# CMSC 345

### Software Design and Development

# Fall 2013

# System Requirements Specification

The Aviators: Smart Traveler

System Requirements Specification

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## Document Versioning Control

|  |  |  |
| --- | --- | --- |
| **Version Number** | **Date** | **Changes from Previous Version** |
| 1.0 | 10/4/2013 | N/A |

## 1. Introduction

1.1 Purpose of This Document

The purpose of this document is to break down the requirements gathered from the customer, Professor John Squire, and organize them into an easily readable document intended for the customer and the developers. It will discuss the purpose of Smart Traveler and also the scope of the product. This document will also serve the purpose of defining an end product along with all of the deliverables.

*Note: This document is subject to change based on feedback from the customer.*

1.2 References

1.2.1 CMSC345\_3\_Requirements-Cain.pdf, by Russ Cain

1.2.2 srsTemplate.docx, by Russ Cain

1.2.3 *Basic Use Case Template***,** byAlistair Cockburn, http://members.aol.com/acockburn/papers/uctempla.htm, accessed 1/17/08

1.3 Purpose of the Product

The purpose of Smart Traveler is to provide the end user with a Graphical User Interface (GUI) that will allow the user to choose more than 20 different airports from a list of over 100. The user will be able to choose a start and stop airport and then Smart Traveler will display the shortest path between all chosen airports from start airport to stop airport. Smart Traveler will use the Google Earth display to show the user the shortest path, as well as information about each individual airport and also the total distance traveled. Smart Traveler will allow both users and administrators to log in at a start screen giving administrators the option of adding, editing, or removing airports from the system.

The situation for this product presented itself as being the semester project for CMSC 345, Software Engineering at the University of Maryland Baltimore County. The product will satisfy the need of a semester-long project and also give us, the developers, experience with a customer and all necessary documentation.

* 1. Product Scope



5.1

4.1

3.1

2.1

1.1

This diagram illustrates the top-level use case scenarios. The external actors on Smart Traveler are the User, Administrator, and Google Earth API. The User interacts with Smart Traveler by choosing the different airports the start and stop locations. The user can also interact with the system by accessing the help files provided. The Administrator shares this functionality and can also select any of the airports and modify it, create an airport to be added to the system, and remove an airport. The Google Earth API will be responsible for displaying the airports and information about the airports and also displaying the shortest route after calculation.

2. **Functional Requirements**

Each functional requirement should be represented using a use case.

Refer the reader once again to the top-level use case diagram from Section 1.4. In addition, include separate sub-use case diagrams, where appropriate, for each of the top-level use cases.

In addition to the diagrams, every use case should be documented using the use case specification format below. A suggested format for this section is to begin with a brief introduction of what the section contains, and then alternate sub-use case diagrams with their corresponding use case specifications. Make sure that all use case numbers and names correspond exactly with those in the top-level diagram of Section 1.4. Give all sub-use case diagrams figure numbers and labels (e.g., “Figure 2.1. Administer Exam”).

This use case outlines the user interaction with Smart Traveler from login to results and display.

|  |  |  |
| --- | --- | --- |
| **Number** | *1.1* | |
| Name | *User chooses* | |
| **Summary** | *The user chooses a start and stop, then chooses 20 + airports.* | |
| **Priority** | *5* | |
| **Preconditions** | *User is logged in.* | |
| **Postconditions** | *The shortest route is calculated and the display is updated with route, airport info, and total distance.* | |
| **Primary Actor(s)** | *User* | |
| **Secondary Actor(s)** | *Google API* | |
| **Trigger** | *The user presses button to calculate route.* | |
| **Main Scenario** | **Step** | **Action** |
|  | *Step 1* | *User chooses start and stop airport and 20+ locations.* |
|  | *Step 2* | *System calculates shortest path.* |
|  | *Step 3* | *Google Earth displays shortest path and airport info.* |
|  | *Step 4* | *System displays total distance traveled.* |
| **Open Issues** | *Issue 1* | *The user does not select a start or stop point, but presses button to calculate.* |
|  | *Issue 2* | *The user selects less than 20 airport destinations.* |

|  |  |  |
| --- | --- | --- |
| **Number** | *4.1* | |
| Name | *Administrator airport creation* | |
| **Summary** | *Administrators add a new airport to the system* | |
| **Priority** | *4* | |
| **Preconditions** | *A valid administrator is logged in.* | |
| **Postconditions** | *Airport info will be added to the system, the display will reflect the modified list of airports, and the user will be able to choose from the modified list of airports.* | |
| **Primary Actor(s)** | *Administrator* | |
| **Secondary Actor(s)** | *User* | |
| **Trigger** | *Administrator initiates new airport submission* | |
| **Main Scenario** | **Step** | **Action** |
|  | *Step 1* | *Administrator enters in new airport info* |
|  | *Step 2* | *System updates listing of airports with new info* |
| **Open Issues** | *Issue 1* | *Administrator adds airport with no info* |
|  | *Issue 2* | *Administrator adds airport with invalid info* |

|  |  |  |
| --- | --- | --- |
| **Number** | *5.1* | |
| Name | *Administrator airport deletion* | |
| **Summary** | *Administrators remove an airport from the system* | |
| **Priority** | *4* | |
| **Preconditions** | *A valid administrator is logged in.* | |
| **Postconditions** | *Airport info will be deleted from the system, the display will reflect the modified list of airports, and the user will be able to choose from the modified list of airports.* | |
| **Primary Actor(s)** | *Administrator* | |
| **Secondary Actor(s)** | *User* | |
| **Trigger** | *Administrator initiates airport deletion* | |
| **Main Scenario** | **Step** | **Action** |
|  | *Step 1* | *Administrator selects airport to be deleted* |
|  | *Step 2* | *Administrator deletes airport* |
|  | *Step 3* | *System updates listing of airports* |
| **Open Issues** | *Issue 1* | *Administrator deletes without selecting airport* |
|  | *Issue 2* | *Administrator deletes incorrect airport* |

|  |  |  |
| --- | --- | --- |
| **Number** | *1.4* | |
| Name | *Administrator Airport Modification* | |
| **Summary** | *Administrator selects an airport and modifies its information.* | |
| **Priority** | *3* | |
| **Preconditions** | *Administrator is logged in* | |
| **Postconditions** | *Airport information for one of the airports will be modified, and the display will be updated in Google Earth* | |
| **Primary Actor(s)** | *Administrator* | |
| **Secondary Actor(s)** | *Google Earth* | |
| **Trigger** | *Administrator requests to modify airport information* | |
| **Main Scenario** | **Step** | **Action** |
|  | *Step 1* | *Administrator selects an airport* |
|  | *Step 2* | *Administrator modifies information about that airport* |
|  | *Step 3* | *Information display in Google Earth is updated* |
|  | *Step 4* | *System updates listing of airports with modified info* |
| **Extensions** | **Step** | **Branching Action** |
|  | *Step 1* | *Administrator aborts* |
|  | *Step 2* | *Modified information is discarded* |
| **Open Issues** | *Issue 1* | *What happens when the Administrator enters invalid information.* |

|  |  |  |
| --- | --- | --- |
| **Number** | *1.5* | |
| Name | *Administrator help* | |
| **Summary** | *Administrator accesses the system’s help files* | |
| **Priority** | *2* | |
| **Preconditions** | *Administrator is logged in* | |
| **Postconditions** | *Help files are displayed to administrator* | |
| **Primary Actor(s)** | *Administrator* | |
| **Secondary Actor(s)** | *None* | |
| **Trigger** | *Administrator requests this action be performed* | |
| **Main Scenario** | **Step** | **Action** |
|  | *Step 1* | *Administrator-Level help files are displayed* |

|  |  |  |
| --- | --- | --- |
| **Number** | *1.6* | |
| Name | *User Help* | |
| **Summary** | *User accesses the system’s help files* | |
| **Priority** | *2* | |
| **Preconditions** | *User is logged in* | |
| **Postconditions** | *Help files are displayed to the user* | |
| **Primary Actor(s)** | *User* | |
| **Secondary Actor(s)** | *None* | |
| **Trigger** | *User requests this action be performed* | |
| **Main Scenario** | **Step** | **Action** |
|  | *Step 1* | *User-Level help files are displayed* |

|  |  |  |
| --- | --- | --- |
| **Number** | *Unique use case number* | |
| Name | *Brief noun-verb phrase* | |
| **Summary** | *Brief summary of use case major actions* | |
| **Priority** | *1-5 (1 = lowest priority, 5 = highest priority)* | |
| **Preconditions** | *What needs to be true before use case “executes”* | |
| **Postconditions** | *What will be true after the use case successfully “executes”* | |
| **Primary Actor(s)** | *Primary actor name(s)* | |
| **Secondary Actor(s)** | *Secondary actor name(s)* | |
| **Trigger** | *The action that causes this use case to begin* | |
| **Main Scenario** | **Step** | **Action** |
|  | *Step #* | *This is the “main success scenario” or “happy path.”* |
|  | *Step #* | *Description of steps in successful use case* “execution” |
|  | *Step #* | *This should be in a “system-user-system, etc.” format.* |
| **Extensions** | **Step** | **Branching Action** |
|  | *Step #* | *Alternative paths that the use case may take* |
| **Open Issues** | *Issue #* | *Issues regarding the use case that need resolution* |

(This template was adapted from *Basic Use Case Template***,** byAlistair Cockburn, http://members.aol.com/acockburn/papers/uctempla.htm, accessed 1/17/08.)

3. **Non-Functional Requirements**

There are no non-functional requirements for the system.

3.1 Customer Constraints

There were no non-functional constraints specified by the customer.

3.2 External Interfaces

If your customer requires your product to read from data files that are external to the system (i.e., you do not have control over), the exact formats of these files (field descriptions, data types, range of possible values, and possible formats) must be specified. The same must be specified for any data files that must be written to that are external to the system. This situation usually arises when the customer keeps his/her own spreadsheet or database and would like your system to be able to share files with the spreadsheet or database. If there are no interfaces to external files or systems, briefly state so. For example, using MySQL, or Cloud access.

3.3 Other

Place the remaining non-functional requirements here. Do not include any NFRs that are related to the user interface. These will be included in the User Interface Design Document. Also, do not include NFRs that relate to hardware or software. Hardware and software specifications will be part of the System Design Document. As stated earlier, if your customer has already restricted you to particular hardware or software, put these NFRs in the Customer Constraints section above.

4. **Deliverables**

Hard copies of each of the following in class:

|  |  |  |
| --- | --- | --- |
| Deliverable | Due Date | Format |
| Systems Requirement Specification | 10/8/2013 | PDF |
| System Design Document | 10/15/2013 | PDF |
| User Interface Design Document | 10/22/2013 | PDF |
| Administrator Manual | 12/5/2013 | PDF |

Final customer deliverables in 3-ring binder:

|  |  |  |
| --- | --- | --- |
| Deliverable | Due Date | Format |
| “Read Me” document | 12/5/2013 | CD/PDF |
| Systems Requirement Specification | 12/5/2013 | CD/PDF |
| System Design Document | 12/5/2013 | CD/PDF |
| User Interface Design Document | 12/5/2013 | CD/PDF |
| Code Inspection Report | 12/5/2013 | CD/PDF |
| Test Report | 12/5/2013 | CD/PDF |
| Administrator Manual | 12/5/2013 | CD/PDF |
| Source Code | 12/5/2013 | HTML - CD/PDF |

5. **Open Issues**

List and briefly discuss issues that do not yet have a conclusion. Give specific target resolution dates. Be honest.

## Appendix A - Team percent contribution, Team sign off, Customer acceptance

**Sign off Agreement Between Customer and Contractor**

Upon sign off, the customer and team are in agreement upon the scope, specifications, and requirements of Smart Traveler. If any changes are made to the document, the versioning documentation on page #3 will be updated with a new version number, date, and changes that were made from the last version. New signatures will be acquired before the document is made official.

**Team Review Sign-off**

All members of the team have reviewed the documentation and agree on its content and format. The signatures provided guarantee this. Any comments left in the comment areas are minor points regarding the document that members of the team may not agree with. There are no major points of contention in any of the comments.

**Document Contributions**

|  |  |  |
| --- | --- | --- |
| **Name of Contributor** | **System Requirements Specification**  **Approximate Percent Contribution** | **Optional comment** |
| Robert Jackson | 20% |  |
| Stephen Pidliskey | 20% |  |
| Rasheed Salau | 20% |  |
| Zachary Stewart | 20% |  |
| Nicole Whewell | 20% |  |

I have read and agree with the contributions stated above.

**Printed Name Signature Date**

1\_\_\_\_\_\_\_Robert Jackson \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Customer has a copy of this document \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Customer finds Document acceptable \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_