



User Testing 1

Staff Deployment Simulation Software

17th September 2012

SATS Office, Changi Airport Terminal 1

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1. Document Overview

This document describes a test plan for conducting a usability test during the development of SATS Staff Deployment Simulation Software.

The goals and objectives of usability testing:

- Record and document general feedback and first impressions
- Identify any potential concerns to address regarding application usability, presentation, and navigation.
- Get feedback on the usefulness and accuracy of the functions developed.
- To match client expectations on the system developed.

Test Day : Monday, 17 September 2012

Test Venue : SATS Office, Changi Airport Terminal 1

2. Methodology

2.1 User Testing Environment

Computer platform	:	Intel Pentium Processor
Screen resolution	:	1028 x 768
Operating System	:	Windows XP
Set-up required	:	Computer date format (English (Australia)) of d/MM/YYYY

2.2 Participants

The participants will attempt to complete a set of scenarios presented to them and to provide feedback regarding the usability and acceptability of the application.

1. Kevin Choy, SATS Airline Relations Manager
 - Client for this project.
2. Goh Wei Xuan, SATS Airline Relations Manager

2.3 Procedure

Instructions

1. Each user will be accompanied by 1 facilitator.
2. Users are encouraged to verbalize their movements, purpose, and problems.
3. Facilitators will record mistakes and questions made by users during testing.
4. To start the test, click on the file named "START.bat" found in folder named "SATS_Bumblebee_Beta_v5".
5. All sample files needed for testing are found in: SATS_Bumblebee_Beta_v5/data
6. Database used to store imported data is also found in ROOT folder.
7. Users are allowed to change their input(s) to verify data validity.
8. Users are to complete the tasks stated below. After completing each task, users have to answer the test questions pertaining to the specific task.

Tasks

Below are tasks for users to complete.

1. **Bootstrap/import files(s)**

This task is for user to import data from excel files such as Flight Schedule Departure, Flight Schedule Arrival, Staff Records, etc. into the application. The application will then use these data for simulation purpose in the later step.

2. **Add staff costs**

This task is to record various costs in hiring staff into the application.

3. Add uncertainties

This task is to record the mean and standard deviation of different uncertainties that will affect the initial schedule prepared by the application. Simulation period = 7 days (represents the number of days the data is to be generate).

4. Run simulation

Run simulation to start assigning staff to different job assignments.

5. View staff schedule (in Gantt Chart)

This allows user to view and compare between a staff's planned and actual working time.

6. Add airline requirements

Airlines have several different requirements on number of CSA and CSO needed.

This task is to record the individual requirements into the database. The input data will be used for simulation purpose in the later step.

7. Generate result

This task is to view the result generated in PDF format.

2.4 Team Roles

Overall in-charge (Yosin Anggusti)

- Provide training overview prior to usability testing
- Defines usability and purpose of usability testing to participants

Facilitators (Glorya Marie, Suriyanti)

- Evaluate on the application and user interaction with the application, rather than evaluating on the user
- Facilitator will observe and enter user behavior and user comments.
- Responds to participant's requests for assistance

Test Observers (Yosin Anggusti)

- Silent observers
- Assists the data logger in identifying problems, concerns, coding bugs, and procedural errors

3. Usability Metrics

3.1 Critical Errors

Critical errors are deviations of results from the actual result. These errors will cause the task to fail. Facilitators are to records there critical errors.

3.2 Non-Critical Errors

Non-critical errors are usually procedural, in which the participant does not complete a task in the most optimal means (e.g. excessive steps, initially selecting the wrong function, attempting to edit an un-editable field).

These errors may not be detected by the user himself. Facilitators have to record these errors independently.

3.3 Scenario Completion Time

The time to complete each scenario, not including subjective evaluation durations, will be recorded.

4. Reporting Results

Results will be reported on scenario basis. All **recommendations** made in the reporting results are to be amended by team. Items mentioned in the **concern** areas will be discussed further on the necessary improvements.

Task 1: Bootstrap/import file(s)

Bootstrap/import file(s)	Concern	Recommendations
Critical Errors	-	-
Non-Critical Errors	- Window to get bootstrap data blocked the “Bootstrap Data” page.	- @Homepage: give system name instead of “Welcome..” - “Bootstrap” → change it to: “import” - Texts are not cleared after bootstrap is started - 1% progress bar is not implemented - Have everything in process view (e.g. Breadcrumb) - While importing, disable all browse and bootstrap buttons.
Scenario Completion Time	4 minutes	

Task 2: Add staff costs

Add staff costs	Concerns	Recommendation
Critical Errors	-	-
Non-Critical Errors	- Unsure if the default figures can be changed / edited.	- Stick to current cost - Add shortcut key like control S to simulate

Scenario Completion Time	10 seconds	

Task 3: Add uncertainties

Add uncertainties	Concerns	Recommendation
Critical Errors	-	-
Non-Critical Errors	<ul style="list-style-type: none"> - Flight delay rate should not be just MEAN and STDEV. They may not be reflective of certain infrequent scenario, e.g. strike that causes 3 hrs delay. Happens every year. - Unsure if all stdev has to be filled. - What to fill for stdev? 	<ul style="list-style-type: none"> - Allow users to add input on when (certain days and certain flight) will have xx hours of delay. - Show ALL flight delay rate and allow user to change the data just like in Manage Airline Requirements.
Scenario Completion Time	10 seconds	

Task 4: Run simulation

Run simulation	Concerns	Recommendation
Critical Errors	<ul style="list-style-type: none"> - Low Staff Utilization Rate. 	-
Non-Critical Errors	<ul style="list-style-type: none"> - Do not have print outs, they will slow down the system. 	<ul style="list-style-type: none"> - Kevin will get back to us on the staff utilization rate - The “optimize schedule” button run from the homepage does not contain BACK button. - Generate optimal schedule button is not obvious - Window is not - The circle does not

		display - Does not display the remaining time required for the simulation to complete - Staff Utilization Rate = Total Working Time within roster hour / Total Roster Hours Assigned (this excludes the overtime hours and recall hours)
Scenario Completion Time	13 minutes (run simulation for 30 days) 3 minutes 10 seconds (run simulation for 7 days) 2 minutes 49 seconds (run simulation for 1 day)	

Task 5: View staff schedule (in Gantt chart)

View staff schedule (in Gantt chart)	Concerns	Recommendation
Critical Errors	- Scheduling result for 1 week can be improved.	-
Non-Critical Errors	<ul style="list-style-type: none"> - Cannot change the week - The Gantt chart looks weird 	<ul style="list-style-type: none"> - Try putting Flight Number at the blue bubble
Scenario Completion Time	2 minutes	

Task 6: Add airline requirements

Add airline requirements	Concerns	Recommendation
Critical Errors	-	-
Non-Critical Errors	<ul style="list-style-type: none"> - Labels are cut, adjust properly - Prompt overwrite 	<ul style="list-style-type: none"> - Have textfields for HRS and MINS as unit

	<ul style="list-style-type: none"> - Save button does not display well. 	<p>measurement.</p> <ul style="list-style-type: none"> - Also cater to 'transfer desk' and 'premier check-in lounge' staff → nut they have the same attributes as normal counter departure staff. So, nothing needs to be changed. (check with client again) - Clear the text fields after SAVE successfully.
Scenario Completion Time	4 minutes	

Task 7: Generate result

Generate result	Concerns	Recommendation
Critical Errors	<ul style="list-style-type: none"> - 	<ul style="list-style-type: none"> - Optimum number of people needed? (optional) - Cannot delete list in the table. Need to fix this.
Non-Critical Errors	<ul style="list-style-type: none"> - "Manage Result" name for button is misleading. User was looking for "Generate Result" - OT hours: The actual data may be overvalued as staff tends to round up the each OT hour. 	<ul style="list-style-type: none"> - Aware of licensing issue when using third party application (the Gantt chart?) - Change the background of the calendar
Scenario Completion Time	20 seconds	

5. Subjective Evaluations

Subjective evaluations regarding ease of use and satisfaction will be collected via questionnaires. There are 2 participants, thus results from both participants will be combined or averaged whenever it is necessary.

*Each of the two participants contributes 50% to their answers. Not all sections are answered, thus not all questions have a total of 100% weight.

Navigation Impression	Agree	Neutral	Disagree
It is easy to find my way around the system			50%
It is easy to remember where to find things		50%	
The system is well-suited to first-time users			50%
Comment(s): <ul style="list-style-type: none"> - 'Back' button at simulation is missing - Have a flow. Not sure which button to select? - Need more instructions for first time users. 			

Look and Feel	Agree	Neutral	Disagree
The interface design is simple	100%		
The size and layout of the application is optimal		100%	
Comment(s):NA			

Functions	Agree	Neutral	Disagree
Each function has a clear purpose	50%	50%	
Comment(s): <ul style="list-style-type: none"> - Must be more explicit on description 			

Bootstrap/import file(s)	Agree	Disagree
The function works well	100%	
The function takes reasonable amount of time	100%	
The function provides right amount of information	100%	
The result/outcome of the function is right	100%	
Comment(s): <ul style="list-style-type: none"> - “Bootstrap” should be changed to “import” - Disable ‘browse’ button when bootstrapping 		

Add staff costs [Manage Simulation Parameters]	Agree	Disagree
The function works well	100%	
The function takes reasonable amount of time	100%	
The function provides right amount of information	100%	
The result/outcome of the function is right	100%	
Comment(s): NA		

Add uncertainties [Manage Sim. Parameters]	Agree	Disagree
The function works well	100%	
The function takes reasonable amount of time	100%	
The function provides right amount of information	100%	

The result/outcome of the function is right	100%	
Comment(s): <ul style="list-style-type: none"> - Unit of measurement change to “hrs+mins” - Allow shortcut key(e.g. [Alt + S] to start simulation) 		

Run simulation	Agree	Disagree
The function works well	50%	
The function takes reasonable amount of time	50%	
The function provides right amount of information	50%	
The result/outcome of the function is right	50%	
Comment(s): <ul style="list-style-type: none"> - Inconsistent textbox format - Progress bar is not showing - Exception handling. Encountered null pointer exception. 		

View staff schedule [in Gantt Chart]	Agree	Disagree
The function works well		50%
The function takes reasonable amount of time	50%	
The function provides right amount of information	50%	
The result/outcome of the function is right		50%

Comment(s):

- Staff schedule is incorrect
- Please add 'flight number' in Gantt chart

Add airline requirements	Agree	Disagree
The function works well	50%	
The function takes reasonable amount of time	50%	
The function provides right amount of information	50%	
The result/outcome of the function is right	50%	
Comment(s): <ul style="list-style-type: none"> - Success message not seen properly - Can have guideline 		

Generate result	Agree	Disagree
The function works well	50%	50%
The function takes reasonable amount of time	100%	
The function provides right amount of information	100%	
The result/outcome of the function is right		50%
Comment(s): <ul style="list-style-type: none"> - Cannot delete PDF record - How does this differ from "run simulation"? 		

Overall Impression	Agree	Neutral	Disagree
Satisfied with the system	100%		

1. "What did you like best about this system?"
 - Cost calculation is beneficial.
2. What did you like least about this system?
 - NA
3. If you could make changes to this system, what change would you make?
 - NA
4. Do you have any questions or comments about the system or your experiences with it?
 - It could be a good tool

Simulation Result (run for 30 days):

Simulation Result	1 day	7 days	30 days sim. (unsuccessful)	30 days – client data
Completion Time	2 minutes 49 seconds	3 minutes 10 seconds	13 minutes	NA
Total Staff Working Hours	1266.08 hours	2478.0 hours	20864.0 hours	NA (729 staff)
Staff Utilization Rate	26.02%	26.12%	5%	NA
Overtime Hours	110.0 hours	208.33 hours	2623 hours	8164.48 hours
Recall Hours	318.92 hours	589.08 hours	NA	TBC
Meal Allowance Compensation	NA	NA	NA	TBC
Flight Demand Coverage	83.31%	81.52%	45.76%	Try to meet as far as possible (no data)

** Only comparable actual client data is presented in the table above.

6. Reporting Conclusion

- ✓ Client was satisfied with the system. However, there are more to be improved in terms of the presentation and navigation of the application.
- ✓ Client, especially another participant gained better and clearer understanding on what the application delivers after testing the application.
- ✓ There are critical errors on the logic/formula for staff utilization rate and staff working hours that can be further improved to increase the accuracy of the calculation.
- ✓ Non-critical errors will also be solved.