

# Test Specification

Project 3: Decision tree engine app

## **1. Introduction**

Information and forms to fill for all tests to be performed in Project 3: Decision tree engine app can be found within this document. This document will also include information about the purpose behind each test and results of tests that already have been carried out.

## **2. Background**

The product that's been developed are two separate applications. One is an administrator application which is designed to function as a survey builder, where the administrator will be able to create, modify and delete surveys. The other one is an end-user application where the users can choose between different kinds of surveys, estimate economy calculations and view locally saved documents containing their results.

To make sure that these two applications are comprehensible and user-friendly they need to be tested, to see if the customer is able to manage without any assistance from the developer.

### 3. High-level overview

In order to receive feedback on the design of the end-user application, a comprehensibility test was made based on the end-user smartphone application design. The outcome of the test needed to show that the design was comprehensible for others and not only for the customer.

To evaluate the administrator application the customer needs to be able to add, edit and remove surveys, questions and languages in an easy manner. The customer will be given a set of tasks and changes may be made based on the outcome.

The end-user application will be put through an intensive user testing in an attempt to break the application, to ensure correct error handling.

Another intensive user testing will be made for the database in an attempt to find the upper limit of simultaneous push and pull requests. If no corruption or error occurs the database pass this test.

Lastly the end-user application will be given to the customer in an acceptance test, where the customer will be given a set of tasks which needs to be completed without assistance in order for the application to pass. The app should be able to function offline, send a message to an e-mail and have the possibility to choose a language.

#### 3.1 End-user site design test

Users for this test was hand picked among students registered in the course DVA313 (limited by request of secrecy by the client). They were either third year computer science bachelor students or fourth year embedded systems master students. All test persons therefore has either some or extensive knowledge in the field of GUI design, which was taken into account when the test was designed in-order to get as valuable feedback as possible.

The test person was first given a brief description of the purpose of the application. This was done in-order to give the test person a scenario as of why they're using the application.

Then the test person was given a smartphone with the illusion of the application already running, known as the Wizard-of-Oz-technique<sup>[1][2]</sup>, and was told to open the automation decision tree, answer it to the end (the amount of questions was shortened down since the test users lack necessary knowledge to answer all of them) and to view the report. If the test user got stuck anywhere in the process they were given extra verbal information for the sake of being able to continue.

When the test user either aborted the test, or completed a full run, and returned back to the main menu they were given an A4 paper containing all views of the application and an ink pen while being asked to comment on all design flaws they could find.

These comments were then used in order to improve the first design draft. Conclusions and results derived from this test can be found in the design description document under the title "8.1 Graphical User Interface - End-user application".

The individual results of this test can be found in appendix 1.

### **3.2 Administrator site acceptance test**

The client will be given the following list of tasks to complete which will cover all the implemented functionality of the program

1. Create Survey - a new survey will be created in the database
2. Edit the survey - options to add, modify and remove questions and answers will appear
3. Add a question to it - a question will be added to the survey in the database
4. Add possible answers to the question - an answer will be associated with a question in the database
5. Delete an answer - the selected answer will be removed from the database
6. Delete a question - the selected question and all answers associated with it will be removed from the database
7. Delete the survey - the survey and all questions and answers will be removed from the database

If it takes more than an appropriate amount of time the test will be failed.

### **3.3 End-user site stress test**

The interface responsiveness and error handling will be tested in an attempt to force the application to corrupt data or throw an error and cancel. This will be done by high frequency manual input in a random/unusual pattern compared to the most common program flow.

If the application remains free of corruptions and if it does not throw an exception it will have passed this test.

### **3.4 Database stress test**

The database will be tested in an attempt to find the upper limit of simultaneous pull requests. This will be done by having several smartphones request to update from the database at the same time.

If an upper limit cannot be found or if it's deemed to be within a reasonable amount the database will have passed this part of the test.

Simultaneous push requests should also be tested to check for appropriate countermeasures against the possible corruption of data.

This test will be cleared if the data remains free of corruptions no matter if updates were discarded.

### **3.5 End-user site acceptance test**

The Client will perform the following list of tasks without assistance:

1. Start the application - the application starts up from the android app "all programs"
2. Retrieve the latest data from the database - the latest version of the database is automatically downloaded on startup if a connection can be made.
3. Choose a survey - the selected survey will open and the first question will be shown
4. Read the additional information - the information will be presented in an overlay
5. Answer a question - the selected answer will be remembered and the next question will be shown
6. Go back and change an answer - the selected answer will change and all newer stored answers will be forgotten
7. Complete the survey - a report is generated and presented
8. View the report - open the report as a pdf using a pdf viewer (preferably using something similar to an intent call)
9. Email the report to yourself - the default email client will open, automatically log-in and attach the pdf to a newly created email

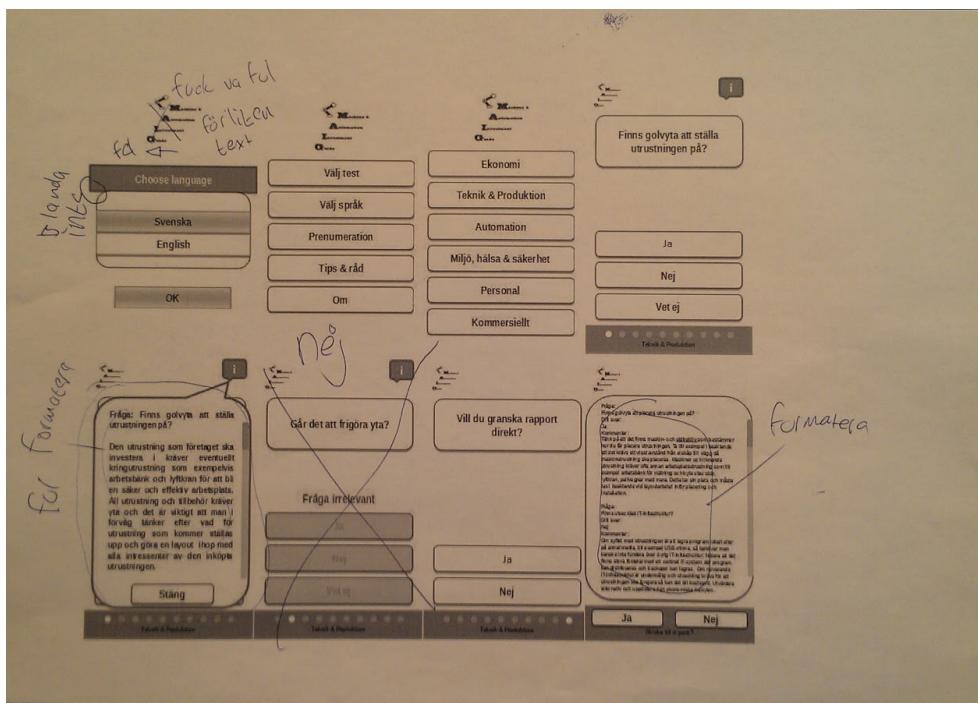
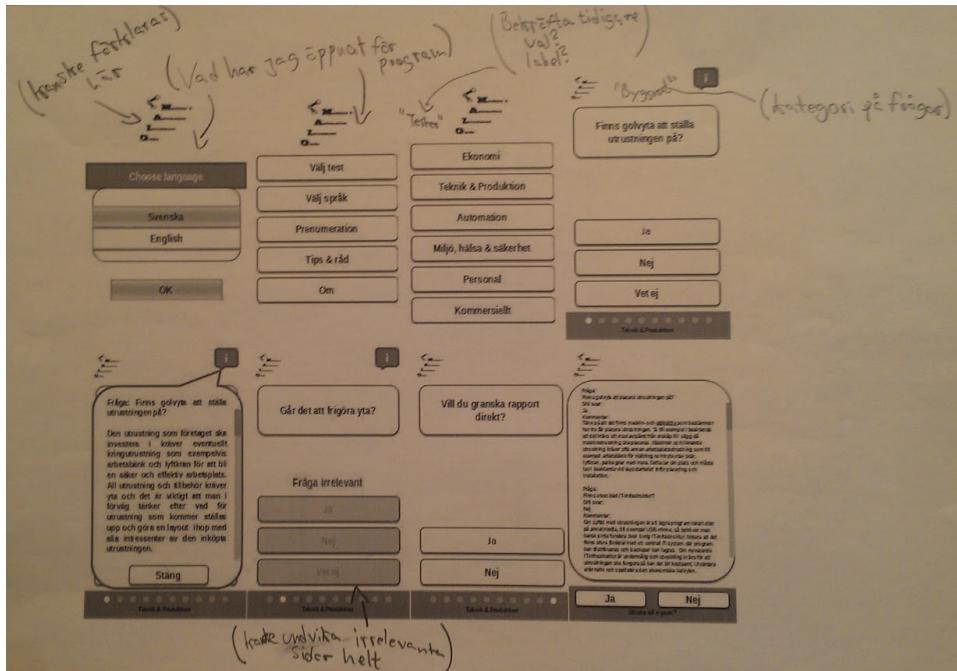
If they can be completed within a reasonable amount of time without complications the test will be deemed passed.

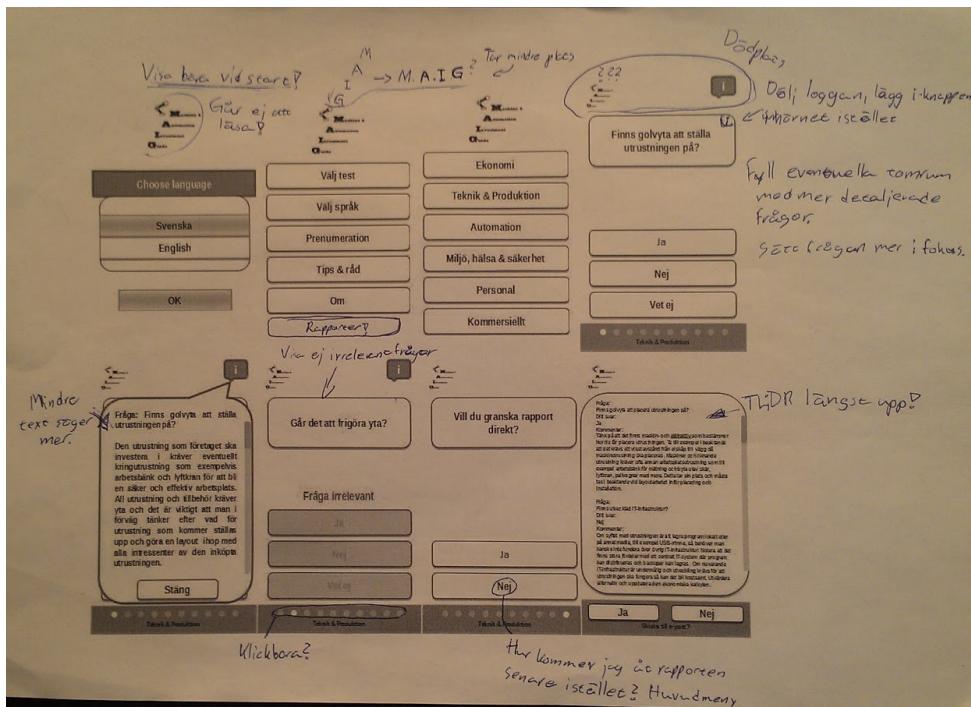
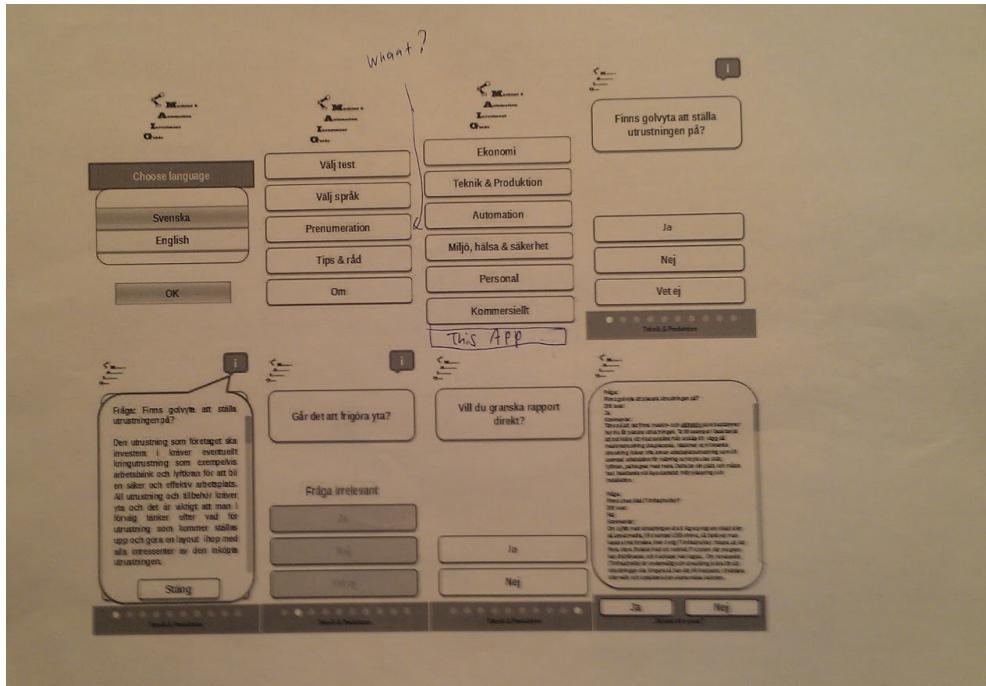
## 4. References

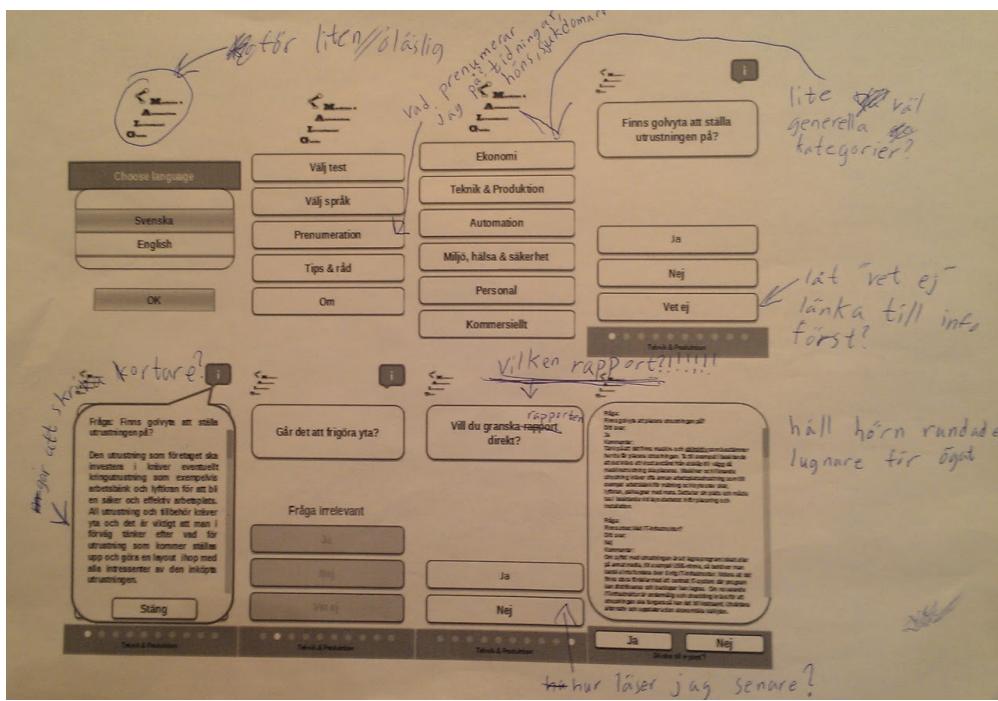
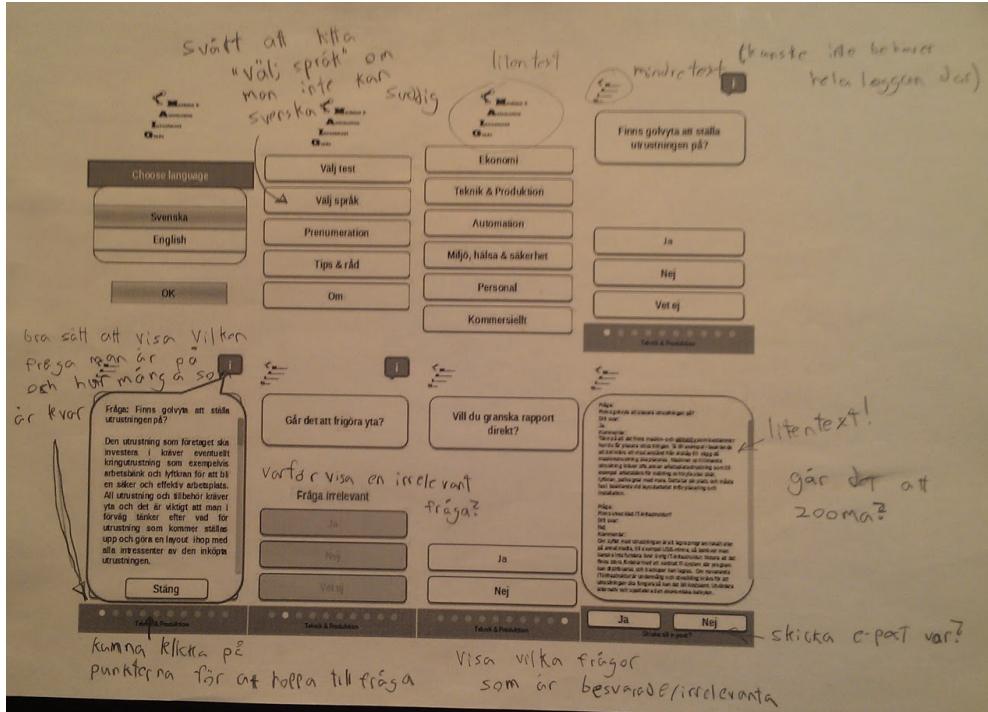
- [1]. Buxton, Bill. The Wonderful Wizard of Oz. In *Sketching User Experiences*, 239-244, ISBN - 9780123740373, 2007.
- [2]. Salber, Daniel and Coutaz, Joëlle. *Applying the Wizard of Oz Technique to the Study of Multimodal Systems*. no.1. 2005.  
[http://link.springer.com/chapter/10.1007%2F3-540-57433-6\\_51](http://link.springer.com/chapter/10.1007%2F3-540-57433-6_51) (Accessed 2014-12-17).

# 5. Appendix

## 5.1 End-user site design test







## **5.2 Administrator site acceptance test**

|                            |  |
|----------------------------|--|
| Unsatisfying functionality | Answer button should be above the answers box<br>Order of questions need to be clarified |
| Time                       | 07:40  |
| User                       | Andreas  |
| Date                       | 2015-01-08   |

## **5.3 End-user site stress test**

|                   |  |
|-------------------|--|
| Exceptions thrown |  |
| Corrupted data    |  |
| Time              |  |
| Date              |  |

## **5.4 Database stress test**

|                |  |
|----------------|--|
| Upper limit    |  |
| Corrupted data |  |
| Date           |  |

## 5.5 End-user site acceptance test

### Attempt 1:

|              |  |
|--------------|--|
| Time         | 01:34  |
| Complication | Step 1. and 2. succeeded but step 3. failed due to an unrecognized database error when they survey was selected the view did not change and no question to answer was presented. Further research into the reason behind this bug is required. |
| Client       | Andreas  |
| Date         | 2015-01-08   |

### Attempt 2:

|              |  |
|--------------|--|
| Time         |  |
| Complication |  |
| Client       |  |
| Date         |  |