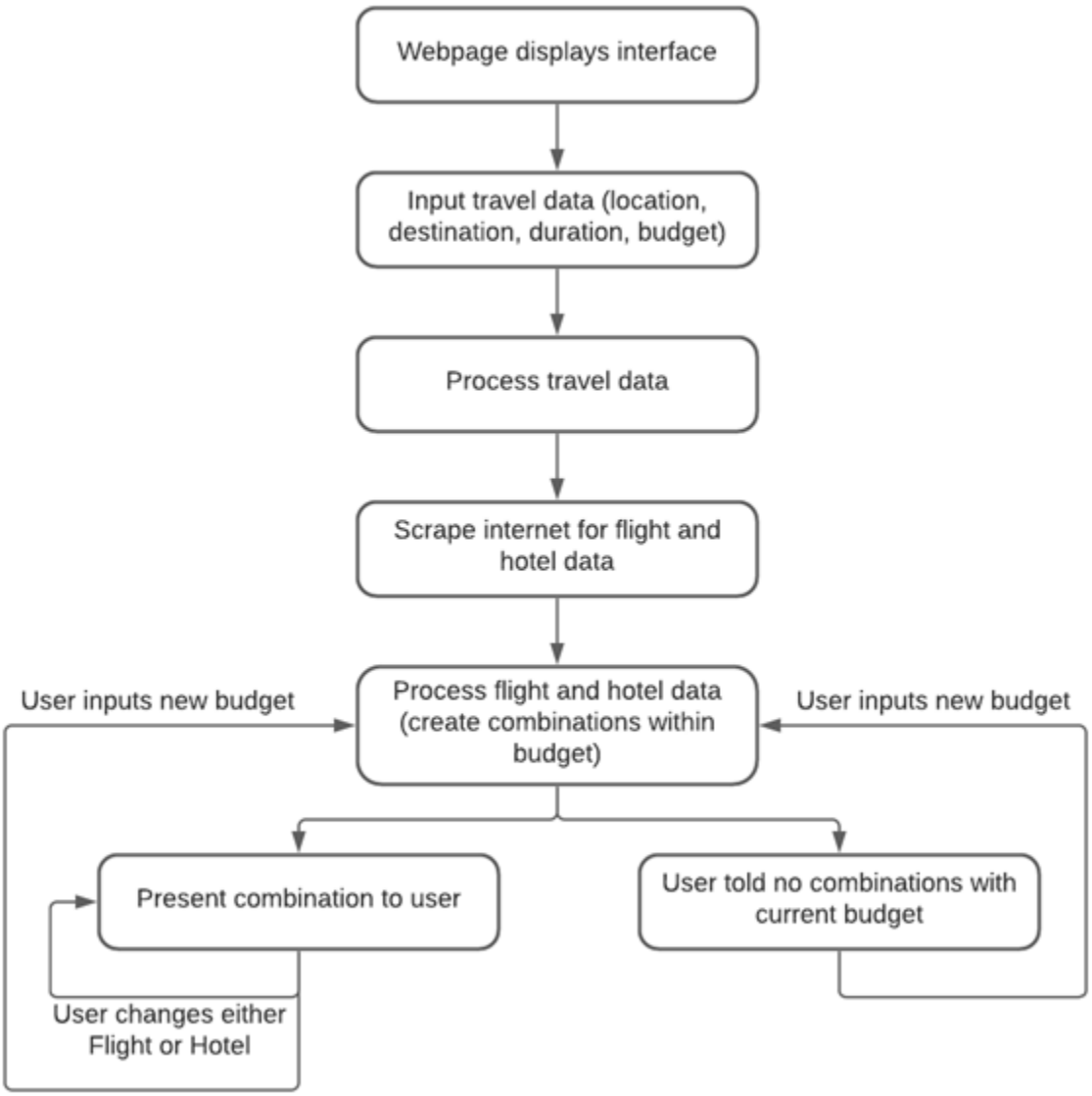
Flight Class

This class will hold flight information that is retrieved from scraping various flight booking websites. The class will inherit from the Date Class because departure dates are necessary knowledge to provide when presenting round trip flights. This class will also inherit the Location Class as the locations are vital to the flight information. There will also be a cost that is held in this class to represent the cost of the flight.

Hotel Class

Similar to the Flight Class, this class will inherit both the Location and Date classes. This is because that information is important to finding proper hotel rooms for the trip. This class will also hold a total cost of the hotel. A function will take the cost per night and calculate the total cost for the length of the trip and store that.

Dynamic: State chart



States:

- Web application displays interface: Prior to the user inputs, the web application displays an interface requesting data regarding the user's current location, their desired destination, duration of trip, and their budget.

- Input travel data (location, destination, duration, budget): The user enters their data into the respective input boxes. The data is then sent to the backend to be processed.
- Process travel data: The data the user input is used to set up the scraping process i.e. looking for round trip flights for their desired duration.
- Scrape internet for travel and accommodation data: The application will scrape various websites to find prices for travel and places to stay.
- Process travel data (create combinations within budget): The application will select a means of travel and a place to stay that, when prices are combined, is under the set budget.
- Present combination to user: The generated combination is presented to the user. The user has the option to change the means of travel or the place to stay to another that was found when the data was scraped. This will reset the current state. The user can also change the budget. That will send the user back to the previous state.
- User told no combinations with current budget: The user will be prompted to input a new budget. This will send the user back to the previous processing state.

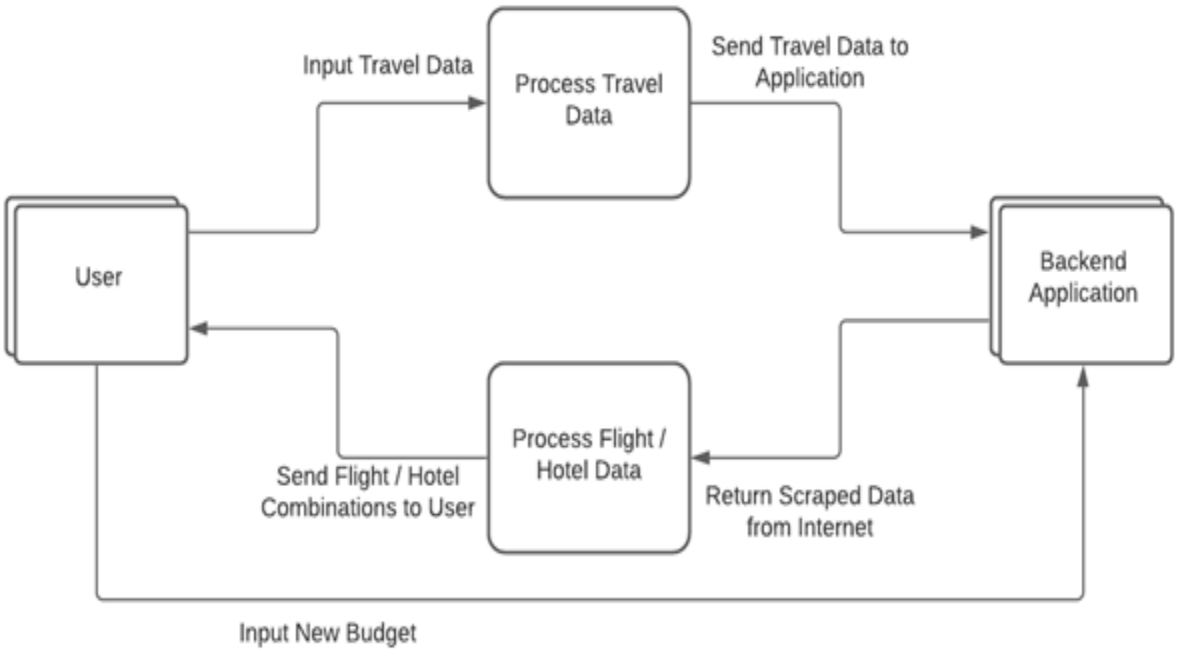
Events:

- The primary events occur when the user is interacting with the application. This would be when the user is inputting the requested information, or when the user is selecting a new flight or hotel.

Transition:

- Transition occurs when the user inputs their initial data. The user will be sent to a new page that waits for the backend to process and find the flights and hotels. This page will then update and show the user the combinations that the application found.

Dataflow Diagram



Components / Tools Needed

Hardware

- Computer using supported operating system
- Keyboard
- Mouse
- Monitor

Software

- Up-to-date version of Java
- Text editor
- Python 3 interpreter
- Python 3 libraries

Appendix I: Glossary of Terms

web application – software that runs on a web server and is accessed through the internet

Windows - an operating system that is used for many desktop computers

IOS – a mobile operating system used exclusively on Apple products

Android – an operating system used on a vast number of mobile phones, but also many other devices such as computers and smart TVs.

Web scraping – extracting data from other web applications

Java – an object-oriented programming language

Python – a high level, general purpose programming language

Appendix II: Team Details

Workflow Leader: Jacob Johnson

Greg Bittinger – Greg has added definitions, worked on and provided input for parts of the document.

Robert Minerd – Robert helped with reviewing and editing the document throughout its creation.

Kaleb Piper – Kaleb has reviewed and edited certain parts of the document to be better worded and more specific to the task the Travel Tool should complete.

Rudolph Hanzes – Rudolph worked on requirements and constraints along with reviewing various sections of the document.

Jacob Johnson – Jacob has worked on various sections of the document. He has also reviewed the document various times throughout its creation.

Appendix III: Workflow Authentication

I, Greg Bittinger, hereby attest that I have performed the work as documented herein.

Signature: Gregory Bittinger Date: 11/12/20

I, Kaleb Piper, hereby attest that I have performed the work as documented herein.

Signature: Kaleb Piper Date:11/12/20

I, Robert Minerd, hereby attest that I have performed the work as documented herein.

Signature: Robert Minerd Date: 11/12/20

I, Rudolph Hanzes, hereby attest that I have performed the work as documented herein.

Signature: Rudolph Hanzes Date: 11/12/20

I, Jacob Johnson, hereby attest that I have performed the work as documented herein.

Signature: Jacob Johnson Date: 11/12/20

Appendix IV: Writing Center Report

Cal U Vulcan Learning Commons Report

Client: Jacob Johnson

Staff or Resource: Nathan Z.

Date: November 11, 2020, 4:00pm - 5:00pm

What course was serviced by this visit?: CSE 490

Did the student request that the instructor receive a visit report?: Yes

Please provide any additional comments relevant to this session.:

I wasn't able to get through the entire document, but I tried to provide some insight that will help throughout the document. The primary issue I noticed was ambiguity. I didn't notice many grammatical issues.

How did the process of this consulting session address the established goals?:

I reviewed the client's document and made suggestions regarding grammar and content.

References

[1] How NOT to Feel Overwhelmed When Trip Planning. (2020, September 30). Retrieved November 13, 2020, from https://www.nomadicmatt.com/travel-blogs/feeling-overwhelmed/

[2] Travel Costs for a Round the World Trip or Weekend Vacation. (2020, November 10). Retrieved November 13, 2020, from https://www.budgetyourtrip.com/