Secured Document and Password Manager

By

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Introduction

- In 21st century, man has become busy than never before. Memory of a person is limited.
- People often tend to forget many important things like passwords and carrying critical documents.
- A Document and Password manager than can be carried every where all the time in a secured way is the solution.
- Ubiquitous technology like mobile phones can be used as mediums to carry all this information in digitalized fashion.
- An application than can serve this purpose is the need of the hour

Features

- Secure way of storage.
- Portable to any place.
- Quick Access.
- Well Organized.
- One stop to recover all documents and passwords.
- Easy storage and much easier retrieval.
- Added security by implementing two level authentication system

System Architecture

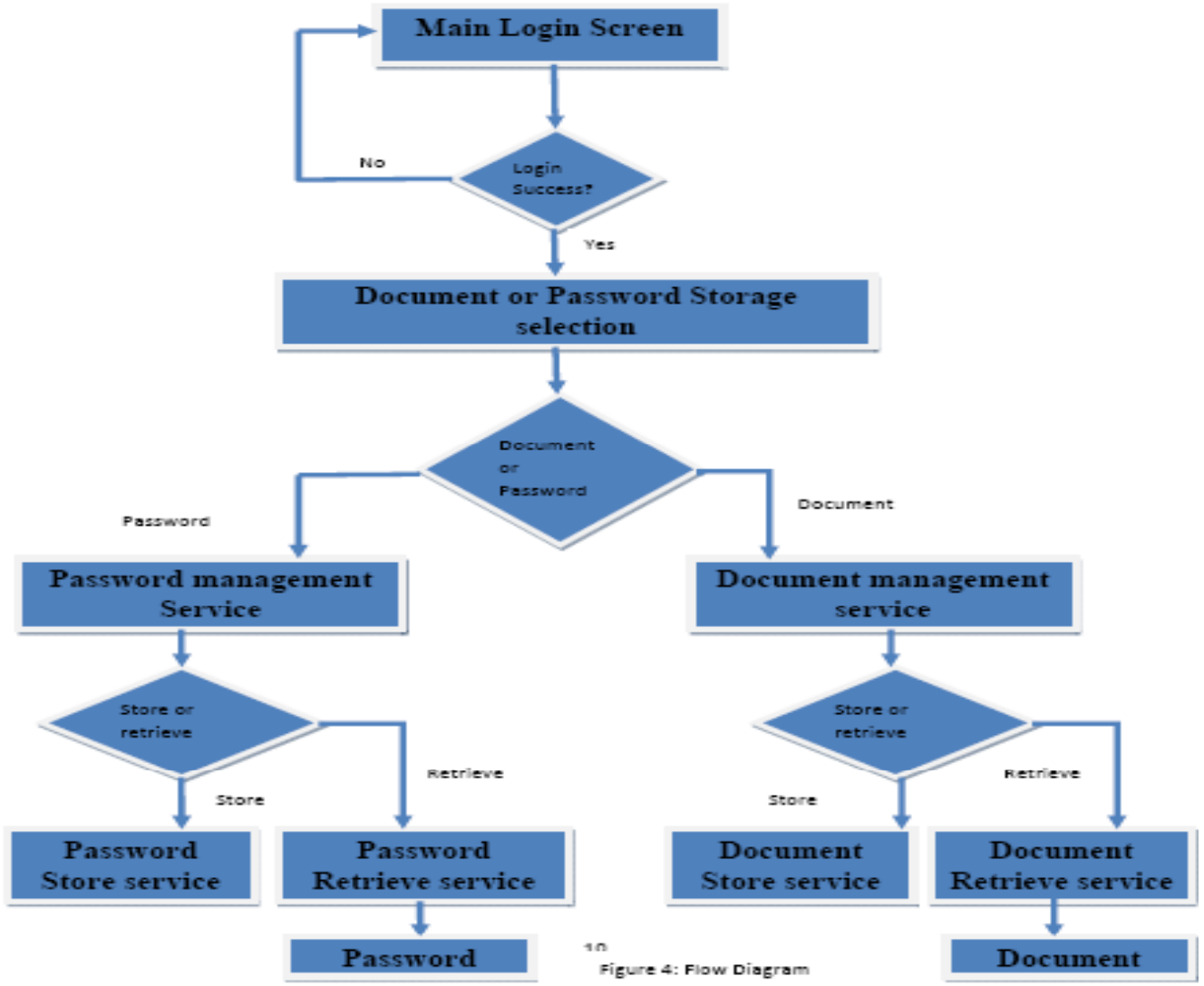
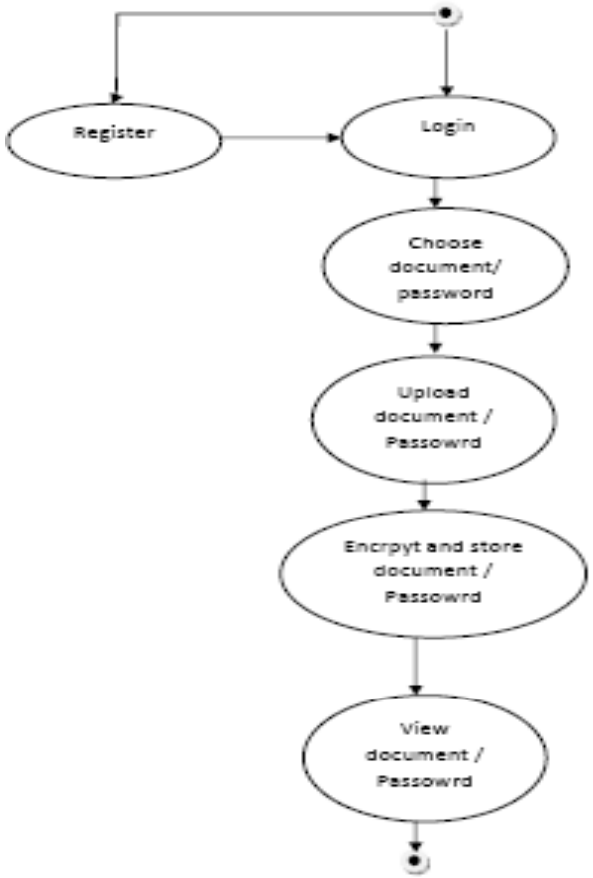


Figure 4: Flow Diagram

Process Flow



- Registration for new users and login for existing users.
- An option to choose in between password storage service or password storage service.
- Upload the document or password.
- Encryption process stores the password in cypher text.
- User can view the documens/passwords by providing his credentials again.

Human Factors

- The Design of the project was consistent throughout. Consistency was maintained in color combination, capitalization, fonts, menus and prompts.
- Direct manipulation was employed where user got the result to any action done and also got informative feedback.
- The Application was made in such a way that the user could commit minimum errors. In case of an error too user was provided with certain error messages that could guide the users to correct the errors.
- The application made was predictable and therefore provided a locus of control to the user.
- All actions could be reverted back , this enabled the user to try and explore the application without much hassles.

Metaphors

- Metaphors are set of actions that exploit the previous knowledge of the users. Metaphors often help in building a mental model about a problem and thus helps users to comprehend easily.

Some Metaphors used in the project are --


A Key Metaphor for Login

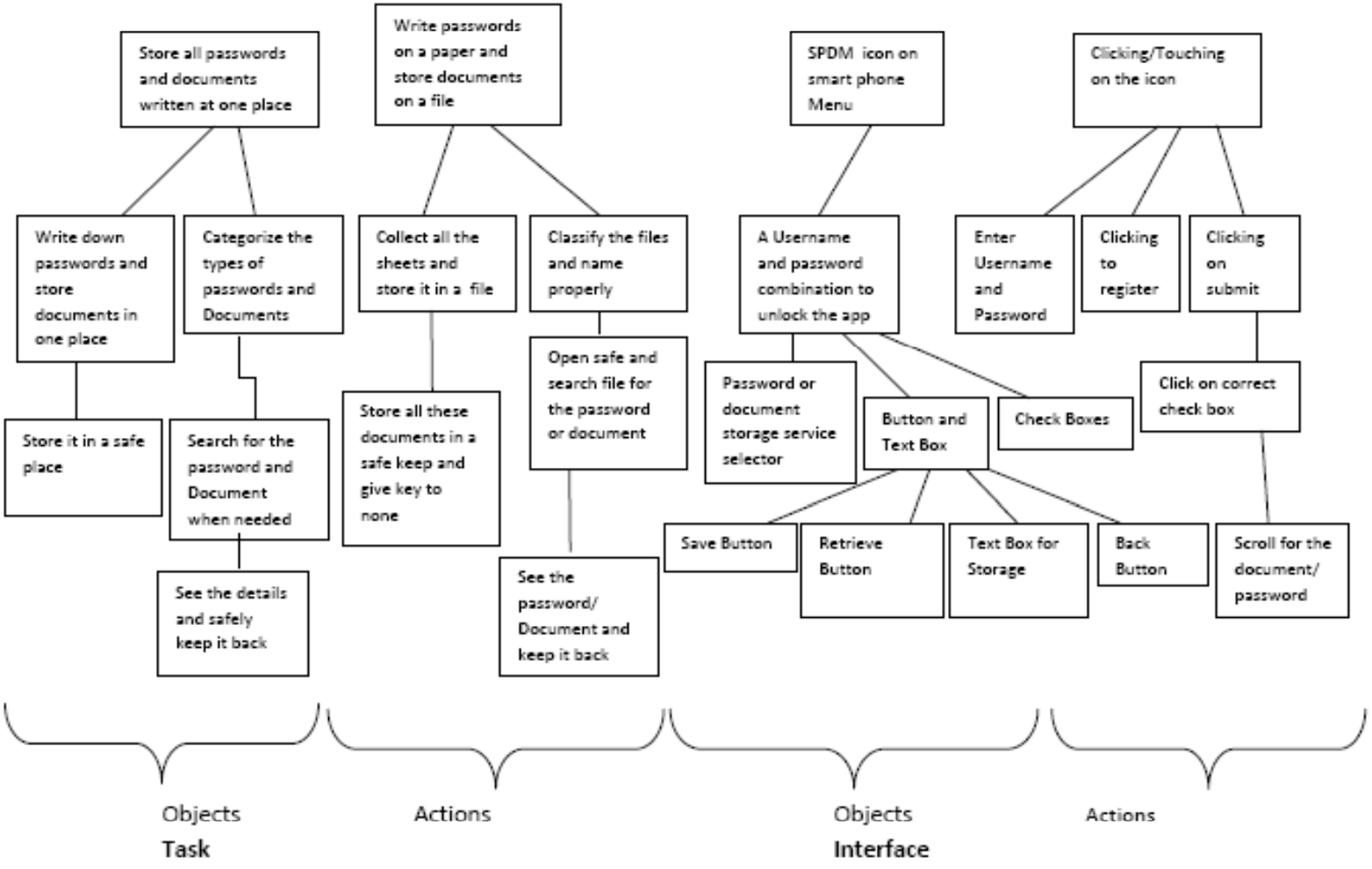
A Save Buzzer Button type metaphor.

A Get Buzzer Button Type Metaphor


An reverse arrow metaphor for back button.


Help Button metaphor

Object Action Interaction Model(OAI)



Implementation

- The project was implemented on the Android platform.
- Development of the project was done on eclipse SDK (Helios version).
- Android SDK manager plug-in was installed along with the eclipse for the development process.
- Project was emulated and run on Android 2.3.7 Ginger Bread.
- Project was also tested on real world android phone Sony Xperia U and found to be working properly.

Implementation : Core Modules

- Registration Module
- Secured Login
- Save document / Password
- Encryption
- Retrieve document/ password.

Usability Testing

- Hallway testing strategy was implemented for testing the project.
- A group of 5 peers were given the application and were asked some questions related to usability of the application which included—
  - Ease of usage of the application
  - Ease of learning
  - Number of errors committed.
  - Time taken to interact.

Usability Testing : Feedbacks

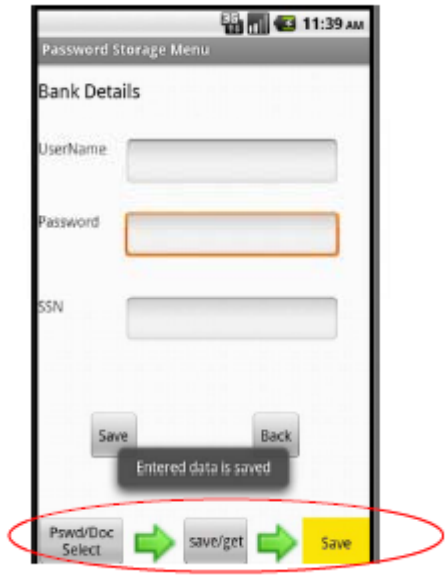
Some of the useful feedbacks obtained after one round of usability testing were—

- Usage of a multi model password authentication system.
- Usage of pattern lock technology for added security.
- Facility to see all passwords and documents at one go.
- Making the Application more customizable.

Screen Shots

Main Menu

Save and retrieval screen



Feedback and navigation bar

Things Learnt

- Human factors to be considered before starting implementation.
- Understanding the human processing model and employing direct manipulation.
- A mesh of Software engineering lifecycle and user centric software development.
- Android platform and related programming.
- Scrum software development and doing usability testing.

Conclusion and Future Work

- User centric design approach was employed to develop this project.
- Main aim was to allow the users to comprehend, predict and control the application developed.
- A very critical domain of secured document and password management was chosen for implementation.
- Usability testing was done.
- Newer security features like pattern locks can be employed to enhance security .
- Newer and better ways of interaction can be developed.

Thank you