



Social Document Library

An application that helps the user to find the best
book for him knowledge

Valerio Vaudi n.m. 1034003
valerio.vaudi@gmail.com

Abstract

The basic idea of the project is create an On-Line Social Document Library for technical books. The user must be registered in the SDL in the same way a user goes to register in an ordinal Document Library. The focus of the application is help technical people to search a best book for his technical education, in particular the idea is focused on IT knowledge. The advantage that the user should perceives is actually in the improved capability in search. In a normal Document Library a user has know the name of the book. A user that have a clear idea of what search this is enough, however, in many case a user could be not know clearly what book could be transmit the better knowledge and start a blind search and for realize that a book haven't a good grade of details, a user must read a good part of the book, other case a use could not find the best book. In the application instead the user should be able to search a book in a classical way, by name in particular, or could search the book add a lot of indicator for example category rating score of other user and so on, in this way the search of the user could be driven by the knowledge of other user that had yet read this book or category of book and could leave feedback.

Acronymun:

Social Document Library = SDL

User Requirements

Starting from the abstract in which the goal was build a new application that helps the user to find the best book for the user's technical study. I have supposed that for create a working application must exist two kind of user: Employee user, for administering the document library, and Final user. I have built some hypothesis that I had validate through surveys. The hypothesis was:

1. Build an application that helps in the searching more than a simple find by name could be useful
2. Build an application that helps to decide the goodness of a book through feedback and score of other user could be useful
3. A wide range of age and type of work in "IT world" may use the application for increase his knowledge
4. Create an instrument for reading books in adobe acrobat reader way (the most product for read book in IT world) and provide feedback, indeed many times a book could have many pages and know in as preview the feedback of other user could be useful.
5. Create an instrument for upload and manage book in a simple way

For validate this my hypothesis I had send by mail two surveys: one for the employee user profile and another for the user profile. In the light of the results, I supposed that the more representative kind of user for the final user profile could be a very beginner developer and a user with more experience. Indeed many times either beginner that more experts, have always need of study new technology especially in the IT World. For the employee a single kind of personas was sufficient. At the light of those considerations, I developed three personas, two for the final user profile and one for the employee user profile, than I written the Senarios related to the main functionality and I had formalized the functionality in HTA and STN.

Survey

Employee survey

1. Wath is your age?

| | | |
|---|---------|-------|
| A | 18 – 25 | 12,5% |
| B | 25 – 30 | 25% |
| C | 30 – 35 | 37,5% |
| D | 40 – 50 | 25% |
| E | Over 50 | 0% |

2. What is your education level

| | | |
|---|---------------------|-------|
| A | High school | 37,5% |
| B | Economist | 0% |
| C | Management engineer | 0% |
| D | Other | 62.5% |

3. How many years work

| | | |
|---|---------|-------|
| A | 0 – 5 | 62,5% |
| B | 5 – 10 | 25% |
| C | 10 – 20 | 0% |
| D | 20 – 30 | 12.5% |
| E | Over 30 | 0% |

4. How many times don't have all book information when you upload book in the library? Choose only one

| | | |
|---|-------------|-----|
| A | Too much | 0% |
| B | Much | 25% |
| C | Enough | 25% |
| D | little | 50% |
| E | Very little | 0% |

5. How much books you managed in a months?

| | | |
|---|---------|-------|
| A | 0 – 10 | 87.5% |
| B | 10 – 20 | 12.5% |
| C | 20 - 30 | 0% |
| D | 30 – 40 | 0% |
| E | Over 40 | 0% |

6. How many times don't yon publish a book as soon as it is loaded in the system for any reason? Choose only one

| | | |
|---|------------|-------|
| A | Too much | 0 % |
| B | Much | 12.5% |
| C | Enough | 50% |
| D | Little | 25% |
| E | Vey little | 12.5% |

7. How many times do you managed (unpublish-update the data-publish again) a book already load in the system for any reason?
Choose only one

| | | |
|---|------------|-------|
| A | Too much | 0 % |
| B | Much | 25% |
| C | Enough | 25% |
| D | Little | 37,5% |
| E | Vey little | 12,5% |

8. How many times do you delete a book from system for any reason (book too old, mistake)? Choose only one

| | | |
|---|------------|-------|
| A | Too much | 12,5% |
| B | Much | 0% |
| C | Enough | 0% |
| D | Little | 62,5% |
| E | Vey little | 25% |

User Survey

1. What is your age?

| | | |
|---|---------|-------|
| A | 18 – 25 | 12,5% |
| B | 25 – 30 | 25% |
| C | 30 – 35 | 37,5% |
| D | 40 – 50 | 25% |
| E | Over 50 | 0% |

2. What is your education level

| | | |
|---|--|-----|
| A | High school | 25% |
| B | Computer engineer/ Computer science | 25% |
| C | Computer engineer/ Computer scientist with professional certification | 25% |
| D | Other | 25% |

3. What is your principal work position

| | | |
|---|--------------------|--------|
| A | Developer | 45,45% |
| B | DBA | 18,18% |
| C | Software Architect | 0% |
| D | Project Manager | 18,18% |
| E | Web Designer | 18,18% |
| F | Other | 0% |

4. How many times, you must start to learn a technology that do not you know?

| | | |
|---|---|-------|
| A | In every project | 12,5% |
| B | In every project I have at least one thing that I must study from scratch | 12,5% |
| C | In more projects I have at least one thing that I must study from scratch | 75% |
| D | In a few projects I have at least one thing that I must study from scratch | 0% |
| E | Never | 0% |

5. How many times, you study on technical books for learn a technology that do not you know?

| | | |
|---|---|--------|
| A | Every times that I find a thing that I don't know | 33,33% |
| B | Every times that I find a big framework, library or runtime that I don't know | 22,22% |
| C | Many times that I find a thing that I don't know | 11,11% |
| D | Many times that I find a big framework, library or runtime that I don't know | 22,22% |
| E | Never I use Google and StackOverflow | 11,11% |
| F | Other | 0% |

6. How many times when you search a technical book, do you know how to search?

| | | |
|---|---|-------|
| A | I have always a clear idea about who I search and I know the name of the book that I search | 0% |
| B | I have always a clear idea about who I search but I don't know which book choose | 62.5% |
| C | I don't always have a clear idea but search on google for information | 37.5% |
| D | I don't have any idea and search on google for information about it | 0% |
| E | Other | 0% |

7. When you search a new book for name, how smart should be the search?

| | | |
|---|---|-------|
| A | I expect to find the books that have this name | 0% |
| B | I expect to find the books that have in the name parts of the name in input (For example book name Java 8 in action and java how input I find the book) | 62.5% |
| C | I expect a search engine that works how database like (Java* for Java 8, JavaEE7 and so on) | 25% |
| D | Other | 12,5% |

8. Could be useful for searching use search tag? Choose only one

| | | |
|---|-------------------|-------|
| A | Strongly Agree | 62.5% |
| B | Somewhat Agree | 37,5% |
| C | Somewhat Disagree | 0% |
| D | Strongly Disagree | 0% |

9. Could help you the feedbacks of other user for understand the goodness of the chosen book? Choose only one

| | | |
|---|-------------------|-----|
| A | Strongly Agree | 50% |
| B | Somewhat Agree | 50% |
| C | Somewhat Disagree | 0% |
| D | Strongly Disagree | 0% |

10. Suppose to have a preferred book list, How much useful can search a book by name? Choose only one

| | | |
|---|-------------|-----|
| A | Too much | 0% |
| B | Much | 50% |
| C | Enough | 50% |
| D | Little | 0% |
| E | Very little | 0% |

11. Could be useful have a preferred book list in which save the books for reading and books readed? Choose only one

| | | |
|---|-------------|-------|
| A | Too much | 37,5% |
| B | Much | 37,5% |
| C | Enough | 12,5% |
| D | Little | 0% |
| E | Very little | 12,5% |

12. Suppose to have a preferred book list, could be useful in this place add your score and feedback to book for update his feedback and score whenever you want? Choose only one

| | | |
|---|-------------|-----|
| A | Too much | 25% |
| B | Much | 25% |
| C | Enough | 50% |
| D | Little | 0% |
| E | Very little | 0% |

13. During the book read usually how prefer change page

| | | |
|---|---|--------|
| A | Only with keyboard keys | 22,22% |
| B | Only with keyboard keys and command on tool bar | 66,66% |
| C | Other | 11,11% |

14. Do you like insert a bookmark during read, for to restart reading by the bookmark

| | | |
|---|---|-----|
| A | No I want start from the first page any times that I read a book | 25% |
| B | No I want start from the last page that I have leaves during the last time that I read a book | 25% |
| C | Yes I prefer of be able to store the start page for another times | 75% |

The result of the survey shows that for the finale user profile we can consider a wide range of ages and professional figure around the developer work. In many case in every project many user could study a new technology and in many case the presence of search hint in form of search tags could be a good choice. Even the chance of to read score and feedback of other user, could be a good instrument for understand what he is reading and if the choice is correct for the requirement. About the employee user profile the survey show that typically an employee don't want managed many times the book because probably don't make sense managed a book after that the book is uploaded the category of the potentially user has a wide range of ages. However for error recovery I decide to implement in any case the possibility of delete a book, as instrument of error recovery, and a manager form for a book in order to make the employee free to change the value of metadata in case of mistake.

User profiles

Considering the results of the survey and the landscape of the usual professional-figure in the work world it was thought that the kind of potential user could be resumed in two family. The application then, is aimed for two kinds of users: The Final User and The Employee User.

Final User user-profile

User profile

Age: 18 - 50

Education: wide kind of education

Work positions: wide kind of work positions

Years of experience: 0 - 30

Background:

The **Final User** is a user that could be either an **Expert User** or **Junior User**. The **Expert User** is a user that is "Senior" in the technology in which search a book, and have a clear idea of what is searching. The user than, have many details in his knowledge to start the search and don't needs of many hit to search the book. For example if a senior developer want find a book on how implement the REST WS in java, the senior user already knows that the standard is JAX-RS and is sufficient that the application accepts the hint in the search that I want search a book about Java and JAX-RS. This could be enough, for a senior user, for search the book that is the best for him. The **Junior User** on the other hand don't has experience in the technology in which is searching the book and would be very happy, if the application could help the user in the search. In this case the user don't knows that JAX-RS is the rest standard for implements REST WS in java and for this reason the user would be say to the system that want search a book on java how programming language and that want a book on the framework that implements in java the REST. The system then should be return a set of books on JAX-RS, Spring MVC and so on.

Personas

Expert Developer User



Name: Nicolas Freeman

Age: 40 years old

Job Title: Senior Developer

Experience level: greater than 8 years

Work hours: 9:00 am – 6:00 pm

Educations: Master's degree in Computer Science

Technology: Word, Excel, Project, SONAR, Jenkins, Visual Paradigms

Family: Married

Background: Nicolas is a Software Architect that design solution for

complex enterprise. In his work have be always updated. For this buy many books on Amazon of any category strictly technical, more general and so on, with his knowledge that he has accumulated over the years Nicolas can search in Amazon the books that her want buy. However sometimes, especially when don't has many experience in the a new scenario could be helpful a mean that could hint the right book for the job. For instance suppose that Nicolas work in a new project and have design an application rest base in which the fornt-end will be written in NodeJS based and the back-end will be in .NET. Nicolas would have a mean that can suggest the available books about how produce REST-WS in .NET and how consume REST-WS in NodeJS.

Junior Developer User



Name: John Hilbert

Age: 25 years old

Job Title: Junior Java developer

Experience level: less than 2 years

Work hours: 9:00 am – 6:00 pm

Educations: Bachelor degree

Technology: Java, Sql, JavaScript

Family: single

Background: John has started to learn a new technology, he has to

learn Scala and the functional programming paradigms. John has a strong Java knowledge but don't has any details about the functional programming paradigms and is confused.

Senarios

1) *A user should be able to search a book in the SDL*

John should start to learn the functional programming and Scala language, for a very important customer. Fortunately, John comes from the Java world, however he don't knows anything about Scala and more in general of Functional Programming. For this reason tries to search a book that can helps you in the learning process. John when return at home turn on your pc and log in to the document library. Once logged in John think on what search and click on the search function on menu. John now can start to search but is confused because don't know the name of a book about Scala and the worst problem is that don't know the name of the framework used in the Scala ecosystem. For repair on your leaks, John tries to use the search tag. For this search tries to choose Scala, Web, Functional Programming how search tag, then click on the search button, John in this way hopes that the search engine find for you books about Scala and all the search tags that he had choose. Wait some instant and under the search form compare the results of the search. Now John can assess the books reading the description, and the score of other users in order to built a his idea about which book could be a good choice for his intention.

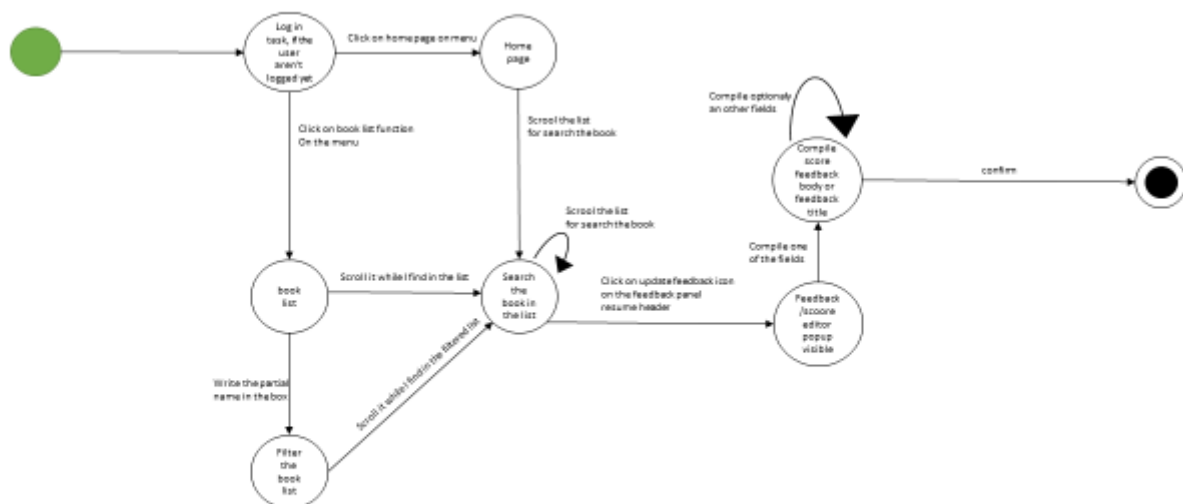
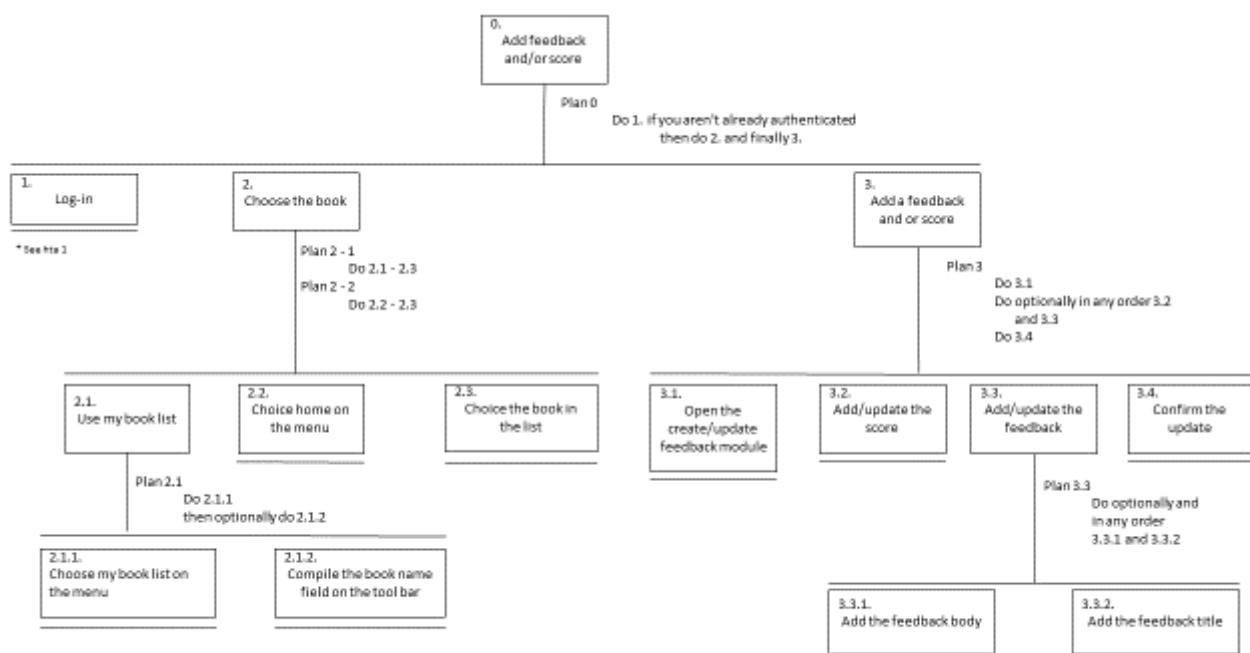
2) *A user should be able to read a book that is been searched in the SDL*

Nicolas is a senior developer and in his career studied very hard for stay up to date. Lately Nicholas must work on a new and complex project, in which many technologies must interact. In particular, the back-end implemented in .NET and the front-end will implemented in NodeJS. Since Nicholas don't know Node , he starts to search a good book for his study. Once that Nicholas had find the book that he consider good enough, he start to read the book page by page. Nicolas start the read when has change page something decide of use the keyboard command and other times, when he has the mouse in your hand use the button for forward the page that he find on the tool bar. After one hour. Nicolas see that is too late and he decide of turn-of the pc. Nicolas now for not forget the last page that he had read decide of put a bookmark with the specific command that is present on the tool bar.

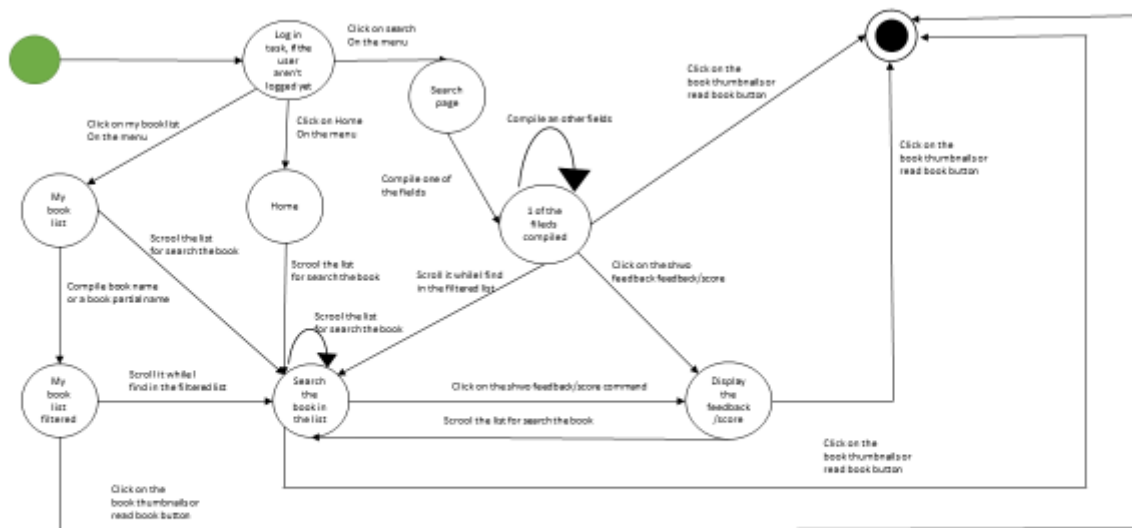
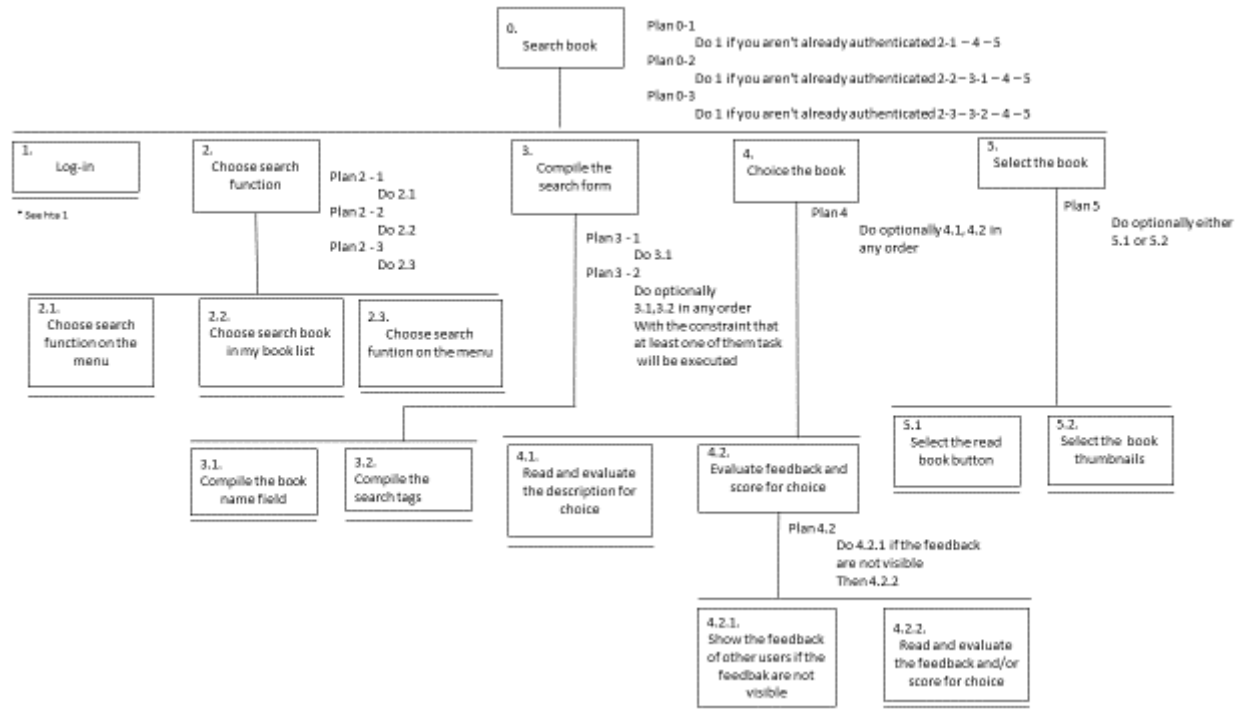
3) *A user should be able to tag the book in any time for perform a feedback on the book in term of rating and useful indicators for search*

Since Nicolas must always stay up to date due to his work, he decide of read a recent book on Scrum. He decide of take Essential Scrum. After some page, Nicolas is sure, Essential Scrum is a great book that explains very well all aspect and professionals figures in the Scrum framework. For this reason, he would like express his feedback. Nicolas access to the your my book list, search Essential Scrum in the list and click the button on the header of the feedback panel for open the feedback's dialog. When he click on the screen appear a popup with feedback title, feedback body and score. Nicolas typing on popup his impression and click on the ok button. In this way, any other search will include also the Nicolas feedback

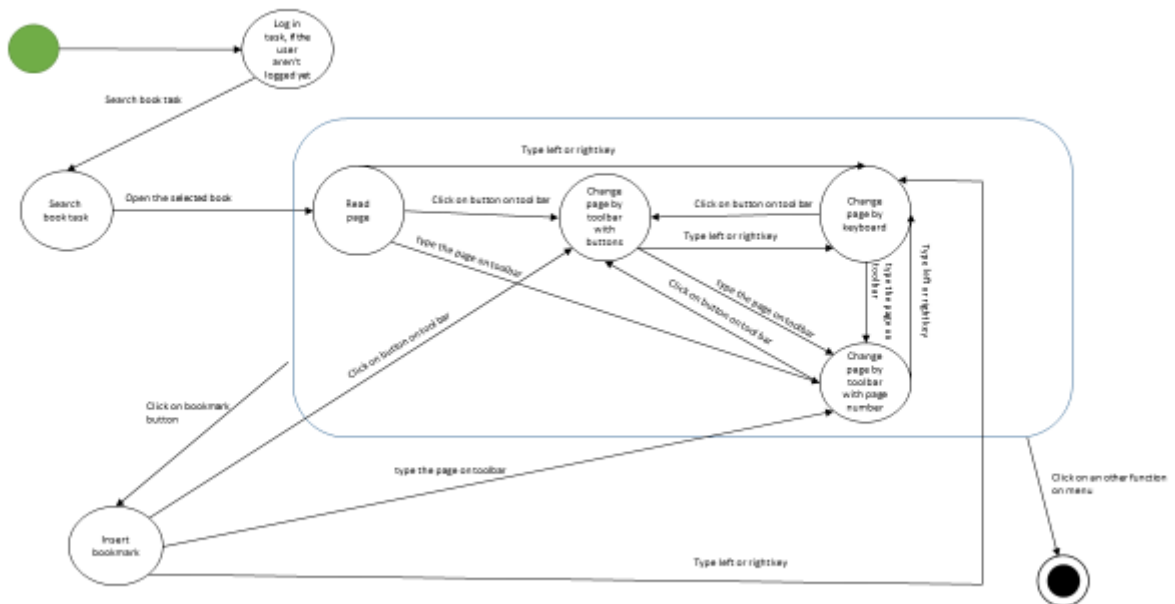
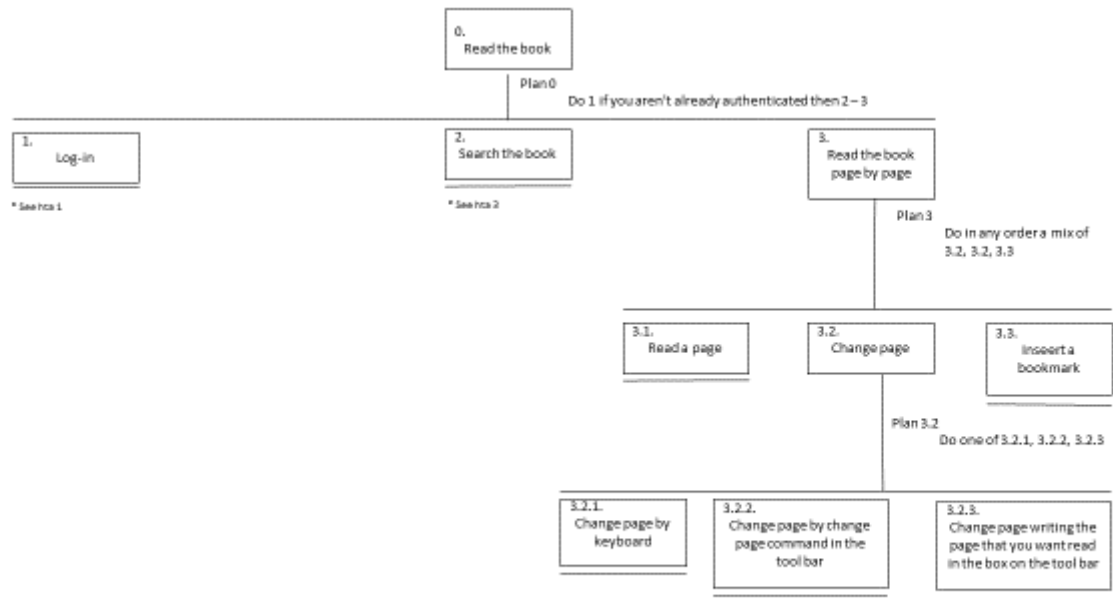
1) Add feedback and/or score task



2) Search book



3) Read the book



Employee User user-profile

User Profile

Age: 18 - 50

Education: wide kind of education

Years of experience: 0 - 30

Background:

The **Employee User** is the category of user that work in the document library and have mostly two jobs. The first job of an employee is manage the books: upload new book, add the basic metadata, publish the book previously update, unpublish book and remove book that for instance are too old, and see statistics in order to see the statistics on the books for infer the goodness of a or set of books.

Personas

Document Library Employee



Name: Stacy Moore

Age: 30 years old

Job Title: Library Administrator

Experience level: greater than 3 years

Work hours: 9:00 am – 6:00 pm

Educations: Bachelor degree

Technology: Word, Excel, web

Family: single or married

Background: Stacy worked in the library for 5 years, his commitments are add and manages book's virtual shelves. She would like an

instrument for learn the trend of the library customer and add hints for the less popular books in order to understand if the book is useless for the library. In this way, stacy could understand the interests of customers and decide if add or not a new book in this area.

Senarios

An Employee user should be able to add or remove a book in the document library

it's a normal Friday's afternoon, when at a certain point, Stacy get an e-mail in which the Stacy's chief asks of upload three new books in the library that were attached in the mail. Stacy then log-in in her company account, she click on book upload functionality. For upload a book Stacy has download the attachments list in her computer and then book by book, she uses the upload form. Book by book Stacy chooses the pdf master from his PC and reading the e-mail, type the author, description and tags in the search mask. When the process of book's processing will be complete, in the Stacy profile will appears a notification that info Stacy of the completion of process. From now Stacy could flag the book that wants to publish in the library. With the publish flag, in any times, Stacy may publish or unpublish the book.

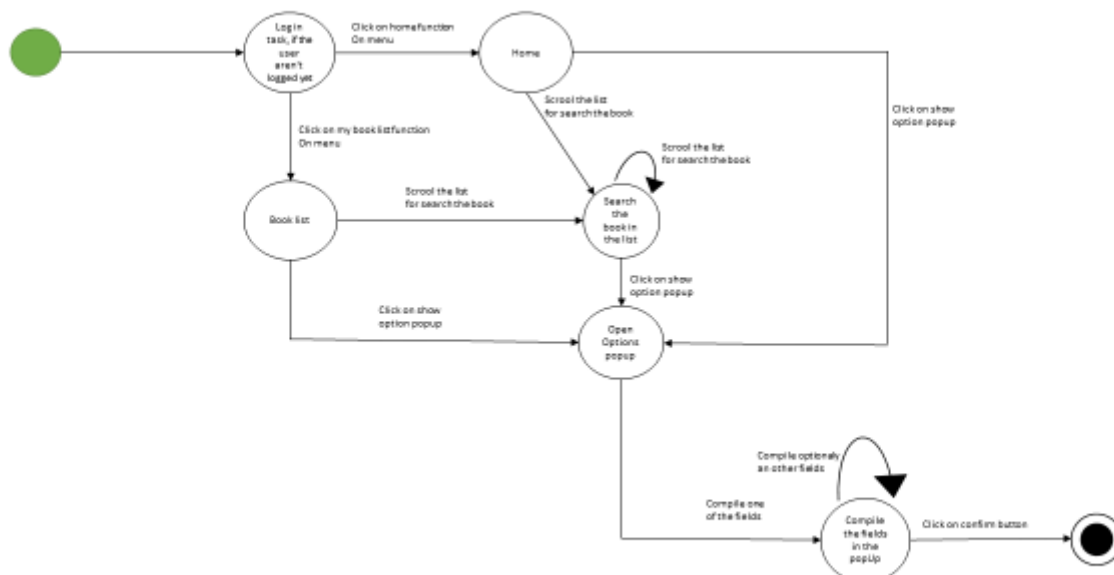
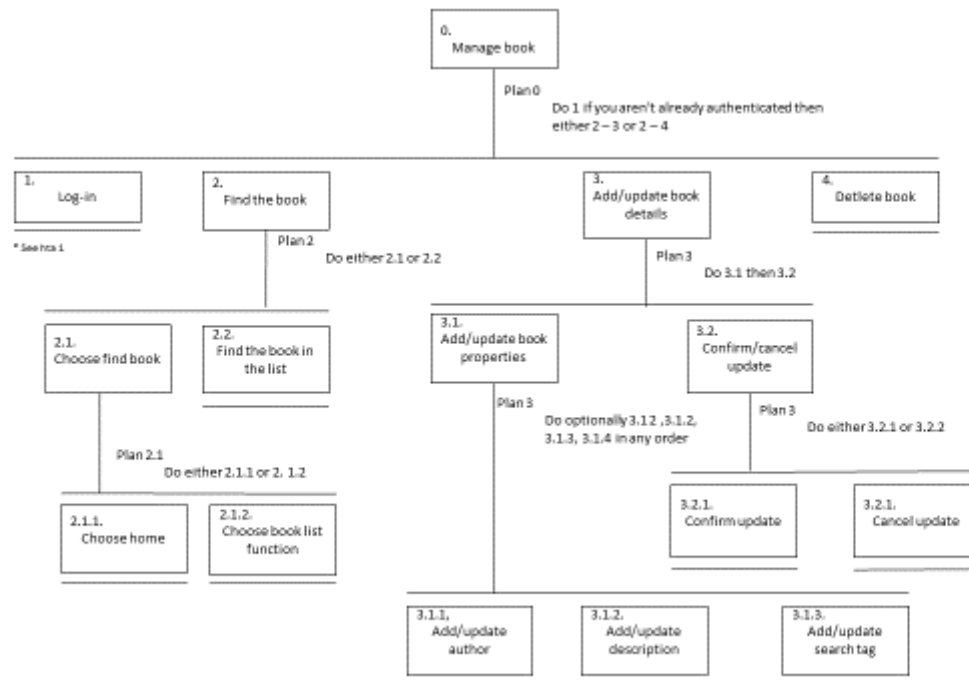
An Employee user should be able to update one or more book metadata in the document library

It's a normal work day when Stacy for casually find a mistake in a metadata for Essential Scrum book. The book hasn't the correct search tags and if Stacy don't update this field probably an user couldn't be able to find out this book. For this reason Stacy open the option

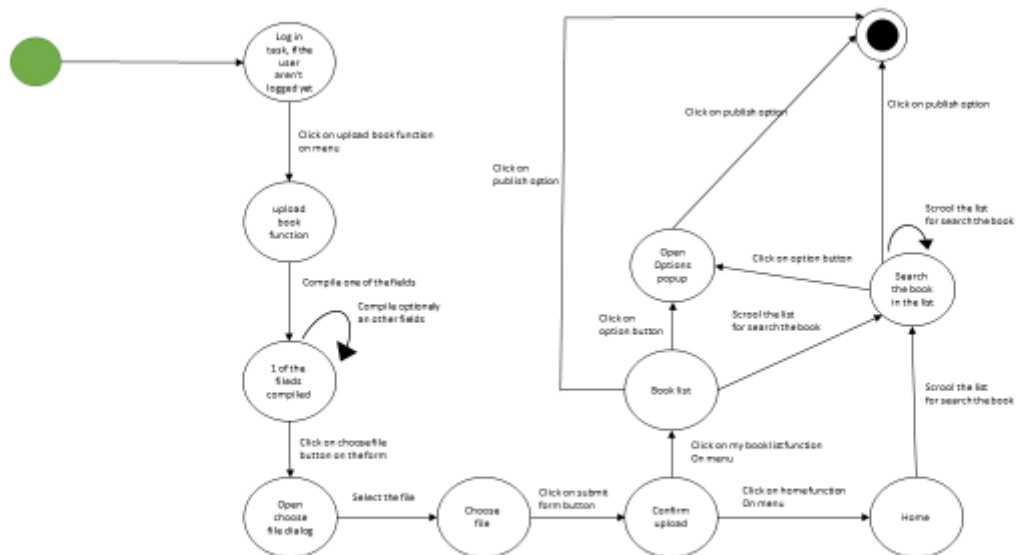
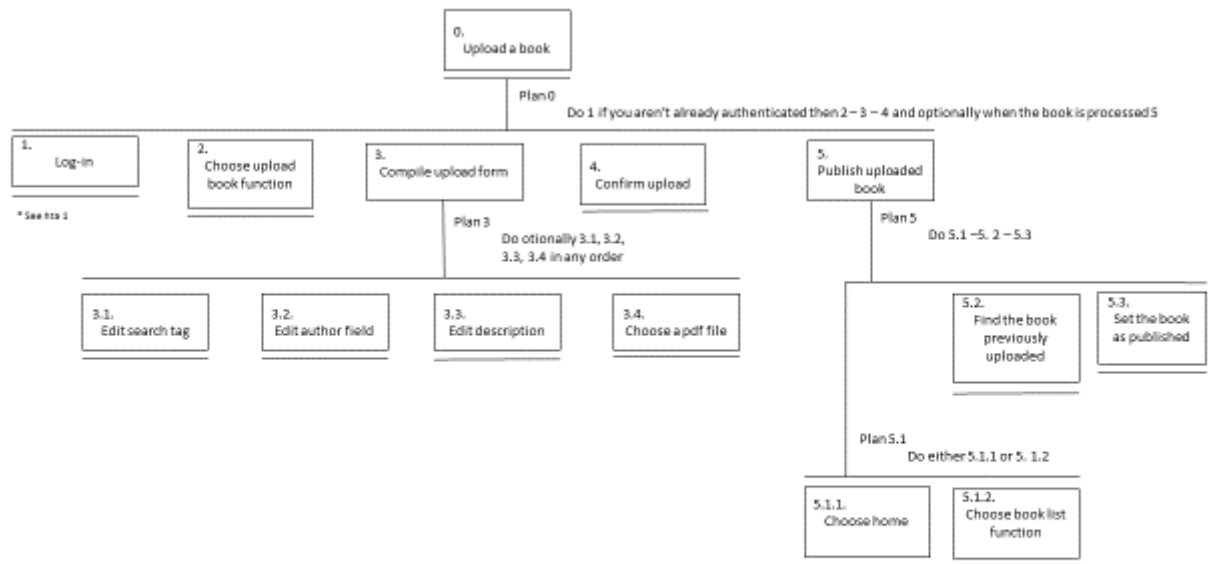
popup and modify the metadata adding Testing and Scrum how search tags then click on Ok button of popup. In this way, now the book will have also the correct metadata.

HTA / STN

1) Manage book



2) Upload a book

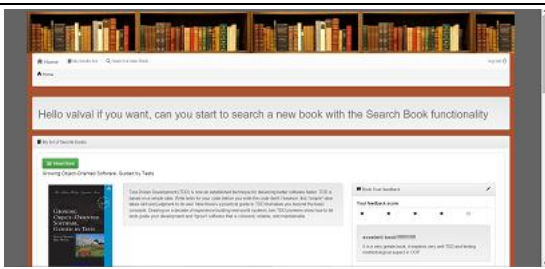
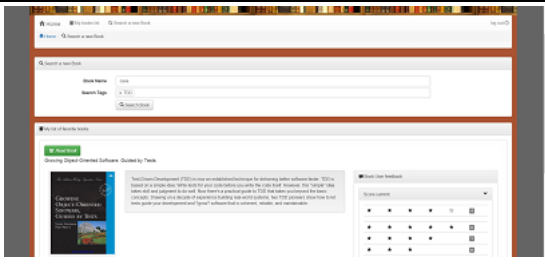
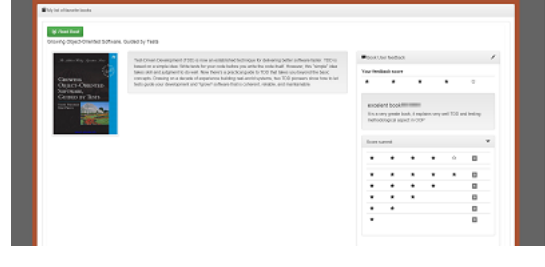


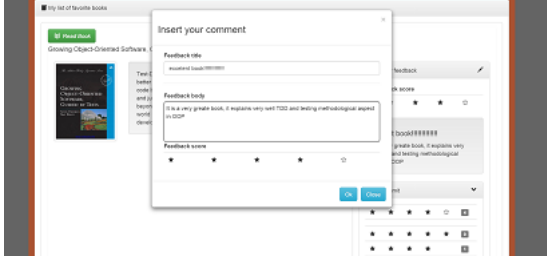
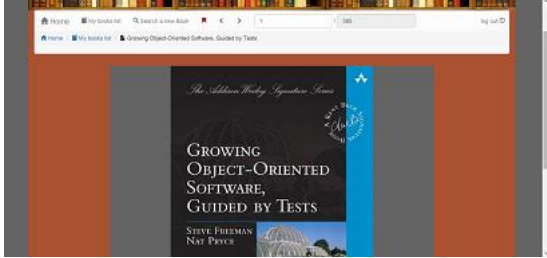
Prototype 1

After the user requirements part I developed a prototype that reflected the results of the analysis. The product was two application one for the final user and another for the employee. Starting from the user functionality that during the user requirements where considered useful is been built a prototype for final user application in which we have three functionality: home, my book list and search. In the home I suppose that could be useful have the last 5 books, that a user had chosen, in the my book list, the user have all books that had read and he have the possibility of insert the him/his feedback, the search book functionality was the place in which the final user can search a book in terms of book name or/and search tags. The Employee application prototype, is composed by three functionality: The home, upload book, book list. The home is the place in which the employee have only the unpublished books, the book list is the place in which the employee have all the document library book and can manage books changing properties, publish /un publish and delete books, upload book is the place in which the employee can upload the masater pdf of the book and start the process of load the book in the document library. After this prototyping phase, I had subject this two prototype under either one expert evaluation technique, and one user evaluation technique. For the expert evaluations, I used one heuristic evaluation session with one usability expert and a cognitive walkthrough. For the user evaluation technique, I used one Talking Aloud and a interview session. For the realization of the prototype, I implemented two separated web-applications: one for the final user and another for the employee.


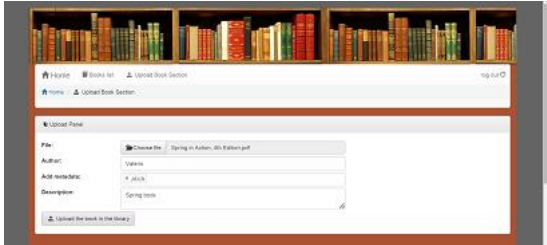
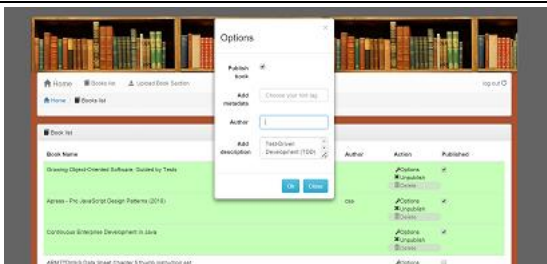
Prototype Screen

Final User user-profile

| | |
|-------------|--|
| Home |  |
| Book search |  |
| Book list |  |

| | |
|------------------------------|--|
| Add/update Score/Feedback |  |
| Read book |  |

Employee User user-profile

| | |
|-------------|--|
| Home |  |
| Book upload |  |
| Manage book |  |

Prototype Evaluation

After the realization of the first prototype, I have planned either for the final user application that for the employee application, two main of evaluation technique: expert evaluations and user evaluation technique. In the expert evaluation technique, I planned one heuristic evaluation with one usability expert and a session of cognitive walkthrough for the main important functionality. Regarding for the user evaluation technique I used one session of Think Aloud with 5 people as sample and one session of interview.

Expert evaluations technique

Heuristic evaluation

Form the heuristic evaluation on the user application is emerged that:

- 1) I must find a way for underline the functionality on the menu
recognition rather than recall: 3
- 2) I must reduce the size of the header for having more space and avoid more scroll
aesthetic and minimalistic design: 2
- 3) I must add the back functionality
flexibility of use: 3
- 4) Lacking help functionality
Help and documentation: 3

Form the heuristic evaluation on the employee application is emerged that:

- 1) I must find a way for underline the functionality on the menu
recovery rather than recall: 3
- 2) Lacking help functionality
Help and documentation: 3

Cognitive walkthrough

User application

1) Search book

Act 1) select the search function

Resp 1) the application change the page and display the search page

| Question | Answers |
|--|---|
| Will the learner effectively perform this action? | It is reasonable that a user would be trying to do this as his first goal |
| Will s/he promptly identify how to perform it? | The Search function is not easy to find due to the small size and the position. |
| Will s/he associate the correct action with the effect to be achieved? | Yes |
| If the correct action is performed, will the users see that progress is being made towards solution of the task? | yes |

Act 2) edit the search tags dropdown list with JAVA

Resp 2) the search tags selection field became compiled with the JAVA value

| Question | Answers |
|--|---------|
| Will the learner effectively perform this action? | Yes |
| Will s/he promptly identify how to perform it? | Yes |
| Will s/he associate the correct action with the effect to be achieved? | Yes |
| If the correct action is performed, will the users see that progress is being made towards solution of the task? | yes |

Act 3) submit the form

Resp 3) the region below to the search form become full and appear a book list whit the search result

| Question | Answers |
|--|---------|
| Will the learner effectively perform this action? | Yes |
| Will s/he promptly identify how to perform it? | Yes |
| Will s/he associate the correct action with the effect to be achieved? | Yes |
| If the correct action is performed, will the users see that progress is being made towards solution of the task? | yes |

Act 4) open the one of the book

Resp 4) the application change page and open a page with the book and a set of contextual command on tool bar for the page change

| Question | Answers |
|--|---------|
| Will the learner effectively perform this action? | Yes |
| Will s/he promptly identify how to perform it? | Yes |
| Will s/he associate the correct action with the effect to be achieved? | Yes |
| If the correct action is performed, will the users see that progress is being made towards solution of the task? | yes |

Conclusions

The cognitive walkthrough has shown that the search functionality gateway is few visible

Employee application

2) Upload a book

Act 1) select the upload book function

Resp 1) from the current page in which the user see, the application display the upload book page

| Question | Answers |
|--|--|
| Will the learner effectively perform this action? | It is reasonable that a user would be trying to do this as his first goal. The label "Upload Book Section" is not so clear, there are no other functionalities that could be confusing |
| Will s/he promptly identify how to perform it? | The Upload Book Section is not easy to find due to the small size and the position. |
| Will s/he associate the correct action with the effect to be achieved? | Yes |
| If the correct action is performed, will the users see that progress is being made towards solution of the task? | Once the action is taken the display shows familiar headings; it is reasonable to assume that the user would recognize these as indicating successful completion of the first action |

Act 2) edit the search tags

Resp 2) the search tags selection field became compiled

| Question | Answers |
|--|--|
| Will the learner effectively perform this action? | The system will present very common search fields. It is reasonable that a user would be trying to do this as his first goal |
| Will s/he promptly identify how to perform it? | Yes |
| Will s/he associate the correct action with the effect to be achieved? | Yes |
| If the correct action is performed, will the users see that progress is being made towards solution of the task? | yes |

Act 3) edit the author text field

Resp 3) the author text field became compiled

| Question | Answers |
|--|--|
| Will the learner effectively perform this action? | The system will present very common search fields. It is reasonable that a user would be trying to do this as his first goal |
| Will s/he promptly identify how to perform it? | Yes |
| Will s/he associate the correct action with the effect to be achieved? | Yes |
| If the correct action is performed, will the users see that progress is being made towards solution of the task? | yes |

Act 4) edit the description text field

Resp 4) the description text field became compiled

| Question | Answers |
|--|--|
| Will the learner effectively perform this action? | The system will present very common search fields. It is reasonable that a user would be trying to do this as his first goal |
| Will s/he promptly identify how to perform it? | Yes |
| Will s/he associate the correct action with the effect to be achieved? | Yes |
| If the correct action is performed, will the users see that progress is being made towards solution of the task? | yes |

Act 5) open the file chooser

Resp 5) appear the file from the file

| Question | Answers |
|--|--|
| Will the learner effectively perform this action? | Yes |
| Will s/he promptly identify how to perform it? | The system present a “choose a book” function, but it could be confused with metadata fields. |
| Will s/he associate the correct action with the effect to be achieved? | We can assume the user will associate the correct action considering that there are no similar functions in the same page. |
| If the correct action is performed, will the users see that progress is being made towards solution of the task? | Yes Once selected “Search a book” the browse page will prompt. The user would recognize these as indicating successful completion of the first action |

Act 6) choose the pdf file that you want upload

Resp 6) the file chooser disappear

| Question | Answers |
|--|---------|
| Will the learner effectively perform this action? | Yes |
| Will s/he promptly identify how to perform it? | Yes |
| Will s/he associate the correct action with the effect to be achieved? | Yes |
| If the correct action is performed, will the users see that progress is being made towards solution of the task? | yes |

Act 7) submit the upload form

Resp 7) the form became reset

| Question | Answers |
|--|--|
| Will the learner effectively perform this action? | We can assume that the user will choose the "Upload the book ..." as first goal |
| Will s/he promptly identify how to perform it? | The "Upload the book ..." is visible on the screen |
| Will s/he associate the correct action with the effect to be achieved? | Yes |
| If the correct action is performed, will the users see that progress is being made towards solution of the task? | It seems the user has to wait until the action is completed before having a feedback |

Act 8) select the book list function

Resp 8) from the current page in which the user see, the application display the book list page

| Question | Answers |
|--|---|
| Will the learner effectively perform this action? | It is reasonable that a user would be trying to do this as his first goal |
| Will s/he promptly identify how to perform it? | The Search function is not easy to find due to the small size and the position. |
| Will s/he associate the correct action with the effect to be achieved? | Yes |
| If the correct action is performed, will the users see that progress is being made towards solution of the task? | yes |

Act 9) publish the book

Resp 9) the row of the book that the user has published, it became green

| Question | Answers |
|--|---------|
| Will the learner effectively perform this action? | Yes |
| Will s/he promptly identify how to perform it? | Yes |
| Will s/he associate the correct action with the effect to be achieved? | Yes |
| If the correct action is performed, will the users see that progress is being made towards solution of the task? | yes |

Conclusions

The cognitive walkthrough has shown that the upload book functionality gateway is few visible. Another issue that the technical evaluation has found is the possibility that a user may be confused as the file metadata when the file is essential and without it, the upload of the book should be in error.

User evaluation

Think Aloud

For this kind of user evaluation, I used a sample of five users. The protocol that I chose was paper and pencil. The user sample perform the task described below on the first running prototype.

Final User interface

Search book:

The result suggest that role of the search form was quite clear. The presence of the search tag field, in some case it was clear after one exploring of the interface and isn't clear at the very first view. For this some user during the task express the wish of some form of help in line. The main problem in all user was the absence of a feedback for empty search, in which no one book was find. In this case all user that had have this experience think that the application not working and not that the document library didn't have any book for this kind of search. Another suggest was of insert a section, for read the feedbacks, in order to read the feedback and think about the goodness of the book.

For this reason, I planned in the next prototype:

1. A popup as feedback that info the user of the correct work of the application and that all is fine but the library don't has any book for this kind of search.
2. A section for feedback reading in the search results in order to doing the chance of read feedback and score and think about the goodness of the book.

Read book:

In all user that had tried to read a book, the choice of the book task was clear as achieved the task, but once that the book was loaded no one was able to understand how change page and in many case don't find the bookmark.

For this reason, I planned in the next prototype:

1. An help section that describe how use the read page
2. positioning the command in a specific and underline section
3. A command tool that follow the user during scroll of the page in order to having always the command tool near the user

Add feedback/score:

The result was that the user interface appear quite clear. Even the usage appear quite simple. In some at the user isn't clear at the first time how set the score, and in some user the presence of the feedback title appear useless. However in other user this kind of problem wasn't present and the presence of the title permit of a more direct understanding of the feedback in the reading task during the search task and for this reason I decide of don't modify anything.

Employee interface

Upload book:

The result was that all the users did not realized that after compiled the upload form and pressed the submit button, the task continue in background and only after that the system has processed the book, the user must search the book on the book list and then publish the book. Moreover the user after submitting the form, was confused, because sure that something was wrong and the system was broken. Another problem was that in many case the user forgot of compile the metadata as author, description, search tag, for the user the metadata becomes invisibles. Of course the main task is upload book and for this reason in the minds of the user after choosing the pdf, the task is completed. However for the document library, metadata as author and so on are very important.

For this reason, I planned in the next prototype:

1. A popup that after the upload of the pdf master remember to the user that the task isn't complete and that the request of book acquisition in the system is successful
2. A notification system for info the user when the book acquisition in the system is complete and is possible publish the book.
3. A re-thinking of layout of the upload form, for help the user in don't forget the book's metadata

Interview

Even for the interview, I used a user sample of 5 people and also for this kind of evaluation I used paper and pencil as protocol. In this sessions the questions are only a start point to the interview more a thematic rather than a survey with open answers.

Final User interface

- 1) In the application, we have three functions: home, search and my book list. The home and my book list are very similar functions the first present the first 5 books and the second present all the book list adding a search function as facility. Could make sense have only the My book list function as home page and don't replicate the two functions?
- 2) Could have sense transform the welcome header in some form of helper?
- 3) Could have sense add a help button near the main things that aren't clear
- 4) Could be useful read the feedback of other users?
- 5) Could be useful remove a book In the My preferred list section?

All the answers were affirmative, in particular during the interview with the users, it was showed that the home functionality as a main entry point, in which the user have the first 5 books could be strange and not intuitive. For the welcome header as help, many user suggest that could be a "short help" in which the user could have an "index of the functionality", and a very short form of help for the functionality. The impression about the help near the strange parts of the application, find approval even in relationship with the difficulty of some user during the think aloud session of understand at a glance the meaning of the search tags field. Even the possibility of read the feedback find approval in relationship with the think aloud session in which some user have noted that the application provide score resume, but does doesn't give the possibility of read the full feedbacks of the user.

Employee interface

- 1) In the application, we have three functions: home, upload book and book list. The home and book list are very similar functions the first present the unpublished book and the second present all the book list. Could make sense have only the book list function as home page and don't replicate the two functions?
- 2) In the book list functions does not exist the search function? Could have sense provide a search engine based on filter book that satisfy some criteria as name, is publish and so on?
- 3) After the submit of an upload book job don't have an immediate feedback of the status of the job. Could have sense a notify function that info the employee of job's completes and status?

All the answers were affirmative. The main things that the user interview has underlined where that the absence of a feedback on the outcome of the book upload was too much bad for the user that didn't had any idea about the outcome of the book upload task. Talking about the book upload task, some user has underline the necessity of a feedback right after the upload, even just for calming the user about the successful completion of the task and that is only time matter for the book processing for the book publishing. From this consideration some user had suggested of use a notification system for notify the completion of the task. For removing the home functionality some user had express the wish of separate the list of all books from the unpublished books and another part of users had express the wish of remove the home functionality as the place of the list of unpublished book. However the majority of the user had express that could be better remove the home. All users had express that a more intelligent way for search the books in the list could be a good advancement of the user experience.

Prototype 2

At the light of the results of the evaluation of the first prototype I found a “to do list” of new functionality and refactoring of existing functionality. In the develop process I will refactor the HTA and STN respect on the results of the evaluations on first prototype. Then I built a new prototype for a new evaluation session. In this second prototype, I planned to introduce some changes that in the evaluation on the first prototype was considered as problems. First of all, I remove the home functionality, because has been considered a strange thing have a special replication of a exist functionality. In particular more users expected in home a page that suggest books in term of new uploaded book and books related to the previous search or readings. Although some users expressed his wish, for this prototype I decided of don't implementing this functionality and maintain this improvements as a future implementations step.

To do list of new functionality and functionality refactoring

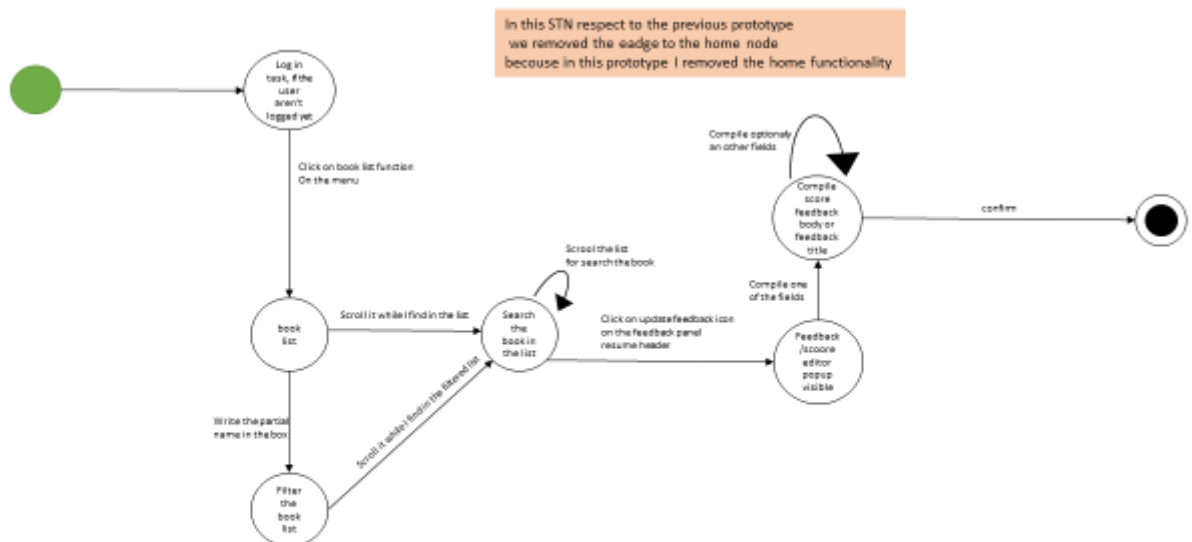
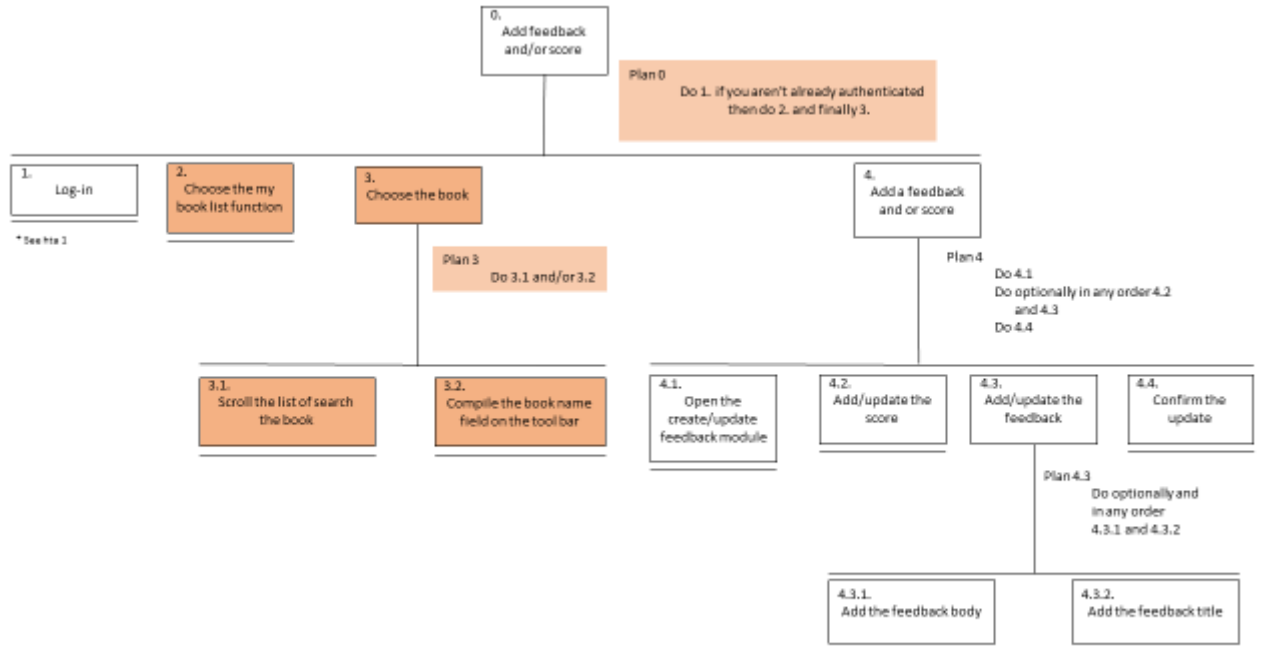
- Final User interface
 - Transform the menu in a tool bar in which we have bigger icon for the functionality
 - Introduce the Help functionality
 - Replace the hello header with the Short help functionality
 - Introduce the inline Help when necessary
 - Introduce the Back functionality
 - Introduce a feedback for the empty search
 - Introduce the feedback reading functionality of other users
 - Introduce the remove book functionality on the preferred list
 - Remove the Home functionality with the first 5 books read, on the My book List functionality
- Employee interface
 - Transform the menu in a tool bar in which we have bigger icon for the functionality
 - Introduce the Help functionality
 - Introduce Notifications functionality
 - Completion of the loading of the book
 - Introduce a feedback for outcome of book's upload
 - Remove the Home functionality with the unpublished books list
 - Introduce a search form in the book list with the follow search criteria:
 - Book name
 - Book status: published, no published
 - Introduce a means of underline in the upload form the presence of other metadata and a validation for prevents that a user submit the form without choosing the file
 - Give separation between file and file metadata in the upload form, in order to give at user more emphasis to author, tags and description as metadata and file as a more meaningful field

HTA / STN

Due to usability issue in the previous prototype, I decided to refactor the HTA and STN in order to improve usability. I divided the graphics at user profile level. Therefore, I have before the three HTA and STN for the final user interface and then the two HTA and STN for the Employee user interface.

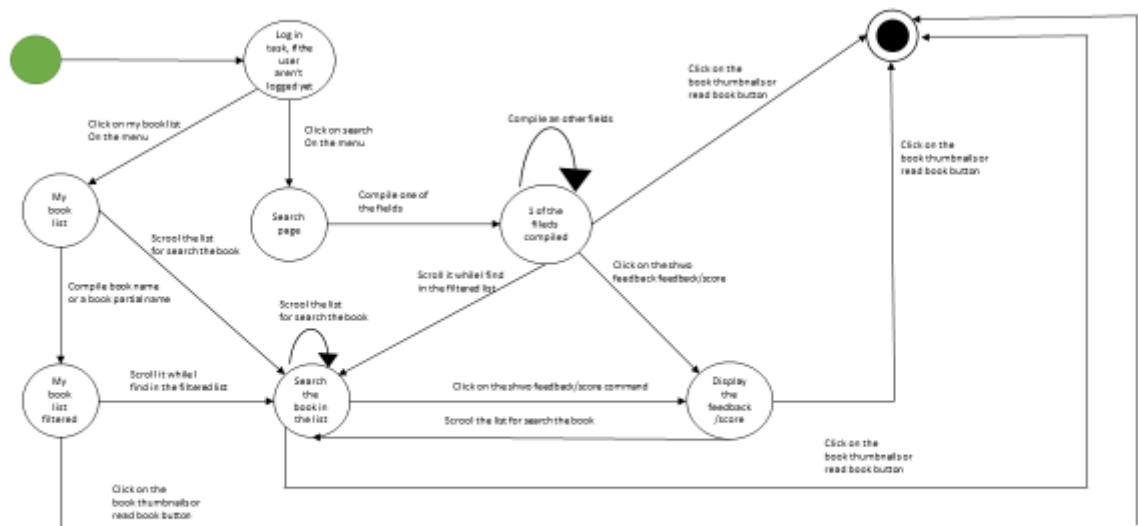
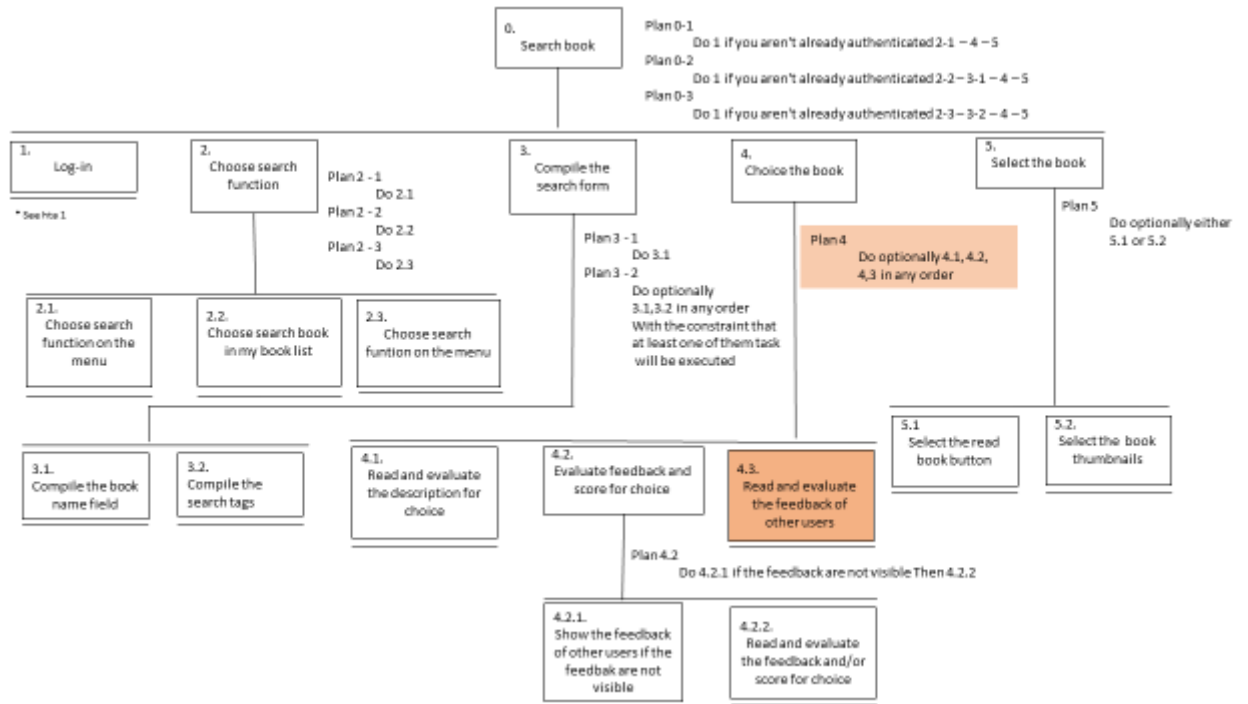
Final User interface

1) Add feedback and/or score task

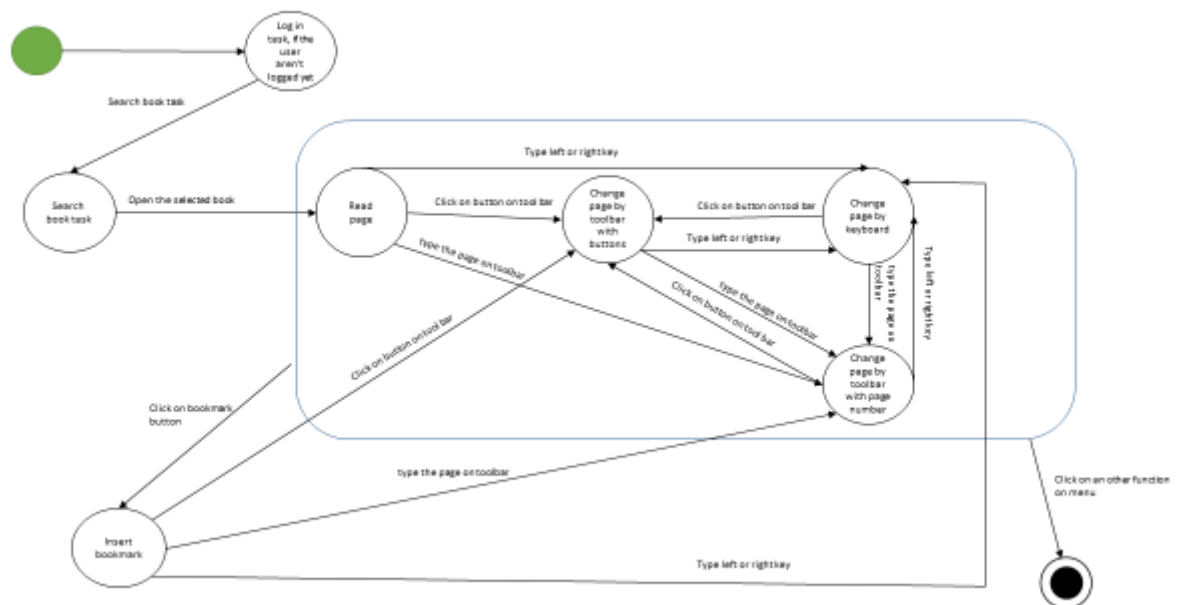
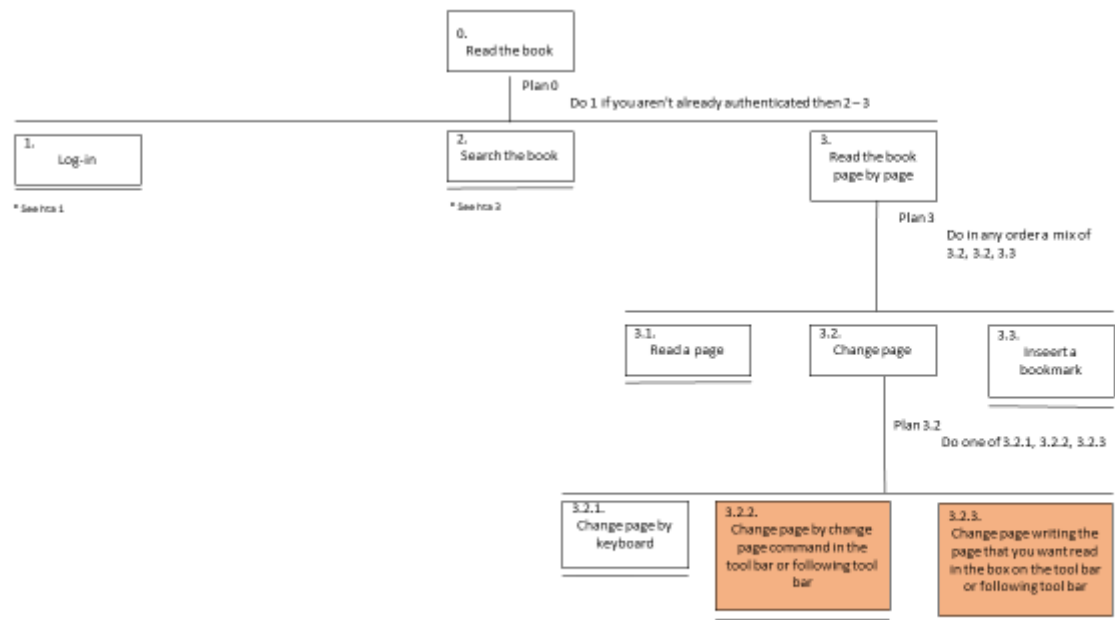


In this STN respect to the previous prototype we removed the edge to the home node because in this prototype I removed the home functionality

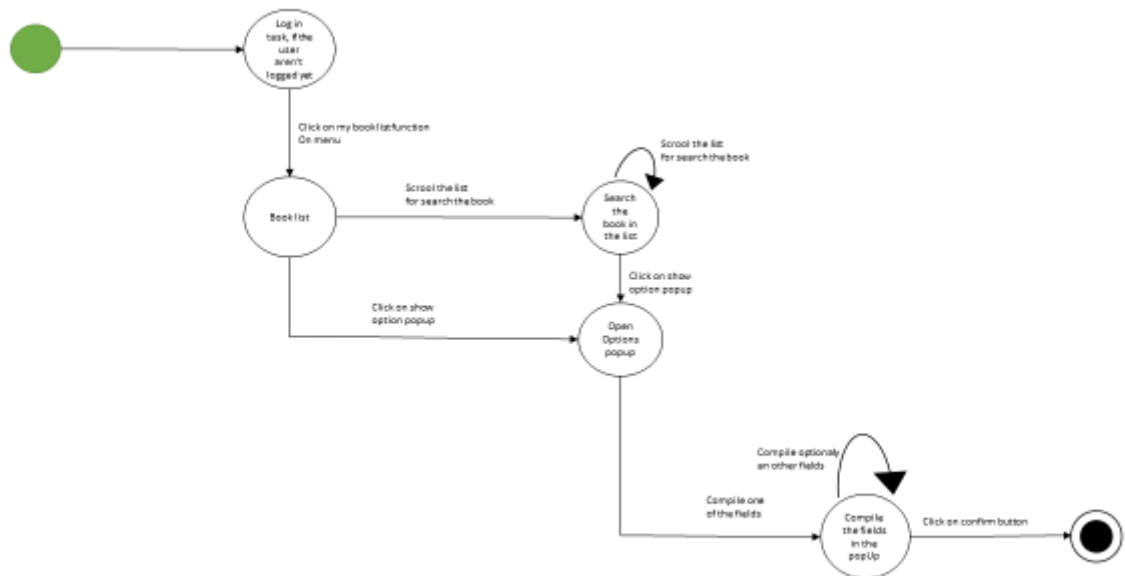
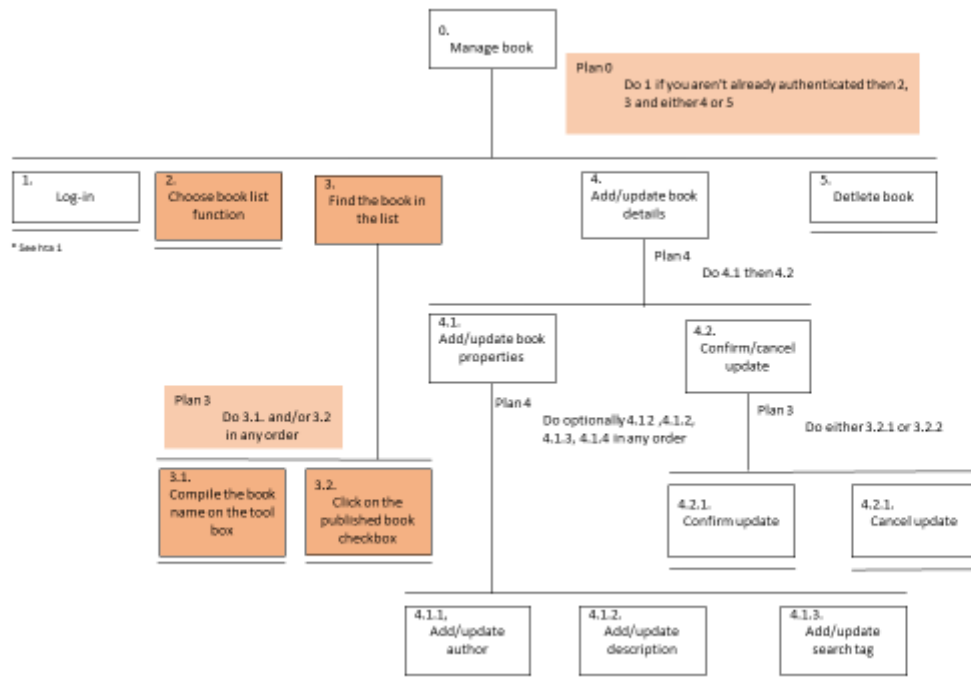
2) Search book



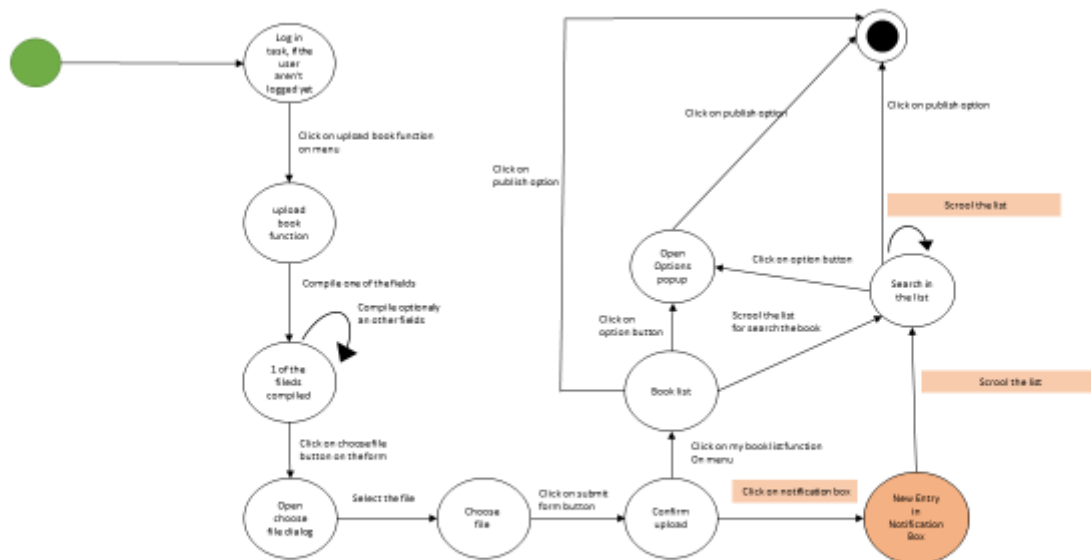
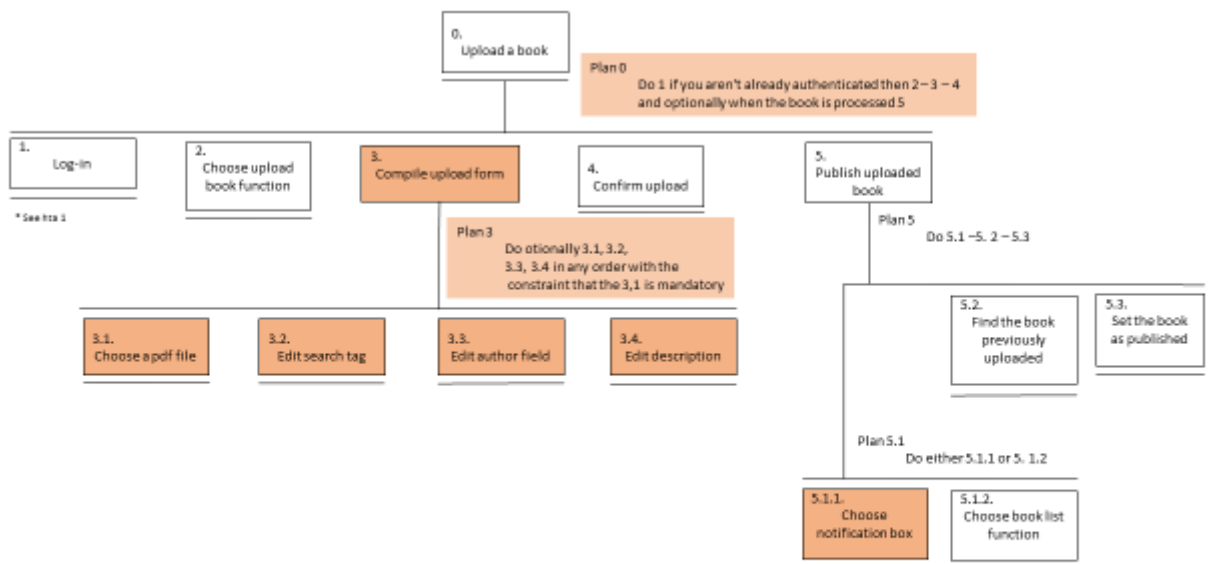
3) Read book



1) Manage book



2) Upload book



User evaluation

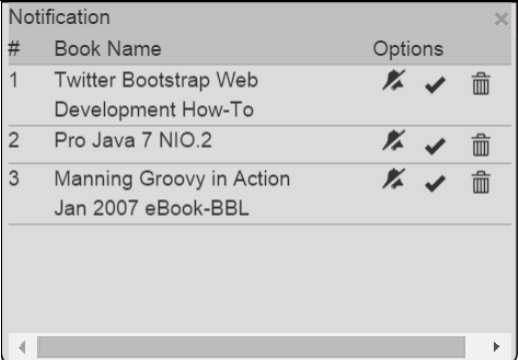
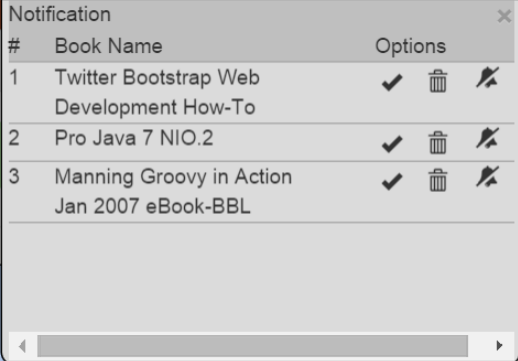



Controlled experiment

Context:

During the evaluation of first prototype, I noticed that the user did not have a feedback of the behaviour of the system in “upload book” task. For this reason I added a notification system for info the user when something happen in term of acceptance of the task and upload book completed. The first notification is a popup that info the user that the his request is accepted, the second is been implemented with a notification system similar at linkedin, facebook and so on in which the new appear in a new container and the notification control info the user of the number on notification. In the notification container, I added three functionality: publish on the fly, delete on the fly and delete the notification without publish or delete the book. Now in this case a possible usability problem may arise because a user can for error during the interaction call a book cancellation when the user want erase the notification and publish/delete the book later. For this reason I test two ways for organize the commands, in order to decide the best commands position for a good user experience. For this reason, I built a controlled experiment for decide what could be the better configuration for the user.

Hypothesis:

The configuration with delete notification, publish book, delete book how command position will make do less errors in publishing books on the fly in the notification panel, that delete notification, publish book, delete book how command position

| | |
|---|---|
| Delete notification, publish book, delete book Screenshot: |  |
| publish book, delete book delete notification, Screenshot: |  |
| Publish book command |  |
| Delete book command |  |
| Erase notification first configuration |  |

Null Hypothesis:

The number of errors in the publish books on the fly in the notification panel, in the two configurations does not changes

Independent Variables (*controlled variable*):

Position of the erase notification command: two configurations how described above.

Dependent Variables (*measured variable*):

Number of error due to the probable confusion that the erase notification command could raise in the two configuration.

Result of ANOVA analysis

The result show that the hypothesis was correct, as proof we can read from the result that F is equals to 2.6 and Fcrit is equals to 5.317655 and since that $2.6 < 5.317655$ we can deduct that the publish book, delete book delete notification configuration is better than delete notification, publish book, delete book.

| | | | | | | | |
|--|---|-------|-------|-------------|---------------------------|----------|--|
| publish book, delete book delete notification | delete notification, publish book, delete book | | | | | | |
| 1 | 2 | | | | | | |
| 3 | 6 | | | | | | |
| 2 | 3 | | | | | | |
| 1 | 1 | | | | | | |
| 0 | 3 | | | | | | |
| Analisi varianza: ad un fattore | | | | | | | |
| RIEPILOGO | | | | | | | |
| Gruppi | Conteggio | Somma | Media | Varianza | | | |
| Colonna 1 | 5 | 7 | 1,4 | 1,3 | | | |
| Colonna 2 | 5 | 15 | 3 | 3,5 | | | |
| ANALISI VARIANZA | | | | | | | |
| Origine della variazione | SQ | gdl | MQ | F | Valore di significatività | F crit | |
| Tra gruppi | 6,4 | 1 | 6,4 | 2,666666667 | 0,141113281 | 5,317655 | |
| In gruppi | 19,2 | 8 | 2,4 | | | | |
| Totale | 25,6 | 9 | | | | | |

Post-task walkthroughs

Final-user user profile

Search a new book

All users at the first usage try to use the finder of my book list. Only after some reasoning recognizes that has make a mistake. Due to this experience, I planned of change the position of finder for the my book list for became this less important respect to the search new book function. Since that many system use this kind of functionality on the right I planned to change the position at right and in the header of the panel for enforce that the functionality is locally to the my book list.

Read a book

The users have proven a good feeling with the command due to the follower tool box for change page task some user at first sight don't see well the tool box on the top. After some minutes of usage the user on average is been able to use the system with a good experience mostly for follower tool box.

Employee-user user profile

Upload book

The users have proven that the restiling has given more separation between the file and metadata. The only thing that in some case was suggested was changing the color of the button for submit the form for give more prominence

To do list for final product

Final-user user profile

- 1) Move the find book in my book list function from the tool box to header panel of the my book list book.
- 2) Add a change mouse cursor on the mouse hover on book reader command in the tool box and follower tool box

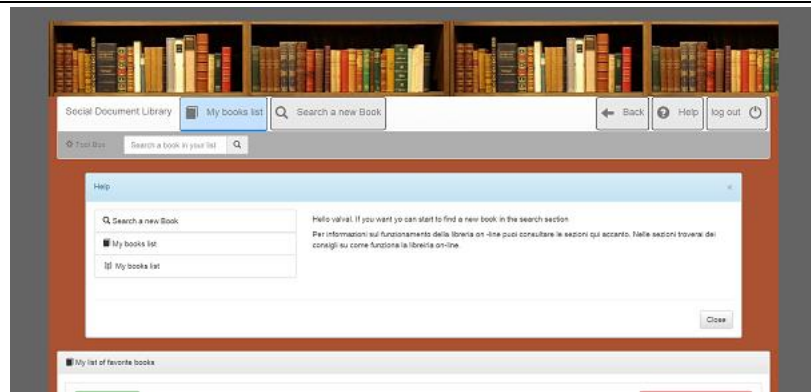
Employee-user user profile

- 1) Change the color of upload book button for make it more visible
- 2) Add toll-tips on the publish book, delete book and delete notification on the notification container
- 3) Add background color that appear on mouse hover on the publish book, delete book and delete notification on the notification container

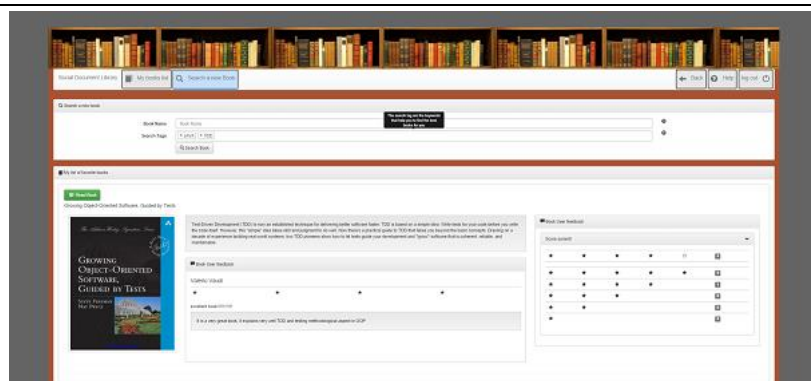
Prototype Screen

Final User user-profile

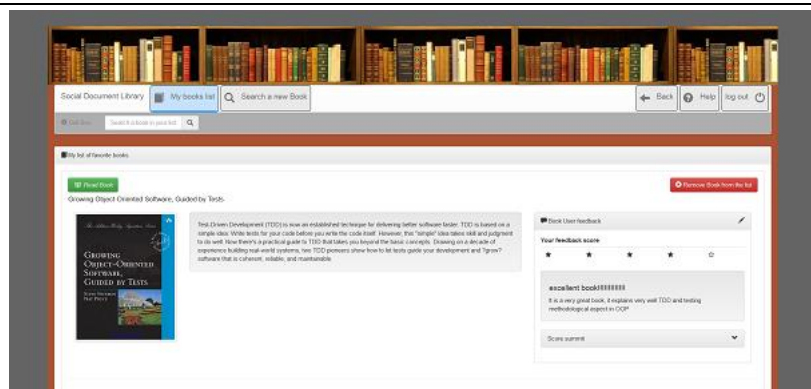
Short Help



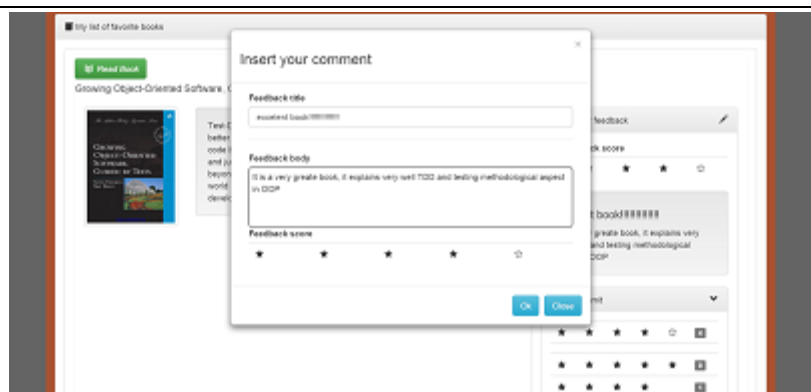
Book search

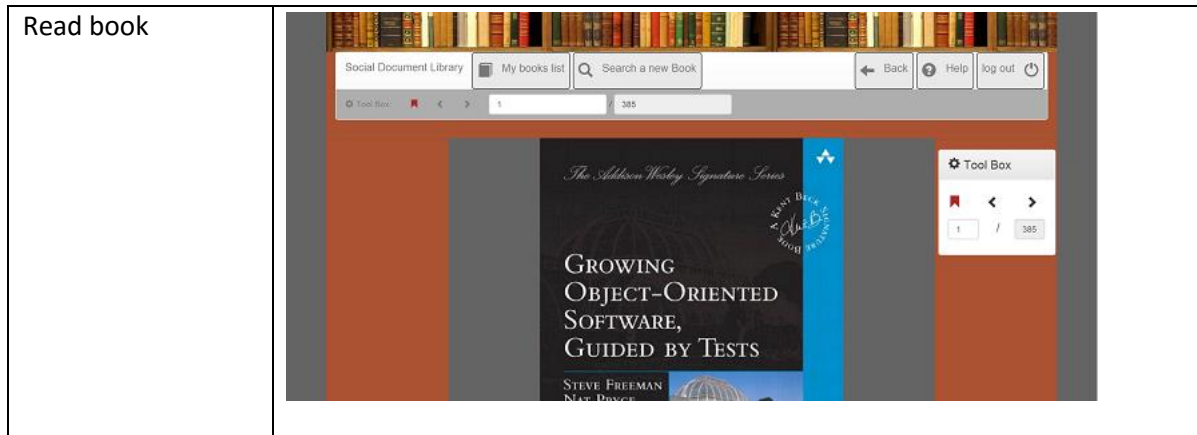


Book list

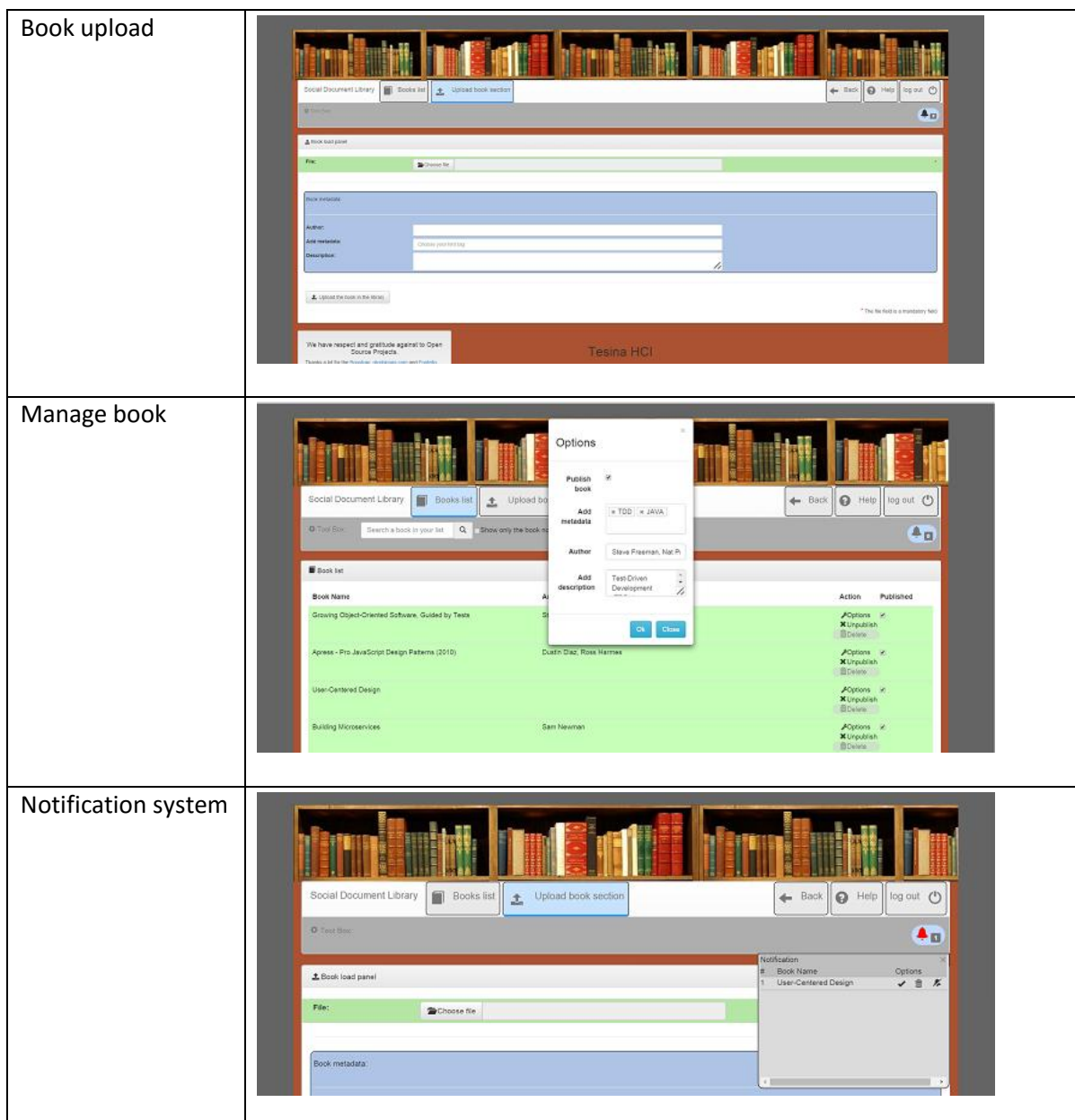


Add/update Score/Feedback





Employee User user-profile

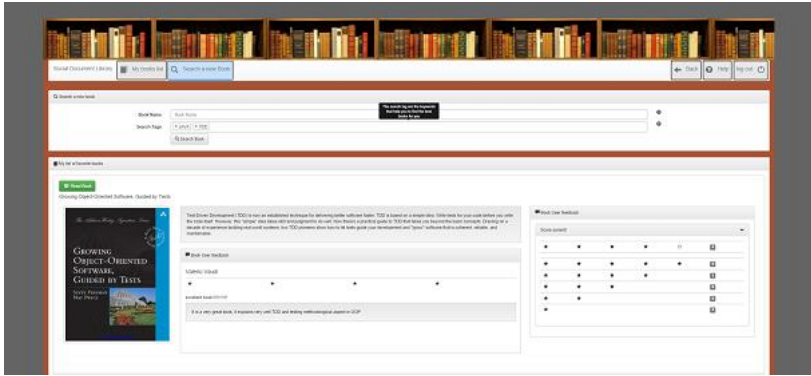
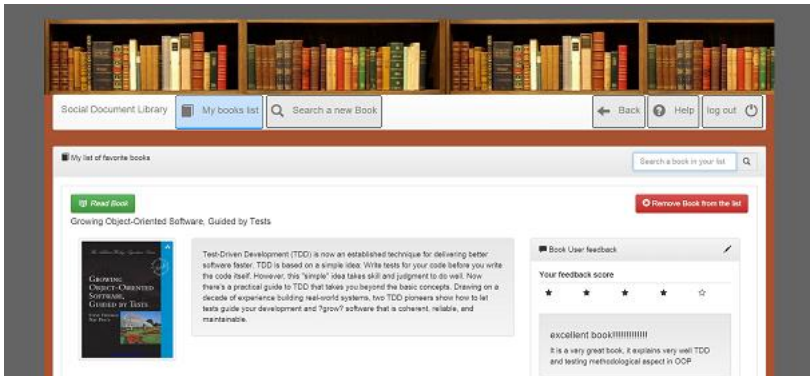


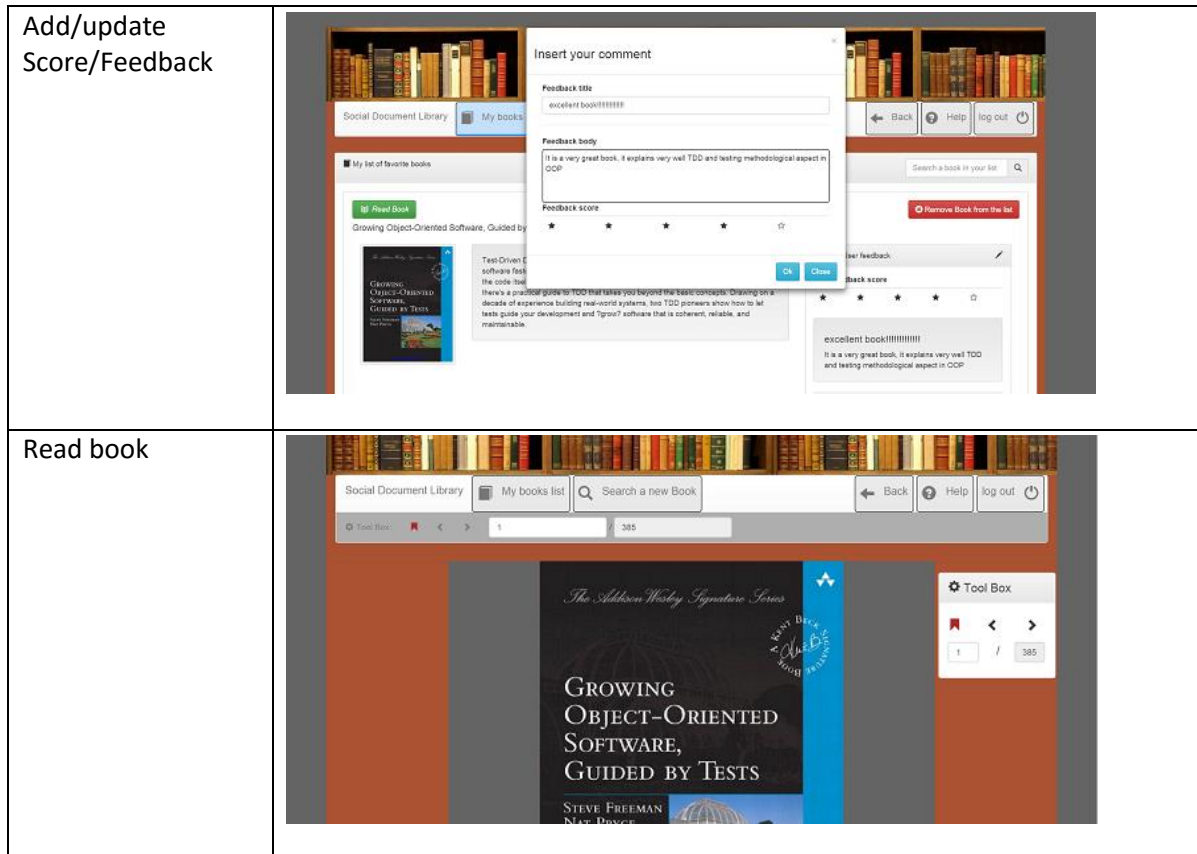
Final product

Starting from the first prototype to the final product I followed the principles and methodologies of HCI and through the best practice of UCD and the technique of evaluation either from usability expert than real user. I have improved the product, step-by-step cyclically through a process of specification about what I must implement, analyze the task and dialogs between the user and the system and then I built a prototype for evaluate the result and improve it incrementally. Basically, the result to lead to a more usable book reader, a less confusing menu and number of functionality either in the user application, than admin application. In the admin application the methodology had led to a more clear usage of upload book task with popup for info the user of the outcome of the user action and a more wait free of the upload task thanks to the notification system that helps the user for know in real time when a book is been successfully uploaded and may be published.

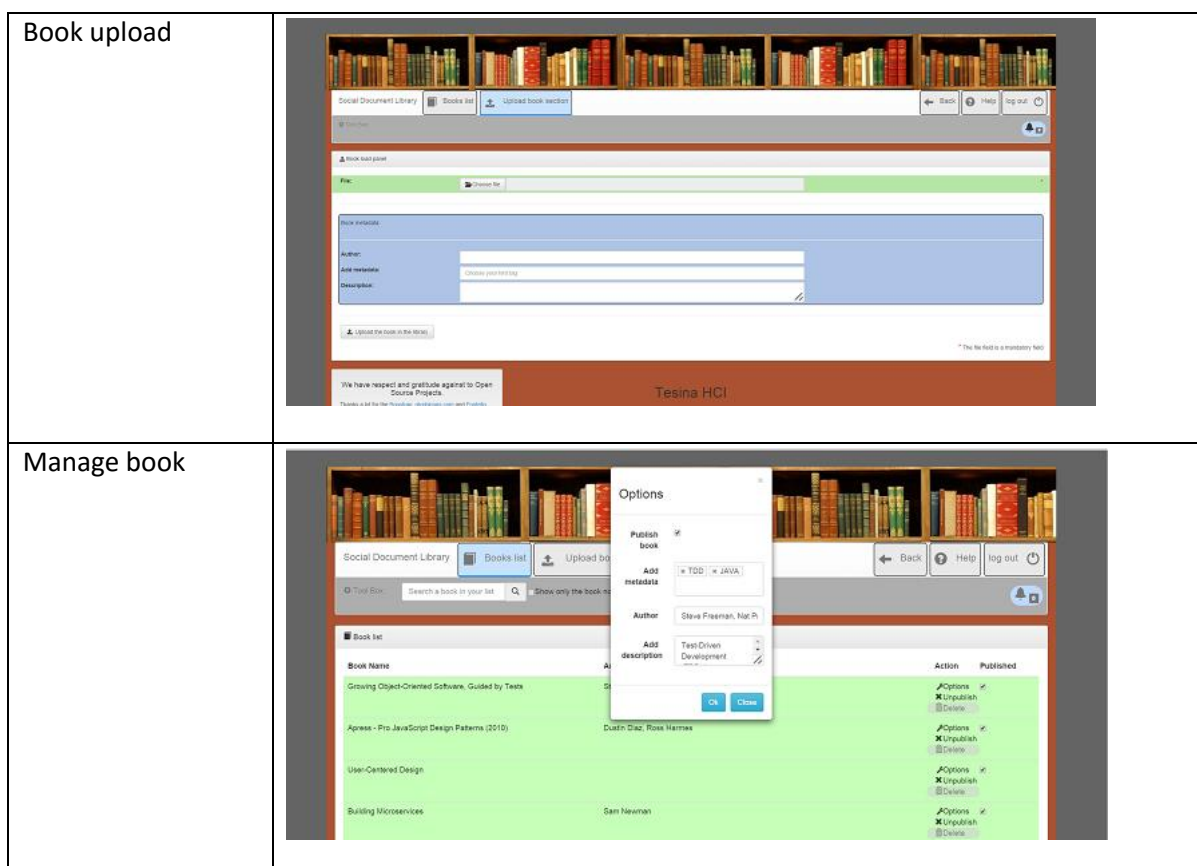
Final product screenshots

Final User user-profile

| | |
|-------------|--|
| Short Help |  |
| Book search |  |
| Book list |  |



Employee User user-profile



Notification system

