SOFTWARE REQUIREMENT SPECIFICATIONS

Project Topic: [Share-i]

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1. Introduction

The introduction of the Software Requirements Specification (SRS) provides an overview of the entire SRS with purpose, scope, definitions, acronyms, abbreviations, references and overview of the SRS. The aim of this document is to gather and analyze and give an in-depth insight of the **Share-i App** by defining the problem statement in detail. Nevertheless, it also defines the product features and the detailed requirements of the **Share-i app** are provided in this document.

a) Purpose

The purpose of the document is to collect and analyze all the ideas that have come up to define the application and its requirements. It also predicts and sort out how this app is expected to be used in order to gain a better understanding of the project, outline concepts that may be developed later, and to document ideas that are being considered. It may be discarded as the product develops.

In short, the purpose of this SRS document is to provide a detailed overview of the software product, its parameters and goals. This document describes the project's target and its user interface, hardware and software requirements. It defines how our users see the product and its functionality.

b) Scope

Primarily, the Share-i app is a peer-to-peer based mobile application which lets user to send and receive image files between two connected devices. This SRS is also aimed at specifying requirements of software to be developed. In order to use the share feature, the two devices must come within the WiFi communication range so that they can be connected to share the file.

Definitions, Acronyms, and Abbreviations

Term	Definition
User	Someone who interacts with the Share-i application
WiFi	Stands for “Wireless Fidelity” is a family of wireless network protocols, based on the IEEE 802.11 family of standards, which are commonly used for local area networking of devices and Internet access, allowing nearby digital devices to exchange data by radio waves.
Peer-to-peer network	a peer-to-peer (P2P) network is created when two or more PCs are connected and share resources without going through a separate server computer.

- Overall Description

  The remaining sections of this document provide a general description, including characteristics of the users of this project, the product's hardware, software, functional, non functional requirements and the system design of the product. This document contains lists and briefly describes the major features and a brief description of each of the proposed functionalities of Share-i app.

2. Requirements

This subsection contains the requirements for the Share-i application. These requirements are organized by the features proposed and is discussed in the vision documents in the later sections.

a) Functional Requirements

1. Profile set up: The application shall allow users to create a user profile.
2. Find device: This system shall allow users to find devices within communication range when the WiFi is turned on.
3. Connect: Users can connect to the devices that are available to share an image.
4. Disconnect: Users can end the connection to end transferring of file.
5. Share file(image): Once the two devices establish the connection, the app shall allow users to send and receive and image file.
6. Feedback: Users can also give their feedbacks about the app.

b) Non-functional requirements

- Usability

This application will have a user friendly interface such that users will be able to use it at ease and be familiar in a short duration. This will be achieved with use of graphical user interface and a clear texts.

- Supportability

The Share-i shall be able to be used in majority of smartphones that support WiFi feature and since almost all the population uses smartphones and android being cheaper, it can be deployed in majority of android phones.

- Availability

  The system will be available to any user at any point of time.

c) Software Requirements

I. App Development Tools

- Java SE Development Kit 15.0.2
- Android 4.0 (API level 14) and above
- Android Studio version 4.1.0 and above
- sQlite version 3.19

II. Documentation and Design Tools

III. Latex

IV. MS Word

V. Figma (UI design)

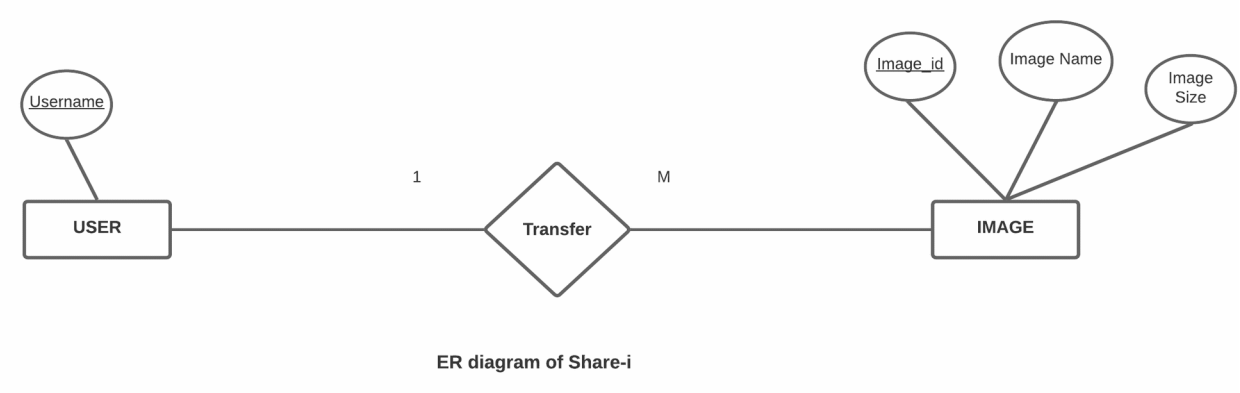
VI. MS Excel

3. Hardware requirements

- GNOME or KDE desktop Tested on gLinux based on Debian.
- 64-bit distribution capable of running 32-bit applications
- 4 GB RAM minimum, 8 GB RAM recommended
- 2 GB of available disk space minimum, 4 GB Recommended (500 MB for IDE + 1.5 GB for Android SDK and emulator system image)
- 1280 x 800 minimum screen resolution

4. User Requirements
   - Android 4.0 and above that supports WiFi Direct

5. System designs
   a) ERD(Entity Relationship Diagram)



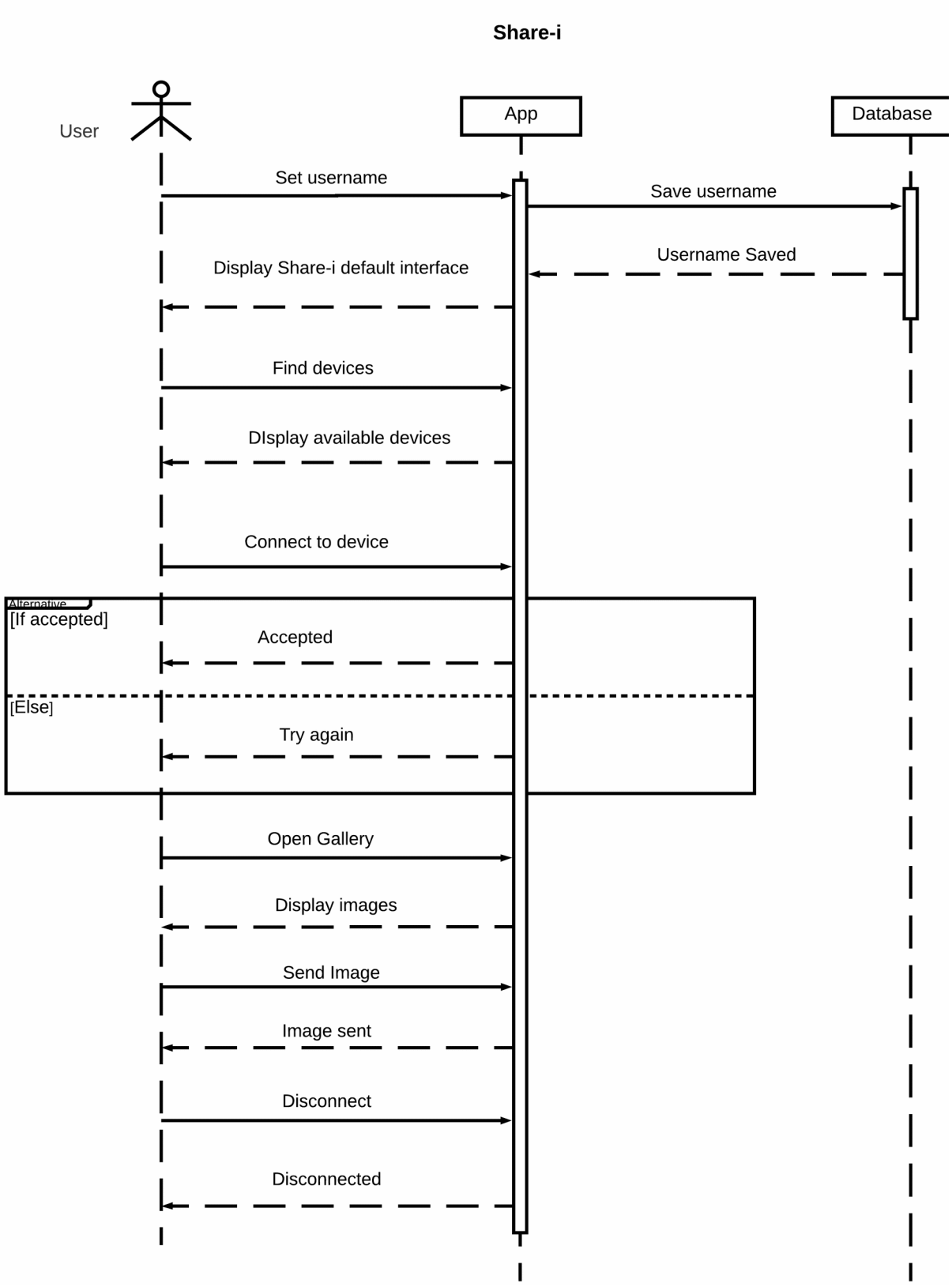
ER diagram of Share-i

The diagram above is an Entity Relationship diagram of Share-i app. The strong entities in the system are USER and IMAGE where the username is a simple attribute of USER entity and image_id, image_name and image_size are the simple attributes of IMAGE entity. Username and Image_id are the primary keys of USER and IMAGE entity respectively. There exists a one-to-many relationship in USER Transfer IMAGE relationship which means that one user can transfer many images and many images can be transferred by one user. The participation constraint between the two entities with respect to the Transfer relationship is both partial which means that participation of both entities is not existence dependent.

   b) Relational Schema

The Entity Relationship diagram of Share-i is mapped into Relational schema diagram shown above. Relation USER and IMAGE is created from the two regular(strong) entities of ERD including their primary keys and other simple attributes in the relation. Since there is one-to-many relationship between USER and IMAGE where IMAGE is on the many side of relationship, the primary key of USER is included as foreign key in IMAGE relation.

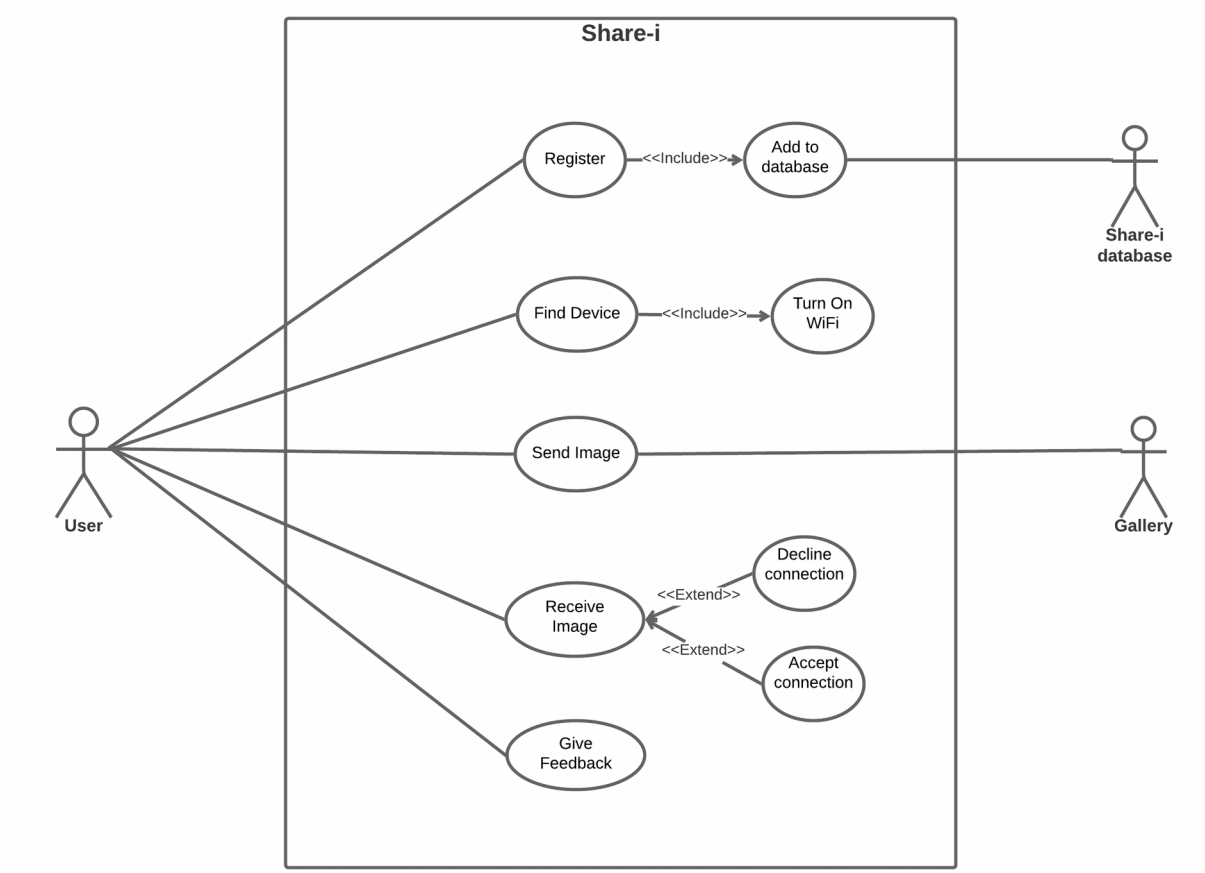
c) Sequence Diagram



The sequence diagram above is to illustrate how tasks will be done between users and the system or how the interactions will occur in an order over time. The system has user as an actor shown by stick figure. The app and database are the objects in the system represented by the rectangle box. The dashed vertical lines in the diagram shows the lifeline of and object over time. An arrow lines are the messages sent between the objects.

Firstly, user will need to set username and then it lets to enter the application. In the app, when user want to find the devices available, it is a request message and it gets the reply message by displaying the available devices. Then user will be able to connect to the device. When the user tries to connect to another device, the receiver device must also agree to connect in order to establish a connection. After that user will be able to select image file by openning the gallery and send to the receiving device. User will be able to disconnect from the connection if the connection needs to be terminated.

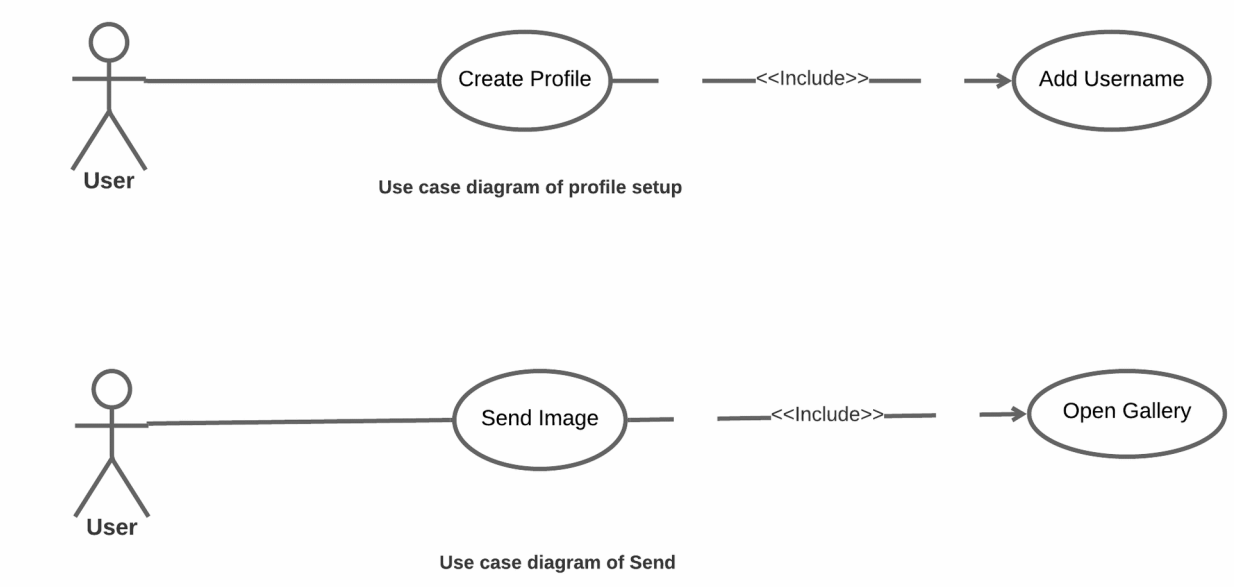
d) Use case Diagram



The use case diagram of Share-i is shown above. The diagram captures the functional requirements of an app. User is the primary actor whereas the Share-i database and photo gallery are the secondary actors in this system. Everything within the rectangle box is the scope of the app.

In order to use the Share-i, user has to register by setting up username and it will be stored in database. User will be then able to enter the app and use the functionalities of an app. The use case Find Devices will let users to discover the nearby devices within the WiFi signal range. In order to use find device feature, the device will need to turn on the WiFi and this is why the there is Turn On WiFi as included

use case. When the user wants to send the image, it has to open the gallery and this is when the secondary actor gallery reacts. The receive use case have two extended use cases where user can either accept the connection or decline connection request. The feedbacks use case is for the users who will provide comments and reviews related to an app as feedback.



Those two diagrams in the above are profile and send use case in the Share-i app. The create profile use case has an included use case which is “add username” because to create the profile, it needs the username to be set up. The second use case in the figure is “Send” which includes “Open Gallery” as, to send the image everytime, it needs to open the gallery of photo store on the android phone.

6. References

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