

Aircraft Scheduler

CSE 4101

Computer Science Projects

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1 Aircraft Scheduler Test Plan

1.1 System Description

Currently, the available aviation scheduling systems on the market are pricey, limited, featureless, and are fixated towards medium to large flight departments. Many of these systems are stand-alone applications that can only be accessed on one computer and in one physical location. Our objective is to develop an aviation scheduling system that is not only affordable and accessible, but reliable, secure, and scalable for years to come.

1.2 System Goals

The system has to be scalable. Extensions to the basic system, such as Invoices and Quoting, must be able to be added with ease. Future technology has to be considered when designing the system. Emerging technologies, such as touch screens, can cause unseen complications.

The project is a business-critical system. However, it will focus solely on the software component of the system. The development team will have no control over the hardware components or human operators of the system.

2 Test Cases

Currently, the test plan for the Aircraft Scheduler is simple: test all requirements. Below is a small test plan for each documented requirement. The test plan carries the same number as each requirement for easy traceability. Each part of the system must be tested as described. If any changes are made, the new revision and date will be posted underneath the old revision. In this way, testers will have documentation of all changes to keep track of the system.

2.1 Customer Pages

2.1.1 Main Page

2.1.1.1 – Revision 1 (2-17-09)

Name: Customer List Table

Description: This requirement simply displays a table when the user navigates to the page. To test this requirement, the tester will simply navigate to the page and check to see if the table is displayed correctly.

Expected Input type: None

Expected Output: A table of names

Error Handling: An error page will be displayed informing the user that the table is unavailable.

2.1.1.2 – Revision 1 (2-17-09)

Name: Customer List Navigation

Description: The list navigation will be tested by clicking the links to the various pages of the table. The tester must try all buttons.

Expected Input type: Click

Expected Output: A new table

Error Handling:

Input: Click the ‘previous’ button

Output: The previous table should be displayed or the same table if it was the first table in the list of tables.

Input: Click the ‘next’ button

Output: The next table should be displayed or the same table if it was the last table in the list of tables.

Input: Click a number between ‘1 and N’

Output: The table designated by the number should be displayed.

2.1.2 Add Customer

2.1.2.1 – Revision 1 (2-17-09)

Name: Contact Information Fields

Description: The various fields of this requirement can accept a wide range of values and must be tested such that the system accepts and rejects the correct values.

Expected Input type: [a..z][A..Z][0..9][@,-,(whitespace),.]

Expected Output: None

Error Handling:

Input: In all fields input valid characters exceeding the length of the input field.

Output: A small pop-up message should appear over the input field to tell the user that the given information is too long.

Input: In all fields only accepting numbers, input characters [a..z][A..Z][@,-,.]

Output: A pop-up message should appear notifying the user that characters are not allowed.

Input: In all fields accepting only characters, input numbers [0..9]

Output: A message should warn the user that only characters are accepted.

2.1.2.2 – Revision 1 (2-17-09)

Name: Secondary Contact Information Fields

Description: The various fields of this requirement can accept a wide range of values and must be tested such that the system accepts and rejects the correct values.

Expected Input type: [a..z][A..Z][0..9][@,-,(whitespace),.]

Expected Output: None

Error Handling:

Input: In all fields input valid characters exceeding the length of the input field.

Output: A small pop-up message should appear over the input field to tell the user that the given information is too long.

Input: In all fields only accepting numbers, input characters [a..z][A..Z][@,-,.]

Output: A pop-up message should appear notifying the user that characters are not allowed.

Input: In all fields accepting only characters, input numbers [0..9]

Output: A message should warn the user that only characters are accepted.

2.1.2.3 – Revision 1 (2-17-09)

Name: Customer Flight Preferences Fields

Description: The fields of this requirement accept similar data to other fields on the same page and will be tested in a similar way.

Expected Input type: [a..z][A..Z][0..9][@,-,(whitespace),.]

Expected Output: None

Error Handling:

Input: In all fields input valid characters exceeding the length of the input field.

Output: A small pop-up message should appear over the input field to tell the user that the given information is too long.

Input: Invalid characters such as [&,#,)/]

Output: A pop-up to warn the user.

2.1.2.4 – Revision 1 (2-17-09)

Name: Comments Field

Description: The input to this requirement can accept many different inputs, but is more flexible than other fields on this page. The comment box should not accept more than 255 characters.

Expected Input type: Any Unicode character

Expected Output: None

Error Handling:

Input: Type 256 random characters.

Output: The system will display a pop-up informing the user that the message is too long. The system should also stop accepting characters past the maximum.

2.1.2.5 – Revision 1 (2-17-09)

Name: Add Customer Button

Description: This test will check to see if the button functions correctly.

Expected Input type: Click

Expected Output: A page denoting the operation's success.

Error Handling:

Input: Click the button

Output: The user should be brought to a page that displays a successful customer add.

Input: If some required fields were left blank

Output: The system should bring the user back to the input page with all blank fields highlighted.

2.1.3 Search Customers

2.1.3.1 – Revision 1 (2-17-09)

Name: Search Input Field

Description: Only the input box needs to be tested on this page.

Expected Input type: [a..z][A..Z][(whitespace)]

Expected Output: A customer match or a message telling the user that no match has been found.

Error Handling:

Input: 33 valid characters.

Output: A pop-up informing the user that the length of their search is too long.

Input: Invalid characters

Output: A message box to inform the user that illegal characters are used.

2.1.3.2 – Revision 1 (2-17-09)

Name: Search By Drop-down Box

Description: This feature can be tested simply by confirming that it exists and is populated with correct fields.

Expected Input type: Mouse click

Expected Output: None

Error Handling:

Input: Click the drop down box

Output: A list of “search-by” fields should be presented

2.1.3.3 – Revision 1 (2-17-09)

Name: Show Details Button

Description: This will be tested by searching for an existing customer and a customer that does not exist.

Expected Input type: Click

Expected Output: The results of the user's search

Error Handling:

Input: Click the button with valid search criteria in the search field and search by field.

Output: A link to the customer's information page.

Input: Click the button with no information

Output: None

Input: Click the button with garbage information

Output: A message noting that no results were found.

2.1.4 Export Customer List

2.1.4.1 – Revision 1 (2-17-09)

Name: Export List Button

Description: This page shall have a button that will bring up a dialogue box. The user will then be prompted to save his/her customer list on a local machine.

Expected Input type: Click

Expected Output: A Save As dialogue box

Error Handling:

Input: Click the button and save the file

Output: The file should be saved in the selected location

2.2 Flight Management Pages

2.2.1 Add Flight

2.2.1.1 – Revision 1 (2-17-09)

Name: Select Customer Field

Description: This requirement can be tested in the same way as 2.1.3.1

Expected Input type: See Above

Expected Output: See Above

Error Handling: See Above

2.2.1.2 – Revision 1 (2-17-09)

Name: Select Aircraft Field

Description: This requirement can be tested in the same way as 2.1.3.1, with the exception that the test must be sure that this field is grayed out before finishing step 1.

Expected Input type: *See Above*

Expected Output: A valid aircraft to select.

Error Handling:

Input: Try to input into the search field before completing step 1

Output: The input should not be accepted. The user should not be able to type anything.

2.2.1.3 – Revision 1 (2-17-09)

Name: Edit Flight Information Field

Description: These fields will be tested much like other input fields. The tester should try to exceed the length of the input field and input invalid characters.

Expected Input type: [0..9][:][a..z][A..Z]

Expected Output: N/A

Error Handling:

Input: Try to input into the search field before completing step 2

Output: The input should not be accepted. The user should not be able to type anything.

Input: Exceed the length of all input fields

Output: A pop-up message with a warning

2.2.1.4 – Revision 1 (2-17-09)

Name: Add Leg Button

Description: The tester must ensure that a new table row is added when this button is pressed.

Expected Input type: Mouse Click

Expected Output: A new table row

Error Handling:

Input: Click the button

Output: A new row at the end of the table with blank input fields

2.2.1.5 – Revision 1 (2-17-09)

Name: Remove Leg Button

Description: The tester must ensure that a table row is deleted when this button is pressed.

Expected Input type: Mouse Click

Expected Output: N/A

Error Handling:

Input: Select a row and click the button

Output: The selected row should be removed from the table

2.2.1.6 – Revision 1 (2-17-09)

Name: Confirm and Save Field

Description: This field can be tested to ensure that all information is either stored or removed. The tester should also try to click these buttons before the completion of step 3.

Expected Input type: Mouse Click

Expected Output: A success message or all fields being cleared

Error Handling:

Input: Click confirm and save

Output: The user should be brought to a confirmation page after a successful storage.

Input: Click confirm and save

Output: The user should be brought to an error page if for some reason the data in the fields could not be saved to the database. Additionally, the user should be given the option to try again with the same data.

Input: Click Discard

Output: All input fields should be cleared and options 2-4 should be grayed out again.

2.2.2 Edit Flight

2.2.2.1 – Revision 1 (2-17-09)

Name: Edit Schedule

Description: These fields can be tested In the same way as previous input fields.

Expected Input type: [a..z][A..Z][0..9]

Expected Output: N/A

Error Handling:

Input: Input more characters than the field can accept

Output: A warning pop-up

Input: Invalid characters for the given field

Output: A warning pop-up

2.2.2.2 – Revision 1 (2-17-09)

Name: access edit/add passenger

Description: The user will be able to access add/edit passenger from this page which will allow the user to add or edit passengers to the flight.

Expected Input type: [a..z][A..Z][0..9]

Expected Output: N/A

Error Handling:

Input: Input more characters than the field can accept

Output: A warning pop-up

Input: Invalid characters for the given field

Output: A warning pop-up

2.2.2.3 – Revision 1 (2-17-09)

Name: save event on calendar button

Description: This requirement will be tested the same as all other buttons

Expected Input type: Click

Expected Output: Confirmation page

Error Handling:

Input: Click the Save Event Button

Output: The user should be brought to a page confirming the event

Input: Click the button

Output: In the event of trouble saving the event the user should be brought to an error page and given the option to try again with the same data.

2.2.2.4 – Revision 1 (2-17-09)

Name: delete flight event

Description: The tester must ensure that the proper flight event is deleted.

Expected Input type: Click

Expected Output: Confirmation page

Error Handling:

Input: Click the appropriate event to be deleted and click the Delete button.

Output: A confirmation page

2.2.2.5– Revision 1 (2-17-09)

Name: add flight segment button

Description: Much like when adding a flight, the user should be able to edit flight details.

Expected Input type: Click

Expected Output: A new row in the flight detail table.

Error Handling:

Input: Click the add button

Output: A new blank table row

2.2.2.6– Revision 1 (2-17-09)

Name: email button

Description: The tester must ensure that all fields work properly and that any e-mail sent out is received

Expected Input type: Click

Expected Output: A confirmation that e-mails have been sent.

Error Handling:

Input: Select all users to e-mail a confirmation

Output: None

Input: Mouse Click

Output: A confirmation page that all e-mails have been sent.

2.2.3 Add/Edit Passenger pages

2.2.3.1 – Revision 1 (2-17-09)

Name: edit passenger list

Description: The tester must ensure that all fields only accept valid characters of a specific length. All buttons must be tested for functionality.

Expected Input type: [a..z][A..Z][Mouse Click]

Expected Output: A confirmation page that information has been edited correctly

Error Handling:

Input: Boundary test the input field length.

Output: A pop-up warning message

Input: Mouse clicks

Output: All buttons should add rows and accept data as necessary

2.2.3.2 – Revision 1 (2-17-09)

Name: save new list button

Description: The tester should confirm that a new customer is saved when this button is pressed.

Expected Input type: [Mouse Click]

Expected Output: A confirmation page that information has been saved correctly

Error Handling:

Input: Click the button

Output: A confirmation page

2.3 User Pages

2.3.1 Add User

2.3.1.1 – Revision 1 (2-17-09)

Name: add user page

Description: The tester should attempt to access this page at a different level of access other than admin. The system should only allow the admin to access this feature. All fields should be tested as before and all buttons should be tested for functionality.

Expected Input type: [a..z][A..Z][Mouse Click]

Expected Output: A confirmation page that a user has been added

Error Handling:

Input: Boundary test the input field length.

Output: A pop-up warning message

Input: Invalid characters in fields

Output: A pop-up displaying the invalid characters

Input: Mouse clicks

Output: All buttons should add rows and accept data as necessary

2.3.1.2 – Revision 1 (2-17-09)

Name: Reset all button

Description: The user at the admin level will be able to reset the page through this 'Reset all' button

Expected Input type: [Mouse Click]

Expected Output: A confirmation page that information has been saved correctly

Error Handling:

Input: Click the button

Output: All fields should be reset to their default values

2.3.2 Edit User

2.3.2.1 – Revision 1 (2-17-09)

Name: Edit user page

Description: This page should be tested in the same way that adding a user should be tested. All fields will be open to change.

Expected Input type: [a..z][A..Z][Mouse Click]

Expected Output: A confirmation page that a user has been added

Error Handling:

Input: Boundary test the input field length.

Output: A pop-up warning message

Input: Invalid characters in fields

Output: A pop-up displaying the invalid characters

Input: Mouse clicks

Output: All buttons should add rows and accept data as necessary

2.3.2.2 – Revision 1 (2-17-09)

Name: Reset all button

Description: The user described above will be able to reset the page through this 'Reset all' button

Expected Input type: [Mouse Click]

Expected Output: A confirmation page that information has been saved correctly

Error Handling:

Input: Click the button

Output: All fields should be reset to their default values

2.3.3 Delete User

2.3.3.1 – Revision 1 (2-17-09)

Name: Delete user feature

Description: This page or the feature allows the user at Admin level to delete an existing user in the system.

Expected input type: Click on delete user

Expected input output: Popup box asking admin to confirm deletion

2.3.3.2 – Revision 1 (2-17-09)

Name: Confirm authentication

Description: The user at the Admin level will need to retype his/her login password to double check the eligibility of the user before he/she could delete a user.

Expected input type: A string corresponding to the password

Expected input output: Message confirming deletion. Page should reload with current list of user (without deleted aircraft) after 3 seconds of showing the confirmation message.

Error Handling:

Input: Invalid password

Output: Message asking to retype password

2.3.4 View User

2.3.4.1 – Revision 1 (2-17-09)

Name: view user page

Description The user will be able to view simple list of users, which includes their name, email address, last login. The user at Admin level will be able to view and click on the link for add, edit, or delete user. The other users i.e. not at the admin level will be able to view the users but will not have access to add, edit, or delete users.

Expected input type: Open View User Page from Admin View

Expected input output: Make sure name, email address, and last login are listed. Also, make sure admin can view and click the links Add, Edit and Delete user.

Expected input type: Open View User Page from User View

Expected input output: Make sure name, email address, and last login are listed. Also, make sure regular user cannot view and click the links Add, Edit and Delete user.

Error Handling:

Input: Regular user accesses URL for adding, removing, editing user

Output: System should tell user that he does not have access to this zone.

2.3.4.2 – Revision 1 (2-17-09)

Name: Search User Box

Description: All the users will be able to search a specific user through the quick search box.

Expected input type: Add user “ATEST PERSON”. Click on the quick search box, type “A”.

Expected input output: List should provide all names in the company that start with the letter A.

Expected input type: Click on a name.

Expected input output: System should take user to the user page of the selected user.

Error Handling:

Input: Empty string

Input: String “ ” (one space)

Input: “ASDASDASDASD”

Output: System shouldn’t display any names; instead, system should display “(no matches found)”.

Input: Press enter for a error case

Output: System should not take user to any other page.

2.4 Aircraft Management Pages

2.4.1 View Fleet

2.4.1.1 – Revision 1 (2-17-09)

Name: view Flight page

Description The user will be able to view a list of all aircrafts, which includes their make/model, type, tail number, and home base. The user at Admin level will be able to view and click on the link for add, edit, or delete aircraft. The other users i.e. not at the admin level will be able to view but will not have access to add, edit, or delete users.

Expected input type: Open View Aircraft Page from Admin View

Expected input output: Make sure make/model, type, tail number, and home base are listed. Also, make sure admin can view and click the links Add, Edit and Delete aircraft.

Expected input type: Open View Aircraft Page from User View

Expected input output: Make sure make/model, type, tail number, and home base are listed. Also, make sure users that are not admins cannot view and click the links Add, Edit and Delete aircraft.

Error Handling:

Input: Regular user accesses URL for adding, removing, editing aircraft.

Output: System should tell user that he does not have access to this zone.

2.4.1.2 – Revision 1 (2-17-09)

Name: Search Aircraft Box

Description: All the users will be able to search a specific aircraft through the quick search box.

Expected input type: Add aircraft “ATESTPLANE”. Click on the quick search box, type “A”.

Expected input output: List should provide all aircraft names in the company that start with the letter A.

Expected input type: Click on an aircraft name.

Expected input output: System should take user to the user page of the selected aircraft.

Error Handling:

Input: Empty string

Input: String “ ” (one space)

Input: “ASDASDASDASD”

Output: System shouldn’t display any names; instead, system should display “(no matches found)”.

Input: Press enter for a error case

Output: System should not take user to any other page.

2.4.2 Add Aircraft

2.4.2.1 – Revision 1 (2-17-09)

Name: Add Aircraft page

Description: The main objective of this page will be to allow the admin to add an aircraft to the system. The user at Admin level will be able to add a new aircraft to the system through this page. The user will be able to fill in the user fields such as aircraft type, tail number, make/model, number of seats, range etc. The user will also be able to add the specific technical information like fuel type, mileage etc. The user will also have an option to upload the picture of a plane but will not be necessary.

Expected input type: Input text of length greater than 1 in each field and click Add.

Expected input output: System should accept the new aircraft and take user to aircraft list.

Error Handling:

Input: Empty string

Input: String “ “ (one space), String “ “ (two spaces)

Output: System should ask admin to correct fields. System should mention the fields that have errors.

2.4.2.2 – Revision 1 (2-17-09)

Name: Reset all button

Description: The user at the admin level will be able to reset the page through this ‘Reset all’ button

Expected input type: Input text on all fields and click on Reset All

Expected input output: System should remove text from all fields in the form.

2.4.3 Edit Aircraft

2.4.3.1 – Revision 1 (2-17-09)

Name: Edit Aircraft page

Description The user at Admin level will be able to edit user in the system through this page. The user will be able to edit in the user fields such as aircraft type, tail number, make/model, number of seats, range, fuel type, mileage etc. The user will also be able to change an existing picture, remove picture, or add a picture of the aircraft.

Expected input type: Login as admin, open edit page for aircraft.

Expected input output: System should display all current information for that aircraft in the textboxes to allow admin to change information.

Expected input type: Change information and click save.

Expected input output: System should save information and display edit page again with new, updated information.

Error Handling:

Input: Empty string

Input: String “ “ (one space), String “ “ (two spaces)

Output: System should ask admin to correct fields. System should mention the fields that have errors.

2.4.3.2 – Revision 1 (2-17-09)

Name: Reset all button

Description: The user described above will be able to reset the page through this ‘Reset all’ button. This button is similar to reset buttons described above for other sections.

Expected input type: Input text on all fields and click on Reset All

Expected input output: System should remove text from all fields in the form.

2.4.4 Delete Aircraft

2.4.4.1 – Revision 1 (2-17-09)

Name: Delete Aircraft Page

Description: This page or the feature allows the user at Admin level to delete an existing aircraft in their department. User at the admin level will be able to access this page through a link on the ‘edit aircraft’ page.

Expected input type: Click on delete aircraft

Expected input output: Popup box asking for confirmation should appear.

2.4.4.2 – Revision 1 (2-17-09)

Name: Confirm authentication

Description: The user at the Admin level will need to retype his/her login password to double check the eligibility of the user before he/she could delete an aircraft.

Expected input type: A string corresponding to the password

Expected input output: Message confirming deletion. Page should reload with current list of aircrafts (without deleted aircraft) after 3 seconds of showing the confirmation message.

Error Handling:

Input: Invalid password

Output: Message asking to retype password

2.5 Calendars

2.5.1 Viewing Calendar

2.5.1.1 – Revision 1 (2-17-09)

Name: Complete Month View

Description: The calendar should accurately show a list of crew members that are available for the current month.

Expected input type: Open calendar month view

Expected input output: Calendar should accurately show a list of crew members that are available for the current month.

2.5.1.2 – Revision 1 (2-17-09)

Name: Month Selection

Description: System should allow the user to select the month they want to look at.

Expected input type: Month of the year

Expected input output: Calendar should accurately show a list of crew members that are available for the selected month.

2.5.1.3 – Revision 1 (2-17-09)

Name: Legend

Description: System should provide a legend explaining what each of the colors in the calendar mean.

Expected input type: open calendar month view

Expected input output: Calendar should accurately show a legend explaining the colors used in the calendar.

2.5.1.4 – Revision 1 (2-17-09)

Name: Filter

Description: System should provide filter that allows user to select what personnel or flights he wants to see in the calendar.

Expected input type: User selects one or more users or one or more flights.

Expected input output: System will display all personnel and flights found in the database corresponding to those.

Error Handling:

Input: No selection for flights

Output: Shows all flights

2.5.1.5 – Revision 1 (2-17-09)

Name: Print View

Description: System should provide a “print view”, which should allow the user to print the calendar and only the calendar (without menus) as is on the current page.

Expected input type: User clicks on print view.

Expected input output: System should display the same calendar as the previous page.

2.5.1.6 – Revision 1 (2-17-09)

Name: Text View

Description: System should provide view of the calendar that consists only of text for easy readability and black and white printing.

Expected input type: User clicks on text view.

Expected input output: System should display a text only view of the calendar.

2.5.1.7 – Revision 1 (2-17-09)

Name: “Add Event” menu

Description: System should provide links to the pages “List flight,” “Maintenance Event,” and “Calendar note.”

Expected input type: User clicks on text view.

Expected input output: System should display a text only view of the calendar.

2.5.1.8 – Revision 1 (2-17-09)

Name: Calendar Settings Filter

Description: System should provide filter for user to select what type of view of the calendar they want to see. Required views are month flight (default), month crew, week view, timeline view, and month text.

Expected input type: User selects type of calendar filter

Expected input output: System should display a calendar with the user selected type of calendar.

2.6 Company Details

2.6.1 Email Company

2.6.1.1 – Revision 1 (2-17-09)

Name: Recipients

Description: The user should be able to select entire groups in the organization such as admins, pilots, schedulers, maintenance, cabin attendants, view only, FAA, or/and customers. They should also be able to select everyone or specific users.

Expected input type: User types a string of length greater than 1

Expected input output: User should be displayed as well as group names starting with that string.

2.6.1.2 – Revision 1 (2-17-09)

Name: Subject

Description: System should allow the user to enter a subject message of less than 100 characters in length.

Expected input type: User types subject of length equal to 100 characters

Expected input output: System will record string

Error Handling:

Input: Subject of string length less than 1 character.

Output: System should not allow user to enter less than 1 character.

Input: Subject of string length greater or equal to 100 characters.

Output: System should not allow user to enter more than 100 characters.

2.6.1.3 – Revision 1 (2-17-09)

Name: Message

Description: System should allow the user to enter a body message of less than 10000 characters and more than 1 character in length.

Expected input type: User types subject of length equal to 9999 characters

Expected input output: System will record string

Error Handling:

Input: Subject of string length less than 1 character.

Output: System should not allow user to enter less than 1 character.

Input: Subject of string length greater or equal to 100 characters.

Output: System should not allow user to enter more than 100 characters.

2.6.2 Billing Information

2.6.2.1 – Revision 1 (2-17-09)

Name: Credit Card Auto Detect

Description: System should detect credit card type on runtime without need of refreshing the webpage as soon as the credit card number field loses focus.

Expected input type: User types 15 numbers in credit card number

Expected input output: System will try to match credit card number to a type of card and select type for the user

Error Handling:

Input: String of numbers not recognized by system

Output: System does not select a system type.

2.6.2.2 – Revision 1 (2-17-09)

Name: Verification

Description: System should verify that all information has been entered before proceeding to next page. This information includes all fields in page plus the two agreements at the end of the page.

Expected input type: User enters all necessary information

Expected input output: System takes information and processes information.

Error Handling:

Input: Missing data.

Output: System asks user to correct/fill missing fields.

2.6.3 Billing History

2.6.3.1 – Revision 1 (2-17-09)

Name: Printable

Description: System should provide a printable list of all billing history.

Expected input type: User clicks on billing history.

Expected input output: System will print a list of all transactions with company.

Error Handling:

Input: No transactions in history

Output: System will display the form and text saying “No transaction history found”.

2.6.3.2 – Revision 1 (2-17-09)

Name: Printable

Description: System provides accurate, up-to-date, complete billing history.

Expected input type: Make transaction. Click on billing history

Expected input output: System should provide all history up to the last transaction.