

**Software Requirements Specification**

**for**

**VCare - An Integrated Care System**

**Prepared by**

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**Revision History**

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| --- | --- | --- | --- |
| **Name** | **Date** | **Reason For Changes** | **Version** |
|  |  |  |  |
| VCare | 19/02/ | Initial Version | 1.0 |
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**1. Introduction**

**1.1** **Purpose**

This document details the Software Requirements Specifications for “VCare - An Integrated Care System” for Padmavati Hospital in Mangalore, Karnataka. VCare aims to automate the health-care system of the modern world. The primary aim of the document is to detail out/ describe the whole system and clearly lists all its functionalities.

**1.2** **Document Conventions**

The font that is followed in this document is arial and its size is 11. Special highlighting is done by making the text bold so that important keywords can easily be differentiated. Every requirement stated in this document has its own unique priority and every functionality is equally important.

**1.3** **Intended Audience and Reading Suggestions**

This document is meant for staff of Padmavati Hospital mainly the Doctors and the Administration Staff who will maintain/ operate the system. It is also meant for authorized Chemists and Labs who are associated with the Hospital. Lastly, it is also meant for Patients/ general public at large who will register themselves and request for appointments/ consultations. In lieu of Patients, it is expected that Hospital Staff will identify the information acquired from Patients, Chemists and Labs. They are the ones who will state the requirements of the software and their feedback will also be needed to modify the existing requirements.

This document shall also serve as the reference document for Project Management and Development team who will Analyze, Design and Implement the System, They will coordinate every activity that take place in the Software Engineering process.

**1.4** **Product Scope**

Padmavathi is a Multi-speciality Hospital in the Surathkal suburb of Mangalore. The Chairman of Padmavathi Hospital has created a vision to provide 24/7 Primary Care at Doorstep of Patients using a panel of high quality doctors within a 25 Square Kilometers of Hospital (specified Pincode(s) - also termed as Zone). Further, the Hospital has decided to provide quality medicines vide authorized Chemists located within the zone at the doorstep at discounted prices as well as give doorstep Laboratory services wherever possible vide specimen collection. The aim is to help elderly and inform people as well as people who need regular monitoring services to get access to quality healthcare services at affordable prices at the Door-step. It is envisaged that preventive and regular monitoring services can reduce the hospital admissions and reduce the suffering in General.

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**1.5 Scope of the document**

This document details the Software Requirement Specifications for VCare - An Integrated Care System. The main purpose of this document is to describe the features and behavior of a system. It includes a variety of elements that attempts to define the intended functionality required by the customer to satisfy their different users. In addition to specifying how the system should behave, the specification also defines at a high-level the main business processes that will be supported, what simplifying assumptions have been made and the design limitations and constraints. Each of these is described in more detail along with the Product Functions, User Classes, Operating Environment, All interfaces (User, Hardware, Software, Communication), System features and functional requirements and Non-functional requirements along with business rules.

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**2. Overall Description**

**2.1** **Product Perspective**

“VCare” is based on the concept of integrated care system. Stakeholders for the system are Doctors, Patients, Labs and Chemists. As shown in the below diagram a patient makes his/her consultation request to the system by entering the symptoms, the system forwards the consultation request to a doctor of the concerned speciality. Doctor generates a prescription comprising of Diagnosis, Medicines and Lab Requests(if needed) based on the symptoms provided by the patient. The prescription is received by patient, nearest local chemist and nearest local lab. Using the prescription Chemist provides medicines to the patient via offline delivery. Labs, too, use the same prescription to collect specimen from patient and make the delivery of lab reports based on lab tests and also update the report on the system to view for the patient anytime. For Chemists and Labs, only need to know information will be displayed thereby protecting the Patient’ confidentiality.

**2.2** **User Classes and Characteristic**

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Table 1-Use cases

|  |  |  |  |
| --- | --- | --- | --- |
| **S. No** | **Actor Name** | **Description/ Actor’s Role** | |
|  |  |  |  |
| 01 | Admin | ● | Setup Speciality |
|  |  | ● | Add Doctors |
|  |  | ● | Add Labs/Pharmacy |
|  |  | ● Edit Doctors Information (Update/ Delete) | |
|  |  | ● Edit Labs/Pharmacy Details (Update/ | |
|  |  |  | Delete) |
|  |  |  |  |
| 02 | Patient | ● | Registration |
|  |  | ● | Update Profile |
|  |  | ● Make Appointments/ Submit Online | |
|  |  |  | Consultation Request |
|  |  | ● | View/Generate Prescription |
|  |  |  | Reports/Invoices |
|  |  |  |  |
| 03 | Doctor | ● | Provide Consultation |
|  |  | ● | Prescribe Medicine |
|  |  | ● | Prescribe Lab Tests |
|  |  |  |  |

**2.3** **Operating Environment**

The system shall be deployed on a Heroku platform which is a service providing platform to host with Ver. 5.7.21 MySQL Database to maintain the databases. The system shall be accessed vide the Hospital’ website which runs on multiple browsers e.g. Google Chrome, Mozilla Firefox etc. The Operating System on the front-end PCs/Laptops can be MS Windows, Unix, Linux or Apple Mac.

The system will be built with the help of following software:

Table 2-Environment for development

|  |  |  |  |
| --- | --- | --- | --- |
| **Sr** | **System** | **Environment for** | **Description** |
| **No** |  | **development** |  |
|  |  |  |  |
| 1. | Software used to | Backend: Django 2.0 | Django is a high-level Python Web |
|  | develop |  | framework that encourages rapid |
|  |  |  | development and clean, pragmatic |
|  |  |  | design. |
|  |  |  |  |
|  |  | Database: MYSQL | MySQL is an open-source relational |
|  |  |  | database management |
|  |  |  | system(RDBMS). |
|  |  |  |  |
| 2 |  | Frontend: HTML,JavaScript, jQuery,AngularJS | HTML: is the standard markup  language for creating web pages and  web applications  JavaScript: As a multi-paradigm  language, JavaScript supports event  driven functional, and imperative  (including object-oriented and  prototype based) programming style.  jQuery is a cross-platform JavaScript  library designed to simplify the  client-side scripting of HTML  AngularJS: The AngularJS  framework works by first reading the  HTML page, which has additional  custom tag attributes embedded into  it. Angular interprets those attributes  as directives to bind input or output  parts of the page to a model that is  represented by standard JavaScript  variables |

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| 3 |  | Styling: CSS,  Bootstrap | Cascading Style Sheets (CSS) is a  style sheet language used for  describing the presentation of a  document written in a mark-up  language.  Bootstrap is a free and open-source  front-end web framework for  designing websites and web  applications. |
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| 4 |  | IDE: PyCharm  (student version) | It provides code analysis, a graphical  debugger, an integrated unit tester,  integration with version-control  systems (VCSes), and supports web  development with Django. |
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| Version Control: Git, | GIT is a version-control system for |
| GitHub | tracking changes in computer-files |
|  | and coordinating work on those files |
|  |  | among multiple people. |
|  |  |  |
|  | Text Editor: - Sublime | Sublime Text is a cross-platform |
|  |  | source code editor with a Python |
|  |  | Application programming |
|  |  | interface(API) |
|  |  |  |
|  | Usage of system | The preferred way to write tests in |
|  |  |  |
|  | library for unit testing: | Django is using the unittest module |
|  | Django- unittest | built in to the Python standard library. |
|  | JavaScript/jQuery: |  |
|  | assert |  |
|  |  |  |

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**External Interface Requirements**

**3.1** **Hardware Interfaces**

The System shall be deployed on Heroku Platform. All the Stakeholders are supposed to log-in into the VCare website where there will be a specific URL to access the System. Hardware Requirements for stakeholders:

* Pentium 4 processor or higher
* Approximately 100 MB of free harddrive space
* Minimum 128 MB RAM
* Minimum 1GB database space
* Minimum 2GB RAM

**3.2** **Software Interfaces**

The System is self contained and no data is supposed to be shared with any third party - Chemists and Labs are supposed to log-into the system to access the Prescriptions, so are the Patients. Only emails will be sent to Patients including the full prescription and Invoice. There will be an interface with the current standard Payment Gateway available with the Hospital. A button will be enabled to securely accept the payments vide Debit/Credit Cards and Net banking. Software Requirements for Hosting:

* Django 2.0
* MySQL
* Browser ( Google Chrome, Mozilla Firefox, Safari etc.)
* Operating System supporting the above browsers.

**3.3** **Communications Interfaces**

The System will be available on hospital Padmavathi website as a URL and will be operational using standard web-browsers (Safari, Google Chrome and firefox). Patients, Chemists and Labs will connect through a secured encrypted connection over internet (https://). Since the data communicated over internet is confidential it is imperative that encrypted protocols are used to prevent data leakages. E-mails shall be used to send the Prescription and Invoice to the Patients after Consultation.

**System Features**

**4.1** **Functional Requirements**

The following section describes the Functional Requirements - Each Requirement has been tagged by a Requirement Number (Convention Used is Req-x and Req-x/x)

Table 3-Functional Requirements

|  |  |  |  |
| --- | --- | --- | --- |
| **Requirement #** | **Functional Feature** | **Remarks** |  |
|  |  |  | |
| Req-1 | Maintain Specialities | This functionality will Maintain different types of | |
|  |  | Specialities |  |
|  |  |  |  |
| Req-1/1 | Add Speciality | Add a new (unique) Speciality |  |
|  |  |  |  |
| Req-1/2 | Edit Speciality | View and Update the details of an existing |  |
|  |  | Speciality |  |
|  |  |  | |
| Req-1/3 | Delete Speciality | Delete the Speciality - A Speciality can be deleted | |
|  |  | only if no doctors are attached to it |  |
|  |  |  |  |
| Req-2 | Maintain Doctors | This functionality will Maintain Doctors and |  |
|  |  | Associate them with the Speciality |  |
|  |  |  |  |
| Req-2/1 | Add Doctor | Add a new (unique) Doctor - Name, Age,Sex, |  |
|  |  | Qualification, Experience, Speciality |  |
|  |  |  | |
| Req-2/2 | Edit Doctor | View and Update the details of an existing Doctor - | |
|  |  | Speciality cannot be updated i.e. a doctor cannot | |
|  |  | move from one speciality to another |  |
|  |  |  |  |
| Req-2/3 | Delete Doctor | Delete the Doctor Details - A doctor can be |  |
|  |  | deleted if and only if no new Patient Consultation | |
|  |  | Request is pending |  |
|  |  |  | |
| Req-3 | Maintain Chemist & Labs | This functionality will Maintain Chemist and Lab | |
|  |  | Details |  |
|  |  |  | |
| Req-3/1 | Add Chemist / Lab | Add a new Chemist or a Lab - There can be ONLY | |
|  |  | 1 lab in a Pincode |  |
|  |  |  |  |
| Req-3/2 | Edit Chemist/Lab | View and Update the details of an existing |  |
|  |  | Chemist/ Lab - Pincode cannot be updated |  |
|  |  |  | |
| Req-3/3 | Delete Chemist/ Lab | Delete the Chemist / Lab Details - A Chemist or a | |
|  |  | Lan can be deleted if and only if no new |  |
|  |  | Prescription is pending |  |
|  |  |  |  |
| Req-4 | Maintain Symptoms | This is a master list of Symptoms that can be |  |
|  |  | selected by Patient during Consultation Request | |
|  |  |  |  |
|  | | |  |

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| --- | --- | --- | --- |
| Req-4/1 | Add Symptom | Add a new Symptom |  |
|  |  |  |  |
| Req-4/2 | Edit Symptom | View and Update the details of an existing |  |
|  |  | Symptom i,e. description |  |
|  |  |  | |
| Req-4/3 | Delete Symptom | Delete the Symptom Details - A Symptom can be | |
|  |  | deleted if and only if no Consultation request ever | |
|  |  | raised has used this symptom |  |
|  |  |  |  |
| Req-5 | Maintain Patients Profile | This is Patient Registration Functionality |  |
|  |  |  |  |
| Req-5/1 | Create Patient Profile | Register a new Patient |  |
|  |  |  | |
| Req-5/2 | Edit Patient Profile | View and Update the details of an existing Patient. | |
|  |  | Only latest details shall be maintained by the |  |
|  |  | system |  |
|  |  |  | |
| Req-5/3 | Delete Patient Profile | Delete the Patient Details - A Patient cannot be | |
|  |  | deleted if there is one or more Consultation |  |
|  |  | Requests in last 3 years |  |
|  |  |  | |
| Req-6 | Consultation Request | Registered Patients shall have the ability to raise | |
|  |  | Consultation Requests - 2 Modes would be |  |
|  |  | available - Appointment and Offline Consultation | |
|  |  |  |  |
| Req-6/1 | Create Consultation | Patient creates a Consultation Request by |  |
|  | Request | entering the Symptoms, uploads reports, if any | |
|  |  | and defines the mode of request |  |
|  |  | (Offline/Appointment) |  |
|  |  |  |  |
| Req-6/2 | Create Appointment- | For Appointment Requests, an entry shall be |  |
|  | Online | created in the Patient Appointment File if the |  |
|  |  | appointment is for next day |  |
|  |  |  |  |
| Req-6/3 | Create Appointment - | This is batch program that will be run by |  |
|  | Batch | Administration every night to create Appointment | |
|  |  | File for next 5 days. It will purge the existing files | |
|  |  |  | |
| Req-8 | Provide Consultation | Doctors shall see the prioritized consultation |  |
|  |  | requests and provide diagnosis, prescribe |  |
|  |  | medicines and suggest lab requests, if any |  |
|  |  |  |  |