Software Requirements Specification

for

Trees4Me

Version 1.0

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Revision History

Name	Date	Description of Version	Version
Hazim Hamid	30/04/2019	Initial draft	0.1
Anwar Iqbal	01/05/2019	Modified non-functional requirements	0.2
Sidra Imran	02/05/2019	Modified system interfaces	0.3
Hazim Hamid	03/05/2019	Published version	1.0

1. Introduction

1.1 Purpose

*The purpose of this SRS document is to specify the requirements (functional/non-functional) for an application called **TreeManager** that allows various aspects of managing and selling trees from a national chain of nurseries to be managed.*

*The company is called **TreeCo** that imports, grows and sells trees as well as gardening products related to growing and maintaining trees.*

This SRS document addresses the ones who are going to develop this system as well as the product owner and stakeholders as well. It will explain the scenario of the desired project and necessary steps in order to accomplish the task, such as overall description of the project, the definition of the problem that this project presents a solution, and definitions and abbreviations that are relevant to the project.

*The aim of **Trees4Me** is to increase sales by making it easy for people to choose the right tree for the right place and use, since sometimes people don't know how to select the right tree and what it might look like.*

The complete description of the functions to be performed by the software specified in this document will assist the potential developers to determine if the software specified in this document meets their needs or how the software should be modified to meet their needs. The other one is to reduce the development effort. The preparation of this SRS will help consider all of the requirements before design begins, and reduce later redesign, recoding, and retesting. The review of SRS can reveal omissions, misunderstandings, and inconsistencies early in the development cycle when these problems are easier to correct.

1.2 Intended Audience and Reading Suggestions

This document is intended for the following Audience:
- *Project Managers*
- *Product Owner*
- *Stakeholders*
- *Developers*
- *Users*
- *Testers*

The rest of this SRS document covers the overall description of the product, followed by interface requirements and system features. Non-functional and other requirements are defined at the last sections.

1.3 Product Scope

*The scope for this product is limited to the mobile app that runs on mobile phones (Android and iOS and a web browser) called **Trees4Me** that should be available for the general public.*

This application is planned to be used by any person who is willing to shop for trees or tree-related products.

1.4 References

The following references are used to write up this document:

Title	Corresponding File/Address
Project Planning board	*https://trello.com/b/3IclOhWC/trees4me-project-planning*
Academic Deliverables board	*https://trello.com/b/7Eg6bHWW/trees4me-academic-deliverables*
Team discussion workspace	*https://aut-uni.slack.com*
Roadmap planning	*https://app.productplan.com/JKg1XJkP*
Story map	*https://www.featuremap.co/m/lh9JHM/trees4me*
Impact Mapping & journey mapping	*https://uxpressia.com/*
IEEE Std 830-1998: IEEE Recommended Practice for Software Requirements Specifications	*https://standards.ieee.org/standard/830-1998.html*

Please refer to Appendix B for the product deliverables

2. Overall Description

2.1 Product Perspective

The Trees4Me product allows the user to search for and by tree or tree-related products. The user can simply search for trees by name as well as applying filters such as category, max height, growth rate, etc.
Users can also upload a photo of their garden and see how the tree will look in their garden at present or how it will look like in the future. They can also rate the service at any time. If an issue occur, users can reach out to customer support by submitting a request or they can resolve the issue themselves by reading through knowledge base articles.

2.2 Product Functions

The Trees4Me App shall provide the following functions, these are high level functions only. Detailed functions description is provided in section 4.

- *User Sign up*
- *User Sign in*
- *Display News & Special Offers*
- *Offer Tips & Recommendations*
- *Allow Service Review and Rating*
- *Display garden-related products*
- *Provide comprehensive product search facility*
- *Display product details*
- *Provide virtual garden design facility*
- *Ability to order products*
- *Provide shopping cart facility*

- *Provide delivery or pick up options*
- *Provide multiple shipping methods*
- *Provide multiple payment options*
- *Allow for dash buttons*
- *Provide Health & Troubleshooting*
- *Provide products health check tips*

2.3 User Classes and Characteristics

Various user classes have been identified for this product. The table depicted below describes the main segments, their description and the priority for using the app:

Segment	Description	Volume	Priority
Landscape gardeners	Doing work for others	Unspecified	High
Developers	For new subdivisions public spaces. High volume, specific tree types. Very profitable but sporadic	High	Low
Councils	For public places. Medium volume. Very profitable and return business, but sporadic.	Medium	Low
General public	One-off or low volume	Low	High

2.4 Operating Environment

The Trees4Me App should support the following systems:

Operating Environment	Version
Android	Android Oreo 8.0 and higher
Apple	IOS 10.0 and higher
Web Browser	Internet Explorer 9.0 and higher Chrome v65 and higher

2.5 Design and Implementation Constraints

- *The final product shall be maintained by **TreeCo** company.*
- *The product shall run on both Android and IOS devices.*
- *The final product must be delivered within two sprints*

2.6 User Documentation

The product must be delivered with the following documentation which should be available on the App and is accessible by the users:

- *App user manual*
- *Online Help*
- *Knowledge base articles*
- *List of FAQs*
- *Terms & Conditions*

2.7 Assumptions and Dependencies

- Complete list of trees and tree-related products information are available in the database.
- Payment gateway is available to accept payments by PayPal and major Credit Cards.
- List of documentations for FAQs and knowledge base articles are available
- Agreements with third-party courier companies are in place.

3. External Interface Requirements

3.1 User Interfaces

The user interface shall be implemented using any tool or software package like Java Android Studio, MS Visual Studio, etc.

The App screen should be composed of the following sections:
- Home
  - News & Special Offers
  - Tips & Recommendations
  - Review the Service
- Find a Product
  - Search Garden-related Products
  - Search Tree Products
- Help & Support
  - Troubleshoot an Issue
  - Submit a Support Request

The interaction between the user and the app is depicted in the user case diagram below:
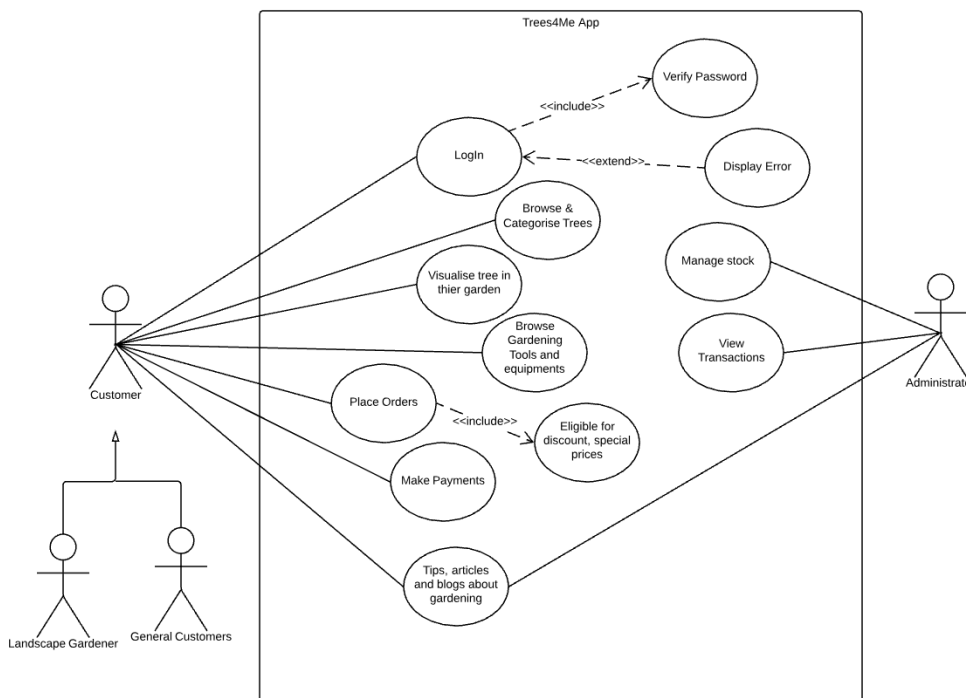
3.2 Hardware Interfaces

The App shall run on the following devices:
- *Apple iPhone IOS 10 or higher*
- *Apple iPad IOS 10 or higher*
- *Any Android device with version (8.0 Android Pie) or higher*

3.3 Software Interfaces

- The Trees4Me system shall communicate with the Configurator to identify all the available components to configure the product.
- The system shall communicate with the content manager to get the product specifications, offerings and promotions.
- The system system shall communicate with the billing system to identify available payment methods, validate the payments and process payment.
- The system shall communicate to payment gateways for handling credit card payments.
- The system shall communicate to PayPal system for handling PayPal payments.
- The system shall communicate with CRM system to provide support.
- The system shall communicate with Sales system for order management.
- The system shall communicate with shipping system for tracking orders and updating of shipping methods.

3.4 Communications Interfaces

- *The system shall communicate through HTTPs protocol.*
- *The system shall send email notifications to the user using SMTP protocl*
- *All transactions between the app and the server must be encrypted using AES-256 encryption.*

4. System Features

The following features shall be included in the final delivered product. Each feature includes a description, stimulus/response sequence as well as the functional requirements.

4.1 User Sign up

4.1.1 Description & Priority

This feature allows new users to register for the application using their email address.

Priority = 10

4.1.2 Stimulus/Response Sequence

Stimulus: User clicks on Sign up button.
Response: Sign up form is displayed
Stimulus: User enters username, password and email address
Response: Email format and password are verified by the system

Stimulus: User clicks on Complete button
Response: Registration complete confirmation page displayed

4.1.3 Functional Requirements

Sequence	Requirement
REQ-1	The system shall display the sign-up button if the user is not logged in.
REQ-2	The system shall display the registration form upon clicking on sign-up button.
REQ-3	The system shall be able to verify the email address format
REQ-4	The system shall be able to verify if the two passwords don't match
REQ-5	The system shall be able to save the registration details to the database

4.2 User Log in

4.2.1 Description & Priority

Provide the user with a page to login to Optimized Moodle LMS.

Priority = 10

4.2.2 Stimulus/Response Sequence

Stimulus: User clicks on Login Link.
Response: Login Page is displayed
Stimulus: User Enters Username and Password
Response: Username and Password are validated from the Database.
Stimulus: User Clicks on Login Button
Response: Home Page is displayed if Username and Password is correct else Error Message
                 is displayed.

4.2.3 Functional Requirements

Sequence	Requirement
REQ-1	The user shall be able to view and click on Login Link.
REQ-2	The user shall be able to enter the username and password
REQ-3	The database shall be able to validate username and password.

4.3 Display News & Special Offers

4.3.1 Description & Priority

This feature displays the latest news and special offers to the user. It also allows the user to purchase any of the special offers using 1-click button.

Priority = 7

4.3.2 Stimulus/Response Sequence

Stimulus: User clicks on 'News & Special Offers' screen
Response: News and special offers are displayed to the user
Stimulus: User clicks on '1-click buy' button
Response: Product added to shopping cart
Stimulus: User clicks on 'sign up for special offers' button
Response: User subscribe option is saved to the database

4.3.3 Functional Requirements

Sequence	Requirement
REQ-1	The system shall display to the user the latest news and special offers
REQ-2	The system shall allow the user to purchase any of the special offers using 1-click button
REQ-3	The system shall allow the user to subscribe to future special offers through mobile notification

4.4 Offer Tips & Recommendations

4.4.1 Description & Priority

This feature displays tips and recommendations to the user based on their market segment and order history.

Priority = 7

4.4.2 Stimulus/Response Sequence

Stimulus: User clicks on 'Tips & Recommendations' screen
Response: Tips & recommendations list are displayed to the user
Stimulus: User clicks on a tip item
Response: Tip details page is displayed

4.4.3 Functional Requirements

Sequence	Requirement
REQ-1	The system shall display tips & recommendations based on user class
REQ-2	The system shall allow the user to read the details of the tip

4.5 Review & Rate the Service

4.5.1 Description & Priority

This feature allows the user to review the service at any stage after purchasing a product. The user can also to give the service a star rating.

Priority = 8

4.5.2 Stimulus/Response Sequence

Stimulus: User clicks on 'Review the service' screen
Response: The review page is displayed
Stimulus: User enters review description and click submit
Response: User review description is saved to the database
Stimulus: User click on start rating (1 to 5)
Response: Star rating is saved to the database

4.5.3 Functional Requirements

Sequence	Requirement
REQ-1	The system shall allow the user to enter a review description
REQ-2	The system shall allow the user to select start rating (1 to 5 stars)

4.6 Display Garden-related Products

4.6.1 Description & Priority

This feature gives the user the opportunity to view garden-related products such as potting mix, fertiliser, snail bait, etc.

Priority = 9

4.6.2 Stimulus/Response Sequence

Stimulus: User clicks on 'garden-related products' screen
Response: All garden-related products are displayed
Stimulus: User enter search keyword in the search box
Response: Garden-related products are filtered based on the keyword
Stimulus: User clicks 'add to cart' button
Response: Product is added to shopping cart

4.6.3 Functional Requirements

Sequence	Requirement
REQ-1	The system shall allow the user to display all garden-related products
REQ-2	The system shall display only filtered products based on user search keyword

4.7 Provide Comprehensive Products Search Facility

4.7.1 Description & Priority

This feature gives the user a chance to search for tree products using various filters.

Priority = 9

4.7.2 Stimulus/Response Sequence

Stimulus: User enters search keyword in product name box and clicks Search button

Response:	All products with similar name are displayed
Stimulus:	User filters products by category
Response:	All products with selected category are displayed
Stimulus:	User filters products by conditions of place
Response:	All products with selected condition of place are displayed
Stimulus:	User filters products by maintenance requirements
Response:	All products with selected maintenance requirements are displayed
Stimulus:	User filters products by Max height
Response:	All products with entered max height are displayed
Stimulus:	User filters products by Growth rate
Response:	All products with entered growth rate are displayed
Stimulus:	User filters products by price
Response:	All products with entered price are displayed

4.7.3 Functional Requirements

Sequence	Requirement
REQ-1	The system shall allow the user to search for trees using Name
REQ-2	The system shall allow the user to search for trees using Category filter
REQ-3	The system shall allow the user to search for trees using Condition of place filter
REQ-4	The system shall allow the user to search for trees using maintenance requirements filter
REQ-5	The system shall allow the user to search for trees using Max height filter
REQ-6	The system shall allow the user to search for trees using Growth rate filter
REQ-7	The system shall allow the user to search for trees using price filter

4.8 Display Product Details

4.8.1 Description & Priority

This feature let users click on a product to read its details and to view a photo of the product.

Priority = 10

4.8.2 Stimulus/Response Sequence

Stimulus:	User clicks on Product details
Response:	The product details page is displayed
Stimulus:	User clicks on Product photo
Response:	The product photo is displayed

4.8.3 Functional Requirements

Sequence	Requirement
REQ-1	The system shall display to the user the selected product details
REQ-2	The system shall display to the user the selected product photo
REQ-3	The system shall display to the user the recommended usage for the selected product

4.9 Provide Virtual Garden Design Facility

4.9.1 Description & Priority

This advanced feature allows the user to upload a photo of their house, drag the tree photo into their garden and view how the final tree will look like. It also let the users to view the current tree as it is or how it will look in the future.

Priority = 8

4.9.2 Stimulus/Response Sequence

Stimulus: User clicks on Virtual designer button
Response: The virtual designer tool is open
Stimulus: User clicks on upload a photo
Response: The browse for photos window open
Stimulus: User selects photo and click upload
Response: The selected photo is uploaded to the designer
Stimulus: User drags the tree photo to the uploaded photo
Response: The tree photo is displayed as a top layer of the house photo
Stimulus: User changes the age of the photo and clicks show final image
Response: The final photo of the tree is showed on the house based on the selected age

4.9.3 Functional Requirements

Sequence	Requirement
REQ-1	The system shall allow the user to launch the virtual designer page
REQ-2	The system shall allow the user to upload a photo of their house
REQ-3	The system shall allow the user to drag a photo of the tree to their garden
REQ-4	The system shall allow the user to change the age of the tree
REQ-5	The system shall display the final product in the uploaded house photo

4.10 Ability to Order Products

4.10.1 Description & Priority

This important feature allows the users to order products and add them to the shopping cart.

Priority = 10

4.10.2 Stimulus/Response Sequence

Stimulus: User selects item(s) for purchase
Response: The checkbox for the item(s) is checked
Stimulus: User changes the quantity
Response: The quantity number is changed in the box
Stimulus: User specifies the age
Response: The specified number is shown in the box
Stimulus: User species the height

Response: The new specified height is shown in the box
Stimulus: User clicks Add to shopping cart button
Response: Items are added to the shopping cart.

4.10.3 Functional Requirements

Sequence	Requirement
REQ-1	The system shall allow the user to select items for purchase
REQ-2	The system shall allow the user to specify quantity
REQ-3	The system shall allow the user to specify age
REQ-4	The system shall allow the user to specify height
REQ-5	The system shall allow the user to add the items to shopping cart

4.11 Provide Shopping Cart Facility

4.11.1 Description & Priority

This feature provides users with options to modify the quantity of the items and remove products from shopping cart.

Priority = 10

4.11.2 Stimulus/Response Sequence

Stimulus: User changes the quantity and clicks update
Response: The quantity changes on the shopping cart and the price is updated accordingly
Stimulus: User clicks on Remove product
Response: The product is removed from the cart and the price is updated accordingly
Stimulus: User clicks on Place order
Response: The order is placed, and the user is directed to the delivery options page

4.11.3 Functional Requirements

Sequence	Requirement
REQ-1	The system shall allow the user to change the quantity of a product
REQ-2	The system shall allow the user to remove a product
REQ-3	The system shall allow the user to place the order

4.12 Delivery Options

4.12.1 Description & Priority

This feature allows the user to choose between delivery or pick up.

Priority = 10

4.12.2 Stimulus/Response Sequence

Stimulus: User selects pick up method
Response: The user is redirected to the nearest branch and display the branch contact details
Stimulus: User selects delivery method
Response: The user is redirected to the shipping methods page

4.12.3 Functional Requirements

Sequence	Requirement
REQ-1	The system shall display delivery and pick up options to the user.
REQ-2	The system shall take the user to shipping methods if 'delivery' was selected
REQ-3	The system shall redirect the user to the nearest branch and display its contact details and opening hours if 'pick up' was selected
REQ-4	The system shall display the final price if 'pickup' was selected
REQ-5	The system shall check if the user is qualified for free delivery
REQ-6	The system shall determine if the user is a VIP user and add 10% discount to the delivery price

4.13 Provide Multiple Shipping Methods

4.13.1 Description & Priority

This feature allows the user to choose between different shipping methods.

Priority = 9

4.13.2 Stimulus/Response Sequence

Stimulus: User selects appropriate shipping method
Response: The shipping charges are added to the final price

4.13.3 Functional Requirements

Sequence	Requirement
REQ-1	The system shall display different shipping options provided by different couriers.
REQ-2	The system shall enable user to select the shipping method during payment process.
REQ-3	The system shall display the shipping charges.
REQ-4	The system shall display tentative duration for shipping.

4.14 Payment Options

4.14.1 Description & Priority

This feature allows the user to pay with various payment methods.

4.14.2 Stimulus/Response Sequence

Stimulus: User selects Credit Card as payment option
Response: The user is redirected to the credit card payment page

Stimulus: User selects PayPal as payment method
Response: User is redirected to the PayPal login page
Stimulus: User completes payment details
Response: A payment confirmation is displayed to the user and a confirmation email is sent.

4.14.3 Functional Requirements

Sequence	Requirement
REQ-1	The system shall display available payment methods for payment.
REQ-2	The system shall allow user to select Credit Card method for order.
REQ-3	The system shall allow user to select PayPal method for order.
REQ-4	The system shall display to the user the payment confirmation upon completing the payment
REQ-5	The system shall send email confirmation to the user upon completing the payment

4.15 Dash Buttons

4.15.1 Description & Priority

This feature checks if the user is qualified for dash buttons. Dash buttons allow for easy and quick re-order of frequently purchased items.

Priority = 8

4.15.2 Functional Requirements

Sequence	Requirement
REQ-1	The system shall check if the user is qualified for dash buttons
REQ-2	The system shall notify the department to courier dash button to the user if they are qualified

4.16 Help & Troubleshooting

4.16.1 Description & Priority

This feature allows users to navigate for articles to help them with resolving issues. Users can also submit a ticket if they want a representative to contact them and offer support.

Priority = 10

4.16.2 Stimulus/Response Sequence

Stimulus: User clicks on FAQs
Response: The FAQs page is displayed
Stimulus: User clicks on Knowledge base articles
Response: The Knowledge base page is displayed
Stimulus: User clicks on Contact customer support
Response: Customer support contact details are displayed

Stimulus: User clicks on Request a callback
Response: The support department receives the request with the user contact details
Stimulus: User clicks on submit ticket and enters the information
Response: The support department receives a notification with the submitted ticket

4.16.3 Functional Requirements

Sequence	Requirement
REQ-1	The system shall provide online help, FAQ's customer support, and sitemap options for customer support.
REQ-2	The system shall display the customer support contact numbers on the screen.
REQ-3	The system shall allow user to enter the contact number for support personnel to call.
REQ-4	The system shall display the FAQ's upon request.
REQ-5	The system shall display Knowledge base articles upon request.
REQ-6	The system shall allow the user to submit a ticket to customer support team

4.17 Product Health check

4.17.1 Description & Priority

This feature provides users with comprehensive details on how to maintain a certain product.

Priority = 8

4.17.2 Stimulus/Response Sequence

Stimulus: User checks the box for 'Subscribe to health check emails'
Response: The user preference is saved to the database

4.17.3 Functional Requirements

Sequence	Requirement
REQ-1	The system shall allow the user to subscribe to health check emails
REQ-2	The system shall send periodic emails to the user with health check guides

5. Other Nonfunctional Requirements

5.1 Performance Requirements

- The product shall take initial load time depending on internet connection strength which also depends on the media from which the product is run.
- The performance shall depend upon mobile hardware components of the client/customer.
- Navigation between different screens should take less than 3 seconds.
- The system shall display payment confirmation to the user within 2 seconds after making the payment.

5.2 Safety Requirements

- The application does not have any safety concerns.

5.3 Security Requirements

- The system shall use secure sockets in all transactions done through the app.
- The system shall automatically log out all customers after a period of inactivity.
- The system shall ask users to change their passwords every 6 months.
- The system shall store all of users' sensitive details encrypted.

5.4 Software Quality Attributes

- The system shall run on Android phones, iPhones and web browsers.
- The navigation between app screens should be smooth.
- The app should be stable and not crashing on mobile phones.
- The system shall be available to users all the time.

6. Other Requirements

- *The supported language for the App should be English.*
- *The app shall follow the mobile app industry standards.*

Appendix A: Glossary

SRS	Software Requirements Specifications
FAQ	Frequently Asked Questions
CRM	Customer Relationship Management

Appendix B: Supporting Information

Please refer to the following documents:
1. Story Map
2. Use Case Diagram
3. Personas
4. Impact Mapping
5. Scenario
6. Roadmap