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| Creative Layout. Top View of White Model Plane, Airplane Toy on Pink Pastel  Background. Flat Lay Wi' Photographic Print - jchizhe | AllPosters.com  **FareTide**  CST-451 Capstone Project Requirements | Caroline Macauley  Grand Canyon University  Instructor: Professor Amr Elchouemi  Revision: 2  Date: March 16th, 2025 |

**ABSTRACT**

Many travelers face challenges when determining the optimal time to purchase airline tickets, often resulting in uncertainty about whether to buy now or wait for better prices. Existing tools on the web can provide flight information and basic fare comparisons, but they frequently lack advanced predictive capabilities and integrated insights into fare trends. This can leave users guessing if they are getting the best deal or if waiting might offer a better price, leading to potentially missed opportunities or unnecessary expenses.

FareTide is designed to address these issues by offering a comprehensive platform that consolidates flight information from various airlines and uses historical data to predict the best times to purchase tickets. By leveraging advanced machine learning algorithms and real-time data integration, FareTide provides users with detailed fare trend insights, helping them make well-informed decisions. The website’s features will include easy search and filtering features, allowing even less seasoned travelers to access all possible flights that fit their needs. Detailed flight listings will populate a clean, simple search results page that enables users to make comparisons. When users finds a flight that interests them, they can click to view more specific details such as plane models or seat classes. The standout feature, fare price predictions, will be provided on the selected flight’s purchasing options page. The goal of FareTide is to ensure that every click on the website guides users smoothly towards a confident airline ticket purchase.

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| --- |
| **History and Signoff Sheet** |

**Change Record**

|  |  |  |
| --- | --- | --- |
| **Date** | **Author** | **Revision Notes** |
| October 13th, 2024 |  | Initial draft for review/discussion |
| March 16th, 2025 |  | Amr Elchouemi |
|  |  |  |

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| **Overall Instructor Feedback/Comments** |

**Integrated Instructor Feedback into Project Documentation**

Yes  No

**Project Approval**

Professor Mark Reha

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# Functional Requirements

The website will have a collection of behaviors that make it capable of delivering the user with the experience promised. These necessary behaviors are called ‘Functional Requirements’ and can be found below. They are placed in a use case format that when compiled together create the User Story. By viewing the User Story, one should be able to clearly understand what this website is going to do.

**User Stories**

NOTE\*\* All use cases found in the user story linked below are in scope and will be delivered. Out of scope features were not included.

|  |
| --- |
| **User Story** |
| *Refer to User Story Document* |

# Non-Functional Requirements

Outside of functional features this website will be tested on Non-Functional Requirements (NFR). These requirements do not reflect behaviors of the app but rather how it well it operates/performs. During the final testing phase this NRF will be evaluated.

**Use Cases**

|  |
| --- |
| **User Story** |
| *Refer to User Story Document - see final NRF tab* |

# Technical Requirements

To create this web application tools and technologies will be utilized. The proposed tools that have been selected along with their versions can be found in this section in the table below.

|  |  |
| --- | --- |
| **Category** | **Technology or Tool** |
| Language | Python version 3.1 |
| Framework | Flask version 2.3 |
| IDE | VS Code |
| Dataset | TBD (waiting on feedback from dataset owners) |
| API’s | Skyscanner |
| Task Management | Jira |
| Version Control | Github |

# Logical System Design

*Logical System Design diagrams show how different parts of a system interact. The diagram below will further illustrate the flow of data between components starting at the user in the browser and leading to the data sources.*

A diagram of a program

Description automatically generated

# User Interface Design

Diagrams below are available to better communicate the flow of the website and what functions and controls each page will have. See the sitemap first to understand flow. Reference the User Interface wireframes to see more on specific functions and rough idea of how it will appear to user.

**Sitemap Diagram**

**A screenshot of a computer screen

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**User Interface Wireframe Diagram**

[*See Appendix B -Wireframes*](#_Appendix_B_–)

# Reports Design

Report Designs are not present in this project. A report design would be visuals for any kind of reports generated by the program.

N/A

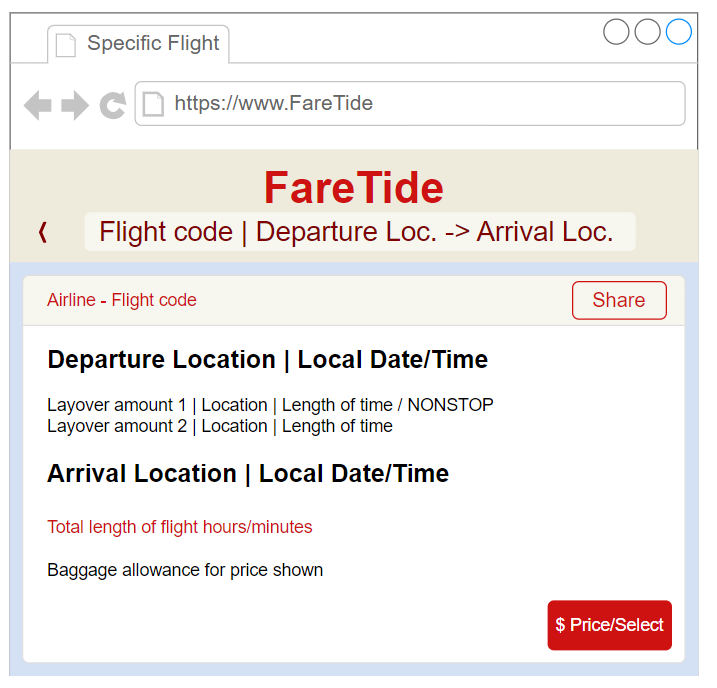
# Appendix A – References

The work on this document is mine in my own words

CST-451 Topic 2 slides found in Mark Reha’s Padlet

Mark Reha’s CST-451 in class notes and lecture

# **A screenshot of a search engine Description automatically generated** Appendix B – Wireframes

**A screenshot of a computer

Description automatically generated**

