Software Requirements Specification

for

Handyman Application

Version 1.0 approved

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September 25th 2021

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Revision History

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| **Name** | **Date** | **Reason For Changes** | **Version** |
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# Introduction

## Purpose

The purpose of this project is to create an on-demand handyman app which serves as an online platform that connects the customers with the professionals to do any kind of household work like plumbing, wiring, remodeling, cleaning, carpentry, etc. Basically, every household repair and service.

## Document Conventions

Any requirements written in normal fonts will be assumed as high level and necessary to development. Any features that are considered lower priority, will be italicized. This will indicate that a feature will be nice to have, although not an integral part of the application.

## Intended Audience and Reading Suggestions

The intended audience is for our advisor Dr. M. We hope that our document is clear enough so that he can see the vision we have for our application. Suggested reading sequence would be from start to finish. The product scope should give an idea of what we hope to accomplish in building our application. The overall description and requirements should be able to answer any questions on how we plan on building the application. The features help solidify what our application will look like and how it will run. Any other these sections can be referred to separately throughout the building of our application.

## Product Scope

For our project, the goal is to create a Handyman Android mobile application using Java as our programming language for front-end and back-end engineering of this project. This app, in a nutshell, will let handymen (plumbers, electricians, or anyone who can perform general house maintenance) upload pictures of their work (before and after) for the local homeowners to view and be able to hire them for their own home maintenance.

We chose to create this app because we think that an app like this will be very beneficial for people who have helpful handyman skills and want to make quick money. It will also encourage them to do a good job in a timely manner, enhance their customer service skills, and hone the skills that they already have. This kind of app is important because people these days have to deal with handymen who have high rates, show up at their leisure time, do not do a good job, and charge them full price for the work they did not even like and are stuck with for years to come. Therefore, we want to create something that can help people like you and us who appreciate good, clean work for the hard-earned money they spend.

With the help of our app’s features, a customer will easily be able to hire a handyman and the handyman will be able to showcase their work and skills. The idea is for the app to become a handyman’s resume that reflects their knowledge of a particular skill and their ability to home maintenance which, in turn, will help them get hired.

# Overall Description

## Product Perspective

This application is a new, self-contained product which is intended to be used by the public to help them find handymen near their location. This application is also intended to be used by handymen of all skill levels as their portfolio where they can upload pictures of their work (before and after), along with the services offered, their hourly pay rate, etc. Most of the major functionality of the product is listed in Section 2.2 and for further reference images of the product’s prototype are submitted in Canvas.

## Product Functions

1. Sign up for all users (public and handymen).
2. Sign in and sign out for all users.
3. Forgot password link to reset password.
4. Show home screen to change settings, chat, receive notifications, and select from a variety of home maintenance services.
5. Show a sub-list of all the jobs available under a particular service.
6. Show a list of all the handymen who can perform a particular job selected by the customer.
7. Handyman profile available to be viewed, along with the options of booking or messaging them, and checking out their reviews and services offered.

## User Classes and Characteristics

The users of this application would be the Handymen and the clients.

* Administrators (Natalia Ahmad and Ashley Ellis)
  + Make changes to the application (software updates, terms and conditions, etc.)
  + View and/or make changes to the database
  + Block an account (client or handyman)
  + Delete an account (client or handyman)
* Handymen
  + Sign up (if new to the app)
  + Sign in (if an existing user)
  + Change settings in their account (personal info., services, rates, location, etc.)
  + View and delete notifications
  + Send and receive messages via in-app chat option
  + Upload before and after photos of their work on their profile
* Clients
  + Sign up (if new to the app)
  + Sign in (if an existing user)
  + Change settings in their account (personal info., location, etc.)
  + View and delete notifications
  + Send and receive messages via in-app chat option
  + Select a general home maintenance service from their home screen
  + Select a specific service (covered under the general home maintenance service)
  + View and select a handyman (based on their rating, rate, and distance) from a list
  + View a Handyman’s profile (reviews, ratings, rate, etc.)
  + Write a review for the handyman (may include before and after work images, star rating and a written review)

## Operating Environment

For this application, API 21: Android 5.0 (Lollipop) will be used as the minimum Software Development Kit (SDK) and Pixel 4 API 29 will be used as the Android Virtual Device to test out the application. Firebase v.9 will be used as a database.

## Design and Implementation Constraints

For the security of our users every user profile will have a unique password to enter the application. Likewise, the database will be secured with an administrator login. However, security testing will only be a part of the process further down the line of development. Any additional security will not be added, until after the first release of this application.

## User Documentation

A user manual or help link will be provided to help instruct the handyman side of account holders on how to upload photos and an example of hashtags to help clients better find their work. Also, after beta testing the application, we can provide a link to a FAQ section.

## Assumptions and Dependencies

It is an assumption that our application is going to be run on phones with Android operating systems. Our SDKs, database and testing environment depend on that. It could turn out that our application will not work on iOS.

# External Interface Requirements

## User Interfaces

Please view attached images (submitted in Canvas along with this document) as a reference to the interface between the software product and the users. The final product may not look the same in terms of style and design, but it will definitely follow the same flow of interfaces. Please view these images in the following order:

* Sign-in page
* Sign-up page (option available on sign-in page)
* Home screen
* Plumbing (sub-list)
* Plumber’s list
* Plumber’s profile
* Plumber’s reviews

The screen layout that will be used throughout the product is Android’s Constraint Layout. Back buttons will be available throughout the application as well for the suer to easily maneuver within the app.

## Hardware Interfaces

Our product is meant to run as a mobile application only on a mobile phone, specifically with an Android operating system. Our data will be cloud based, so it will not be stored on a specific machine.

## Software Interfaces

For the database, we will use Firebase 9.0 with Google Could Storage 22.0.0. The database will be managed through Firebase’s console website. The firebase website will be able to communicate any data coming in, to be stored or processed out to the user. The data is processed from the database, through Android Studio (Arctic Fox 2020.3.1 Patch 1) which is the Integrated Development Environment (IDE) we will use, and then to the user.

## Communications Interfaces

The user will have their email as a login credential. To verify this email, the application will send them a link for confirmation. This email address will also be used to reset their password in case they forget it.

To find a handyman near the user’s location, the application will actively be using the location of the user and the handyman.

# System Features

## Sign up for all users (public and handymen)

4.1.1 Description and Priority

This feature will allow all new users of the system to be able to sign up with our application. This is a high priority feature as it serves as the first step for getting into the application and being able to use it.

4.1.2 Stimulus/Response Sequences

The user will enter their First and Last name, their email address, their general location, and upload their profile image (optional) in the respective fields. Then, they will create a new password which they will need to re-enter to confirm. Once the account has been created, they will be taken to the app’s home screen where they can access multiple features of the application.

4.1.3 Functional Requirements

REQ-1: *To make sure that the email address the user inputs when creating an account is valid, we will need to verify it via an email link.*

REQ-2: The password will need to meet certain requirements like:

* minimum of 6 characters long
* Has at least 1 uppercase letter
* Has at least 1 lowercase letter
* Has at least 2 special characters
* Has at least 2 digits
* Has no spaces

REQ-3: *When the user creates an account, the app will need to be actively using their location to find the nearby handymen.*

## Sign in for all users

4.2.1 Description and Priority

This feature will allow all users to be able to sign into their already created accounts using their already verified email address and password. This is a high priority feature.

4.2.2 Stimulus/Response Sequences

Once the user has entered the correct email address and password, they will tap the sign in button and be able to successfully go to the app’s home screen where they can access more features of the application. However, if the user has input the wrong email address or the wrong password, then they will be shown an error message on the screen that will specify what they got wrong.

4.2.3 Functional Requirements

REQ-1: To make sure that the email address and the password the user input are correct, we will need to connect the application to the database to be certain that the information entered is correct and belongs to the right user.

REQ-2: *If the user enters the wrong password more than 5 times, then the system will disable the sign in button, at which point, a link will be sent to the user’s email address to reset their password using a reset* link*.*

## Display home maintenance services

4.3.1 Description and Priority

Once the user has successfully logged into their account, they will be shown the home screen where they will have the option of selecting a home maintenance service. This is a high priority feature.

4.3.2 Stimulus/Response Sequences

The user will tap a home maintenance service tile which will take them to the next screen that has a list of services that are covered under that general service.

4.3.3 Functional Requirements

REQ-1: If the user decides to tap one of the home services tiles, then the app will show them a list of appropriate services that are covered under that general service. Once they tap a sub-service, they will be shown a list of handymen around their area that can perform that sub-service. Next, from that list of handymen, they can select the one that fits their needs and either book them or message them via the in-app chat.

## Change account settings

4.4.1 Description and Priority

On the main home screen, the user will have the option to change their account settings. This is a low priority feature.

4.4.2 Stimulus/Response Sequences

The user will tap the settings option which will take them to the next screen where they can change their name, email, password, phone number, and profile image. Once changed, they will tap the save changes button which will update the information in the database.

4.4.3 Functional Requirements

REQ-1: If the user decides to change any of the personal information mentioned above, then the app will take them to the next screen where they can update their information and save changes so the database can be updated, as well.

## In-app chatting

4.5.1 Description and Priority

On the main home screen, the user will have the option to chat with the handymen within the application. This is a low priority feature.

4.5.2 Stimulus/Response Sequences

The user will tap the in-app chat box to be able to send and receive messages within the app.

4.5.3 Functional Requirements

REQ-1: If the user wants to view any messages they sent to the handymen or received from them, then they will do so by tapping the chat icon at the bottom of the home screen which will show them all the messages from most to least recent order.

## Notifications

4.6.1 Description and Priority

On the main home screen, the user will have the option to view the app’s notifications. This includes any software update information, as well as any general application related notifications. This is a low priority feature.

4.6.2 Stimulus/Response Sequences

The user will tap the notifications option that will show them all the recent notifications. At this point, they can tap each notification and expand it to view it in detail or delete any notifications by swiping left.

4.6.3 Functional Requirements

REQ-1: *If the user taps a notification to view it then the app should expand that notification to display a detailed message.*

REQ-2: *If the user swipes left to delete a notification, then the app should delete it right away.*

## Display a list of nearby handymen

4.7.1 Description and Priority

Once the user has decided on the type of home service they want performed on their house, they can then view a list of handymen available to perform such services. This is a high priority feature.

4.7.2 Stimulus/Response Sequences

Once the user has selected a service from the list of sub-services covered under a general home maintenance service, they will then be shown a list of nearby handymen who can perform that job.

4.7.3 Functional Requirements

REQ-1: Given the user’s and handymen’s location (from 4.1), the application should display a list of handymen that are near (within ~15 miles radius) the user’s location.

## Display handyman profile and more

4.8.1 Description and Priority

This feature will allow the user to select a handyman from a list of handymen, *view their work* and hourly rate, check out their reviews and services offered, find out their days of availability, and message them. This is a medium priority feature.

4.8.2 Stimulus/Response Sequences

Once the system has displayed a list of handymen to the user, they will then select a handyman. Upon tapping a handyman’s label, the app will display that person’s hourly rate, their reviews and services offered, days of availability and *the option to book them*, and the option to message them for further inquiries.

4.8.3 Functional Requirements

REQ-1: If auser wants to display the handyman’s reviews, the application will bring up 3 most recent reviews *along with any pictures provided* and give the user the option to display more reviews.

REQ-2: *If the user wishes to send a message to the handyman, the application will bring them to the in-app chat option where the user can send a direct message to the handyman.*

REQ-3: Once a message has been received (on either side), a small red dot should appear near the chat option to indicate that a message was received.

# Other Nonfunctional Requirements

## Security Requirements

There are a couple security requirements for our application. One is that all users will have passwords logging in. Therefore no one can just open the application and look through it without registering first. Secondly the database will have a password on an administration level. No one will be able to access the database other than the administrators.

## Software Quality Attributes

Quality attributes for our software that is important to our customers is reliability, usability, and availability. This is because users accept to be able to use this to find someone to help them, and that they will show up and do the specified job. This will rely on the handyman being able to showcase what jobs they are capable of.