

System Test Plan

Feeler

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2 INTRODUCTION

2.1 DOCUMENT GOAL

This document will define the application's testing structure on a concrete level.

2.2 REFERENCES

Where needed, this document will reference any external documents, but all documentation and code can be seen here: [documentation](#), [frontend code](#), [backend code](#).

3 TESTING

3.1 BASELINE

To ensure the quality of the tests, here the exact version of software tested will be defined, which components are tested, and which environment they are tested in.

The following components will be tested:

- React frontend progressive web application
- Spring backend application

All unit testing will be done automatically. Whenever a new version is pushed to the main branch of the version management system, Jenkins creates a new build for both components, runs the unit tests, and deploys a new version of the project – if the tests were successful.

For manual tests test version of the project will be used, which is run locally by the tester using WebStorm for the frontend, and IntelliJ for the backend. The database that will be used during testing is an in-memory H2 database.

A test report is generated at the end of every sprint.

The exact version of the application tested will be defined in each iteration of the test reports after testing is complete.

3.2 PRODUCT ANALYSIS

To determine the how extensive certain components of the application should be tested, a risk class will be determined by defining the chance of failure and the damage if failure does happen.

Both factors will be given a score from 1 to 3, with 3 being the highest chance of failure and the highest amount of damage.

The risk class is determined by multiplying these two scores.

Risk Class	Score
C	1 – 3
B	4 – 6
A	7 - 9

The targets that are tested are defined in-detail [here](#).

ID	Name	Damage	Chance	Class
R01	GUI Language	3	1	C
R02	Mobile	3	1	C
R03	Book Language	1	1	C
R04	Installable	2	1	C
R05	Offline use	2	2	B
R06	Data Security	3	1	C

R07	Account Security	3	1	C
R08	Test Coverage	2	1	C
US01	Explore	3	3	A
US02	Details	2	2	B
US03	Bookshelf	2	1	C
US04	Status	2	1	C
US05	Account	3	2	B
US06	Search	2	3	B
US07	Delete Account	1	2	C
US08	Encouragement	1	1	C
US09	Random	2	2	B

3.3 STRATEGY

Here, the test strategy for the previous components will be defined depending on the determined risk class.

The test strategy consists of the necessary types of tests and their severity from 1 to 3. The types of testing consists of unit testing, component testing, and integration testing.

Additionally, it is specified how much is focused on automated testing and manual testing.

Target	Name	Class	Unit tests	Cmp. tests	Int. tests	Sys. tests
R01	GUI Language	C				●
R02	Mobile	C				●
R03	Book Language	C				●
R04	Installable	C				●
R05	Offline use	B				●●
R06	Data Security	C	●			●
R07	Account Security	C	●			●
R08	Test Coverage	C				●
US01	Explore	A	●●	●	●	●●
US02	Details	B	●		●	●
US03	Bookshelf	C	●			●
US04	Status	C	●	●		●
US05	Account	B	●			●●
US06	Search	B	●●		●	●●
US07	Delete Account	C	●			●
US08	Encouragement	C	●			●
US09	Random	B	●			●

3.4 LOGICAL TESTCASES

ID	Target	Description
TC01	R01	Check every page for language use other than English.
TC02	R02	Check every page with mobile dimensions for GUI bugs.
TC03	R03	Check received book overview for languages other than English.
TC04	R04	Install the application.

TC05	R05	Check offline if books on the want-to-read list are still available.
TC06	R05	Check offline if books on the reading list are still available.
TC07	R05	Check offline if books on the read list are still available.
TC08	R06, R07	Create account to check if password is saved correctly.
TC09	R07	Try creating an account with a password shorter than 6 characters.
TC10	R08	Check test coverage of front- and backend.
TC11	US01	Check if an overview of books is received when exploring with every available emotion.
TC12	US02	Check for a few books if the detail page is available.
TC13	US03, US02	Add books to the bookshelf and check if the bookshelf contains them.
TC14	US03	Check if the overview amount updates.
TC15	US04, US08	Set an unread book to finished reading and back.
TC16	US03, US04	Remove a book from the bookshelf
TC17	US05	Create an account and authenticate the account.
TC18	US06, US01	Search for books by a title.
TC19	US06, US01	Search for books by an author's name.
TC20	US07, US01	Search for books by a book's ISBN.
TC21	US07	Delete a created account.
TC22	US08, US04, US2	Finish reading a book and close the encouragement screen.
TC23	US09, US01	Explore an overview of random books.

3.5 PHYSICAL TESTCASES

Outcome	Description
	The test completely passed.
	The test seems to pass, but there is something to remark about the result.
	The test failed.
	The test is not applicable to this version of the application.

#	Data		Description	Outcome
1			Open the application without being authenticated.	
2			Open the registration page.	
3	Username	Test	Register an account with the given data.	Notification that registration failed and stayed on registration page.
	Password	Test		
4	Username	Test	Register an account with the given data.	Notification that registration was successful and redirected to authentication page.
	Password	Test12		
5	Username	Test		

	Password	Test	Authenticate the created account.	Notification that authentication failed and stayed on authentication page.
6	Username	Test	Authenticate the created account.	Authenticated and redirected to the menu page.
	Username	Test12		
7			Redirect to the explore page.	
8			Choose a mood and continue.	Redirected to the overview page where a list of books is displayed.
9			Go back to mood page.	
10			Choose a different mood and continue.	Redirected to the overview page where a list of books is displayed.
11			Scroll to the bottom of the page and load the next overview of books.	A new list of books is added to the overview.
12			Select a random book in the overview.	Redirected to the detail page where the book cover, title, and description is displayed.
13			Add the book to the account's bookshelf.	The overview changes and displays options to remove the book and to start reading.
14			Go back to the overview page.	
15			Select a different random book in the overview.	Redirected to the detail page.
16			Add the book to the account's bookshelf.	The overview changes and displays options to remove the book and to start reading.
17			Go back to the mood page.	
18			Choose the specific search option.	Redirected to the search page.
19	Title	The Hitchhiker's Guide to the Galaxy	Search for the given title	The specific book is displayed in the overview.
20			Select the given book.	Redirected to the detail page.
21			Add the book to the account's bookshelf.	The overview changes and displays options to remove the book and to start reading.
22			Go back to the search page.	
23	Author	Tolkien	Search for the given author.	A list of the author's books is displayed in the overview.
24			Select the given book.	Redirected to the detail page.

25			Add the book to the account's bookshelf.	The overview changes and displays options to remove the book and to start reading.
26			Go back to the search page.	
27	ISBN	9781474605731	Search for the given ISBN.	The given book is displayed.
	Book	Flowers for Algernon		
28			Select the given book.	Redirected to the detail page.
29			Add the book to the account's bookshelf.	The overview changes and displays options to remove the book and to start reading.
30			Go back to the home page.	
31			Open the bookshelf page.	Redirected to the bookshelf page.
32			Open the want to read page.	Redirected to the overview page where the added books are displayed.
33			Select a book in the overview.	Redirected to the detail page.
34			Set the book to reading.	The options on the detail page change to remove, finish reading, and stop reading.
35			Set the book to finish reading.	A encouragement message is displayed.
36			Close the message.	The options on the detail page changed to remove from bookshelf.
37			Remove the book from the bookshelf.	The options on the detail page changed to add to bookshelf.
38			Go back to the bookshelf page.	
39			Go offline.	
40			Open the want-to-read page.	Redirected to the overview page where the want-to-read books are displayed.
41			Select a book in the overview.	Redirected to the detail page.
42			Go back online.	
43			Go back to the menu page.	
44			Display the application with mobile dimensions.	
45			Visit every page and check the if the design is properly aligned.	Everything is properly aligned.

46			Visit every page and check for any language other than English.	Everything is displayed in English.
47			Select the extra options menu.	Redirect to the extra menu page.
48			Logout the account.	Redirected back to the authenticate page.
49	Username	Test	Authenticate the account.	The account is authenticated and redirected to the menu page.
	Password	Test12		
50			Select the extra options menu.	Redirect to the extra menu page.
51			Delete the account.	Redirected to the authentication page.
52	Username	Test	Authenticate the account.	Authentication fails and stays on authentication page.
	Password	Test12		

3.6 COVERAGE

		Requirements								User stories								
		01	02	03	04	05	06	07	08	01	02	03	04	05	06	07	08	09
Testcases	01	X																
	02		X															
	03			X														
	04				X													
	05					X												
	06					X												
	07					X												
	08						X	X										
	09							X										
	10								X									
	11									X								
	12										X							
	13										X	X						
	14											X						
	15												X				X	
	16											X	X					
	17													X				
	18									X					X			
	19									X					X			
	20									X						X		
	21															X		
	22										X		X				X	
	23									X								X
Total		1	1	1	1	3	1	2	1	5	3	3	3	1	2	2	2	1






4 CODE ANALYSIS

Here, the static code analysis is displayed – which includes code coverage for both the back- and frontend.

4.1 FRONTEND

src/components/book-overview	75	100	66.67	75	
book-overview.component.jsx	75	100	66.67	75	10
src/components/header	50	50	33.33	50	
header.component.jsx	50	50	33.33	50	21-28
src/components/input/button/button-icon	66.67	100	50	66.67	
button-icon.component.jsx	66.67	100	50	66.67	9
src/components/input/button/button-main	66.67	50	50	66.67	
button-main.component.jsx	66.67	50	50	66.67	8
src/components/input/button/button-main/button-main-number	66.67	0	50	66.67	
button-main-number.component.jsx	66.67	0	50	66.67	8
src/components/input/button/button-sec	66.67	50	50	66.67	
button-sec.component.jsx	66.67	50	50	66.67	8
src/components/input/button/button-sec/button-sec-number	66.67	100	50	66.67	
button-sec-number.component.jsx	66.67	100	50	66.67	8
src/components/input/selector	33.33	0	50	33.33	
selector.component.jsx	33.33	0	50	33.33	17-26,31-40
src/components/layout/padding	100	50	100	100	
padding.component.jsx	100	50	100	100	10
src/components/loading	100	100	100	100	
loading.component.jsx	100	100	100	100	
src/models	25	12.5	13.33	25	
book.js	100	50	100	100	4
bookshelf.js	27.27	0	12.5	27.27	8,17-23,27-33,37-43
bookshelfItem.js	0	100	0	0	2-4
dto.js	0	100	0	0	2-18
user.js	0	100	0	0	4-6
src/pages/bookshelf	52.38	0	33.33	52.38	
bookshelf.page.jsx	52.38	0	33.33	52.38	17,22,27,38-48
src/pages/bookshelf/overview	71.43	50	66.67	71.43	
overview.page.jsx	71.43	50	66.67	71.43	20,30-33,37
src/pages/detail	41.03	10	30.77	41.03	
detail.page.jsx	41.03	10	30.77	41.03	24,40-43,48-118
src/pages/explore	71.43	100	40	71.43	
explore.page.jsx	71.43	100	40	71.43	18,22
src/pages/explore/overview	73.68	25	80	73.68	
overview.page.jsx	73.68	25	80	73.68	26,40-43,50
src/pages/menu	66.67	100	40	66.67	
menu.page.jsx	66.67	100	40	66.67	22,27,32

4.2 BACKEND

91% classes, 59% lines covered in package 'com.example.feelerbackend'			
Element	Class, %	Method, %	Line, %
 config	100% (1/1)	50% (1/2)	92% (13/14)
 data	88% (8/9)	72% (27/37)	71% (55/77)
 domain	95% (21/22)	67% (71/105)	58% (191/328)
 web	83% (10/12)	42% (11/26)	47% (29/61)
 FeelerBackendApplication	100% (1/1)	0% (0/1)	33% (1/3)

5 CONCLUSION

The functional test cases that were implemented ran well. The exception here is viewing the bookshelf offline. This works in development, but not in production. The reason for this is that the application isn't server using SSL, which is a requirement for PWAs to work.

The backend test coverage is good, but the frontend needs more testing.