

# DIT045/DAT355 Assignment 3

Fall 2020

## Table of Contents

Submission Instructions .....	1
Cover Page (3 points) .....	1
Assignment Due Date .....	2
Late Policy .....	2
Groupwork .....	2
Assignment Case .....	2
Question 1: Full UI Implementation (35 points) .....	2
Pattern Application (12 points) .....	3
Mapping to Requirements (8 points) .....	3
Question 2: Update Sitemap/UX Planning (10 points) .....	3
Usability Testing Overview .....	3
Question 3: Test Tasks (5 points) .....	3
Question 4: Questionnaire Design (5 points) .....	4
Question 5: Measurement Targets (5 points) .....	4
Question 6: Test Execution (5 points + possibly more) .....	4
Question 7: Analysis (10 points) .....	5
Question 8: UI Update (10 points) .....	6
Part 3: Summary Video (15 points) .....	6
Grading Criteria .....	6
Reflections .....	6
Prototypes .....	6
Video .....	7

## Submission Instructions

Assignments must be handed in through Canvas to A3 under Assignments. The final assignment should be submitted in PDF format. One submission per group.

## Cover Page (3 points)

On the cover page of your assignment include the following information:

- The name of the course
- The date
- Your group name

- Your group members
- Which assignment case was selected
- The number of pages in the assignment

### Assignment Due Date

Friday December 18th, 23:59

### Late Policy

Up to One day late: - 20% of final mark

Up to Two days late: - 40% of final mark

Two or more days late: 0%

### Groupwork

This assignment must be completed in your course group. Please work in the group you have submitted in A0 in Canvas. Indicate the group name on your cover page.

All team members must fill out a peer evaluation form, found in Canvas under quizzes.

### Assignment Case

Use the same assignment case as you selected in A1.

### Question 1: Full UI Implementation (35 points)

Build on your prototype from A2 and submit a prototype which covers the rest of your planned screens. If your sitemap is particularly large, you can limit yourself and focus on the most important screens. In total, with the 3 screens from A2, there should be at least 8 screens (at least 5 new screens). Think about the concept of minimum viable product. In order for someone to use your app for the first time, what functionality should it have? This is roughly the functionality we are expecting your prototype to cover. Fix (if necessary) and update A2 screens and submit these as well.

Your screens can be for any type of device, but indicate the type of device intended (e.g., mobile, browser on PC, tablet, kiosk). Try not to focus on screens which are common across many applications (e.g., registration or login screens). You may use whichever prototype tool or method you like (paper, digital, HTML, whichever tool for digital).

Note: if you use an online prototype tool where the prototype is not downloadable (e.g., Figma), submit screenshots of all of your screens in addition to a URL. Do not just submit a URL to show us the prototype.

The dynamic nature of the screens should be somehow clear, e.g., if I click here, what happens? You can do this either by writing notes or arrows on the pictures of the various prototype screens, or via a dynamic PDF with clickable button/links (i.e. as many of the tools would produce). For paper prototypes, you may need to submit more than one picture of each screen, if, e.g., there are sub-menu or popups that appear.

In this assignment, most buttons, menus and links should have a corresponding action or screen. If a button or menu item does not have a corresponding action because you deem not one of the main 8 screens, make it clear which screen in the sitemap it links to.

### Pattern Application (12 points)

While designing your screens, begin to apply the patterns from the Tidwell book or other approved sources (see the lectures). For each screen, try to apply at least two patterns. If the patterns aren't from the Tidwell book, give us the source. In total, apply eight unique patterns across all your screens. For each screen, indicate which patterns are applied and why (one paragraph per screen).

Expectation: prototype with roughly 8 screens (and possible menus, pop-ups), list of patterns used, rationale for patterns used.

### Mapping to Requirements (8 points)

The prototypes you've designed should map to/satisfy some of your requirements from A2. List each requirement satisfied/implemented by a screen, including the requirement number and text, and say briefly (one sentence) how it's satisfied. It is likely that each screen satisfies more than one requirement. Make sure the requirements listed are ones developed in a previous question, i.e., do not make up new requirements to fit your screens. Tell us where the requirements came from (e.g., context diagram, goal model, personas).

Hint: You are unlikely be able to implement an NFR in a prototype (e.g., how do we know it is easy to use?). Map prototypes to FRs.

Expectation: for each of the roughly 8 screens, list of requirements satisfied with short description of how.

### Question 2: Update Sitemap/UX Planning (10 points)

Update your sitemap from A2 to reflect your final prototype. Make sure all screens and links between screens are accurate as per your prototype. Show each screen as a box with a text label and a number. Indicate whether each screen is navigable from another or not. The entirety of your sitemap or app planning should satisfy all requirements in your scope. Your system may be usable on a mobile phone, PC, or other devices, or all of the above. Indicate which screens are usable on which devices.

Did you have to update your sitemap from A2? If so, describe how and why in 1-2 paragraphs.

### Usability Testing Overview

Now you will work to evaluate the usability of your prototypes. It's difficult for you to evaluate the usability of your own designs, so you will have to find users amongst the other groups. Find two other groups to evaluate your UI, or 8-10 other people from various groups. Try to find groups who have not picked your same case in A0, else they'll be too biased by their own design. Similarly, as you evaluate the UI of other groups, respect the ownership of their ideas, i.e., don't change your prototype to be more like your peers.

### Question 3: Test Tasks (5 points)

Come up with a list of test tasks for the users to perform during the user tests. This should roughly cover the main functionality of your system (all roughly 8 screens). Try to describe the tasks for the

users in natural language, i.e., in terms of what they want to do with the system, not in terms of the system design. The full set of tasks should take around 10 minutes to perform.

Expectation: submit your list of around 8 test tasks.

#### Question 4: Questionnaire Design (5 points)

Prepare a post-user test usability questionnaire. You should apply the SUS questionnaire as per the lecture; however, you should also add some additional, system specific questions. What would you like to know about the user's experience? What is key to knowing if your system will be successful? Design a mix of Likert or open answer questions. Be sure to indicate what type of answer is expected for each question (Likert/short answer). Try to think of 4-5 questions.

Expectation: submit the additional questionnaire questions with question types.

#### Question 5: Measurement Targets (5 points)

For each test task, state measurement targets in terms of time taken and number of defects (e.g., for task 2, 80% of users should be able to complete the task. For Task 1, 90% of users should be able to complete the task in 40 seconds). See the lectures for types of errors/defects. There should be at least two measures per task, one for time, and one for errors.

Also, state targets for each question from the SUS (e.g., 50% of the users should provide a score of 4 or greater for question 3), and for any quantitative new question that you added in Question 4 (e.g., any Likert questions).

Expectation: submit targets for the test tasks from question 3 and one target for each SUS question and quantitative question from 4.

#### Question 6: Test Execution (5 points + possibly more)

**Find Volunteers.** Find two volunteer groups from the course, with 8-10 users total, to evaluate your prototype. Or find 8-10 volunteers from different groups. Run a user evaluation with each group member individually. This can be performed one after another, or at different times, but don't let the other test users watch the user evaluation of others (or they will know how to do the tasks by the time it's their turn).

**Volunteer.** Volunteer to be test users for two other groups. You will get points for volunteering and will lose grades if you don't volunteer for at least two other groups. You can volunteer for more than two groups, if needed. You will get +1 group bonus marks for each group each member that volunteers for beyond the first two groups.

Submit four tables, as follows:

Volunteers (who were your test users)

Group Name	Group Member Name	Date/Time
1.		
2.		
3.		

4.		
5.		
6.		
7.		
8.		
(optional extra)		

Volunteered (who you were test users for)

Your Group Member Name	Group that you Volunteered for	Date/Time
Member 1...	1.	
	2.	
	(optional extra) (you get +1 per entry for each member that has more than 2 entries here)	
Member 2..		
....		

For each of the 8-10 users, have them perform your test tasks on your prototype in a remote user test. Recommendation: have your three group members pick a role to act as a test coordinator, recorder, and helper (see lecture slides). Test coordinator: have someone provide instructions and run the tests. Recorder: have at least one person in charge of writing down difficulties the user(s) had and recording time for each tasks. Ask the users to think aloud and record anything interesting, particularly the difficulties they have. Write down both qualitative and quantitative data. See the lecture for remote user test advice.

Note: if you have the user's permission, you can record them to analyze the data later. The users can say no, so also prepare to take notes.

You are welcome to do the user testing at any time and place, but we will reserve the course exercise slot, Wednesday 13:15 to 17:00 on Dec. 16<sup>th</sup> to allow for exchanging user testing.

Ideally, when you do user tests, evaluate the final version of your prototype. However, as you will get feedback on A2 by Dec 14<sup>th</sup>, you may need to change your UI during the last week. Record whether you run all or some user tests on the final or near final version and consider this as part of your analysis.

Expectation: Submit two tables.

## Question 7: Analysis (10 points)

**Compile the user test data.** Provide the raw values for each of your users for each of your user tasks in terms of time and defects. Calculate and report the average for each task. Report the raw and average values for the SUS questionnaire, your extra questions in question 5 and your targets in question 6. Calculate the SUS score and comment on whether this score is good or not. Submit 1-2 tables with raw value and averages. Evaluate and report whether or not all the targets in question 6 were met.

In addition, provide a summarized list of qualitative observations. What tasks did the users have trouble with and why? Any confusions or interesting findings when the users were thinking aloud?

Expectation: submit the quantitative raw values, averages, an assessment of your targets, and a list of qualitative observations.

### Question 8: UI Update (10 points)

Based on your collected user data, what would you fix or change in your UI? Provide a list of changes and fixes and explain why you are making these changes based on your collected data (either qualitative or quantitative).

These changes should be reflected in the UI, as much as possible in preparation for the next question. When submitting your final prototype, submit this final version. If the changes are extensive, you can also submit the version pre-user testing (e.g., to match the sitemap), just make it clear which is which.

Expectation: submit a list of changes with an explanation linking the change to your gathered data.

### Question 9: Summary Video (15 points)

Create a < 3 minute video showing your final UI design.

**Purpose.** The video serves two purposes. 1) To provide a summary of your creation. 2) To allow you to reflect and present your process and outcome, and for us to provide an overall evaluation.

**What to include.** Provide a demo of your UI in the video. Illustrate a path through the UI for 1-2 of your journeys for 1-2 of your personas. You can focus on the UI or be more creative and cover the entire “customer” journey, i.e., outside the app, how the challenge implementation will be used in the world.

**How to create.** You can use whatever tool you would like to create the video (e.g., Zoom, Powerpoint, etc.) Don’t just use your mobile phone to record your screen, use some screen capture software. Small watermarks are OK, as long as it doesn’t block the content of the video. You can be creative and use images, drawings or cartoons to demonstrate your scenarios. In the end, clarity is the most important, but creativity and interestingness is also nice. The final file type should be something we can open and play easily on Windows and Mac (e.g., mp4).

Expectation: a less than 3-minute video walking through your UI in a realistic way (a way users would actually use it).

## Grading Criteria

### Reflections

Credit is given for answering all the questions. To get full marks, answers must be clear, thoughtful and not obvious (i.e. not something mentioned in the lecture slides). Points are given for writing style, including grammar, punctuality, spelling, and readability.

### Prototypes

Prototypes should be neat, readable, and easy to understand. It should be fairly clear how the screen is used, and how it satisfies the listed requirements. Transitions between the three screens should be clear. We should be able to view the screens and move between them (if prototype is not paper). Prototypes should use at least two patterns per screen and four in total. The use of patterns should make sense, be

a sensible pick for the functionality of that screen, and not just be picked at random. The patterns should be applied correctly. Note: if we cannot open or use the prototype file easily (e.g., we have to download some special software) you will lose marks.

### User Testing

Make sure to volunteer for at least two groups, report this information, and who volunteered for you.

Your test tasks should be clearly understood, complete with respect to the UI, covering the main functionality of the prototype. They should be user-focused and avoid referring to design or UI information (e.g., buttons, menus). They should be a reasonable length, taking the user about 10 minutes to perform.

Your usability questionnaire should be easy to understand, well-adapted for your specific interface and tasks, of a reasonable length, and should clearly show the form of answer (Likert, open answer).

You should have the correct number of measurement targets (two per user task, one for each questionnaire). The targets should be reasonable as per the tasks and context (not too demanding or too easy to satisfy).

You should provide raw numbers for time and error data collected, for each user and each user task, including average values. Questionnaire raw data should be provided, with averages. The list of targets should indicate whether each target is satisfied or not. (Note: it doesn't matter if they all fail. We are marking you on how well you measure usability in part 2, not how usable your interface is).

Provide a list of UI updates which can be easily understood. The updates should cover the problems found in the usability test, no extraneous updates, and no major usability problems left unaddressed. The mapping between your findings and your changes should be clear. Make as many updates to your UI as possible.

### Video

The video should have good sound and video quality. It should be easily openable and viewable. It should be easy to understand, and the audio should match the video in terms of topic. The UI should be demonstrated from a realistic process perspective.