**Software Requirements Specification**

**for**

**Student Management Android Application**

**Version 1.0 approved**

**Prepared by Sachin**

**National Institute of Technology Karnataka**

**09-01-2018**

# **Document Approval**

The following Software Requirements Specification has been accepted and approved by the following:

|  |  |  |  |
| --- | --- | --- | --- |
| **Signature** | **Printed Name** | **Title** | **Date** |
|  | Sachin | Student. | 09-01-2018 |
|  | Ms. Raksha | Instructor, IT350 |  |
|  |  |  |  |

# **Table of Contents**

[**REVISION HISTORY II**](https://docs.google.com/document/d/1pOYgwuiNMN9gM_J1MNYKcMmetc2ss6rMHXHvuIjG9zc/edit#heading=h.gjdgxs)

[**DOCUMENT APPROVAL II**](https://docs.google.com/document/d/1pOYgwuiNMN9gM_J1MNYKcMmetc2ss6rMHXHvuIjG9zc/edit#heading=h.30j0zll)

1. [**INTRODUCTION 1**](https://docs.google.com/document/d/1pOYgwuiNMN9gM_J1MNYKcMmetc2ss6rMHXHvuIjG9zc/edit#heading=h.1fob9te)
   1. [PURPOSE 1](https://docs.google.com/document/d/1pOYgwuiNMN9gM_J1MNYKcMmetc2ss6rMHXHvuIjG9zc/edit#heading=h.3znysh7)
   2. [SCOPE 1](https://docs.google.com/document/d/1pOYgwuiNMN9gM_J1MNYKcMmetc2ss6rMHXHvuIjG9zc/edit#heading=h.2et92p0)
   3. [DEFINITIONS, ACRONYMS, AND ABBREVIATIONS 1](https://docs.google.com/document/d/1pOYgwuiNMN9gM_J1MNYKcMmetc2ss6rMHXHvuIjG9zc/edit#heading=h.tyjcwt)
   4. [REFERENCES 2](https://docs.google.com/document/d/1pOYgwuiNMN9gM_J1MNYKcMmetc2ss6rMHXHvuIjG9zc/edit#heading=h.3dy6vkm)
   5. [OVERVIEW 2](https://docs.google.com/document/d/1pOYgwuiNMN9gM_J1MNYKcMmetc2ss6rMHXHvuIjG9zc/edit#heading=h.1t3h5sf)
2. [**GENERAL DESCRIPTION 2**](https://docs.google.com/document/d/1pOYgwuiNMN9gM_J1MNYKcMmetc2ss6rMHXHvuIjG9zc/edit#heading=h.4d34og8)
   1. [PRODUCT PERSPECTIVE 2](https://docs.google.com/document/d/1pOYgwuiNMN9gM_J1MNYKcMmetc2ss6rMHXHvuIjG9zc/edit#heading=h.2s8eyo1)
   2. [PRODUCT FUNCTIONS 2](https://docs.google.com/document/d/1pOYgwuiNMN9gM_J1MNYKcMmetc2ss6rMHXHvuIjG9zc/edit#heading=h.17dp8vu)
   3. [USER CHARACTERISTICS 3](https://docs.google.com/document/d/1pOYgwuiNMN9gM_J1MNYKcMmetc2ss6rMHXHvuIjG9zc/edit#heading=h.3rdcrjn)
   4. [ASSUMPTIONS AND DEPENDENCIES 3](https://docs.google.com/document/d/1pOYgwuiNMN9gM_J1MNYKcMmetc2ss6rMHXHvuIjG9zc/edit#heading=h.26in1rg)
3. [**SPECIFIC REQUIREMENTS 4**](https://docs.google.com/document/d/1pOYgwuiNMN9gM_J1MNYKcMmetc2ss6rMHXHvuIjG9zc/edit#heading=h.lnxbz9)
   1. [EXTERNAL INTERFACE REQUIREMENTS 4](https://docs.google.com/document/d/1pOYgwuiNMN9gM_J1MNYKcMmetc2ss6rMHXHvuIjG9zc/edit#heading=h.35nkun2)
      1. [*User Interfaces 4*](https://docs.google.com/document/d/1pOYgwuiNMN9gM_J1MNYKcMmetc2ss6rMHXHvuIjG9zc/edit#heading=h.1ksv4uv)
      2. [*Hardware Interfaces 4*](https://docs.google.com/document/d/1pOYgwuiNMN9gM_J1MNYKcMmetc2ss6rMHXHvuIjG9zc/edit#heading=h.44sinio)
      3. [*Software Interfaces 4*](https://docs.google.com/document/d/1pOYgwuiNMN9gM_J1MNYKcMmetc2ss6rMHXHvuIjG9zc/edit#heading=h.2jxsxqh)
      4. [*Communications Interfaces 4*](https://docs.google.com/document/d/1pOYgwuiNMN9gM_J1MNYKcMmetc2ss6rMHXHvuIjG9zc/edit#heading=h.z337ya)
   2. [FUNCTIONAL REQUIREMENTS 5](https://docs.google.com/document/d/1pOYgwuiNMN9gM_J1MNYKcMmetc2ss6rMHXHvuIjG9zc/edit#heading=h.3j2qqm3)
      1. [*Student Registration 5*](https://docs.google.com/document/d/1pOYgwuiNMN9gM_J1MNYKcMmetc2ss6rMHXHvuIjG9zc/edit#heading=h.1y810tw)
      2. [*Student Attendance Management 5*](https://docs.google.com/document/d/1pOYgwuiNMN9gM_J1MNYKcMmetc2ss6rMHXHvuIjG9zc/edit#heading=h.4i7ojhp)
      3. [*Opinion Management 5*](https://docs.google.com/document/d/1pOYgwuiNMN9gM_J1MNYKcMmetc2ss6rMHXHvuIjG9zc/edit#heading=h.2xcytpi)
   3. [NON-FUNCTIONAL REQUIREMENTS](https://docs.google.com/document/d/1pOYgwuiNMN9gM_J1MNYKcMmetc2ss6rMHXHvuIjG9zc/edit#heading=h.3whwml4) ***6***
      1. [*Performance 6*](https://docs.google.com/document/d/1pOYgwuiNMN9gM_J1MNYKcMmetc2ss6rMHXHvuIjG9zc/edit#heading=h.2bn6wsx)
      2. [*Reliability 6*](https://docs.google.com/document/d/1pOYgwuiNMN9gM_J1MNYKcMmetc2ss6rMHXHvuIjG9zc/edit#heading=h.qsh70q)
      3. [*Availability 6*](https://docs.google.com/document/d/1pOYgwuiNMN9gM_J1MNYKcMmetc2ss6rMHXHvuIjG9zc/edit#heading=h.3as4poj)
      4. [*Security 7*](https://docs.google.com/document/d/1pOYgwuiNMN9gM_J1MNYKcMmetc2ss6rMHXHvuIjG9zc/edit#heading=h.1pxezwc)
      5. [*Maintainability 7*](https://docs.google.com/document/d/1pOYgwuiNMN9gM_J1MNYKcMmetc2ss6rMHXHvuIjG9zc/edit#heading=h.49x2ik5)
      6. [*Portability 7*](https://docs.google.com/document/d/1pOYgwuiNMN9gM_J1MNYKcMmetc2ss6rMHXHvuIjG9zc/edit#heading=h.2p2csry)
   4. [DESIGN CONSTRAINTS 7](https://docs.google.com/document/d/1pOYgwuiNMN9gM_J1MNYKcMmetc2ss6rMHXHvuIjG9zc/edit#heading=h.147n2zr)
   5. OTHER REQUIREMENTS 7
4. [**APPENDICES 12**](https://docs.google.com/document/d/1pOYgwuiNMN9gM_J1MNYKcMmetc2ss6rMHXHvuIjG9zc/edit#heading=h.1hmsyys)
   1. APPENDIX 1

# **Revision History**

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Description** | **Author** | **Comments** |
| 09-01-2018 | Version 1.0 | Sachin | This is just the basic Student  Management Android App. |
|  |  |  |  |

# **Introduction**

Student management Android App has become important factors in modern education field. This Application should help the institutional to streamline the administrative task and provide real-time access to the data. Building this App in web based interface will further help the ease of accessibility through any web browser. The study findings enable the definition of the project problem statement, its objectives, scopes and advantages of the student management Applicaton.

## **Purpose**

The purpose this documents is to present a detailed description of the Student Management System. It will explain the purpose and features of the software, the interfaces of the software, what the software will do, the constraints under which it must operates and how the software will react to external stimuli. This document is intended for both the end users and the developers of the software.

## **Scope**

This document covers the requirements for the Student Management System. This software will provide a graphical environment in which the users of the system will be able to perform various operations that are associated with storing, marinating, updating and retrieving Student information. The purpose of this is to guide developers in selecting a design that will be able to accommodate the full-scale application.The system will capture information about student’s personal details [[1]](#footnote-0)lectures and the courses**.** Storing updating and retrieving in a fast and accurate way.

## **1.3 Definitions, Acronyms, and Abbreviations**

The Student Management System has to handle records for many number of students and maintenance was difficult. Though it has used an information system, it was totally manual. Hence there is a need to upgrade the system with a computer based information system.

## **1.4 References**

[[2]](#footnote-1)An Integrated Approach to Software Engineering Approach - Pankaj Jalote Software Engineering A Practitioner’s Approach - Roger Pressman

## **1.5 Overview**

The purpose this documents is to present a detailed description of the Student Management System. It will explain the purpose and features of the software, the interfaces of the software, what the software will do, the constraints under which it must operates and how the software will react to external stimuli. This document is intended for both the end users and the developers of the software.

# **2 General Description**

## **2.1 Product Perspective**

The product Student Management system, is an independent product and does not depend on any other product or system. The product will automate various tasks associated with handling student details and better organizing the stored information and optimum performance, thus helping the Colleges to ensure smooth working of these processes.

## **2.2 Product Functions**

Our system has two types of accessing modes,

1. Administrator
2. User
   1. Teacher
   2. Student

### **[[3]](#footnote-2)Administrator:**

SMS is managed by Administrator. Administrator has to update and monitor the registered student details, add a new student, provide register number for all students, assign each student a course etc., Administrator can update his profile, and also can give help to the teachers and students.

### **User:**

There are two users:

### **Student**:

User can only view their personal details, course assigned, and edit their assigned course and can view their attendance.

* + - 1. **Teache**r:

User can add them onto the portal and view their schedules, marks attendance of the students, also can view the students details in graphical order, also of a single student and about the views from the students.

## **2.3 User Characteristics**

This software gives access to two kinds of users.

1. **Administrator**: The personnel and College administrator will have administrator access to add, delete and modify information stored in the database.
2. **Authorized User**: Teaching staff will have access to only view the data stored in the database and can update the student’s attendance in the form of formatted reports.

## **2.4 Assumptions and Dependencies**

* We assume that the Office personnel do all the data entry based and the correct values obtained from forms and registers.
* We assume that the computers that will use the software will be part of the college LAN.
* Users with administrator access should be careful in deleting or modifying any information knowingly or unknowingly which will lead to inconsistency of the database.
* The end users of this software are assumed to have basic level of computer knowledge i.e. point and click.

The machine will have to be part of the college Local area Network to access the [[4]](#footnote-3)central database.

# **3. Specific Requirements**

## **3.1 External Interface Requirements**

### **3.1.1 User Interfaces**

* + - * Android Studio 3.0
      * Reports are generated as per the requirement
      * Refer Appendices 2.

### **3.1.2 Hardware Interfaces**

|  |  |
| --- | --- |
| Hardware Environment | Dual Core 2nd generation/ |
| System Configuration | RAM-512 MB HDD-80GB |
| Operating system | Linux Ubuntu 16.04 LTS |

### **3.1.3 Software Interfaces**

|  |  |
| --- | --- |
| Front End | Android XML |
| Back End | JAVA,php,mysql |

When invalid inputs are given to the modules then the error messages will be popped up in order to inform the user that the input provided is not taken by the database. When incomplete information is provided by the user and the user tries to submit the form in order to store the details in the database the system will pop up a message box asking the user to enter all the details required.

### 

### 

### **3.1.4 Communications Interfaces**

The machine will have to be part of the college Local area Network to access the central database.

## **Functional Requirements**

Student Management System involves the following functions

### **[[5]](#footnote-4)3.2.1 Student Registration:**

* + - SMS provides online registration and status information to the student to view their status.
    - SMS provides automatic student register number generation based on course and year.
    - SMS provides to students to add them in their course they want to study.

### **Student Attendance Management:**

* + - Easily track attendance information of students.
    - Quickly produce single or multiple day attendance bulletins.

### **Opinion Management:**

* + - SMS provides a comprehensive opinion scheduling based on course.
    - Students can facilitate to give their opinions by giving the teacher rank.

## **3.3 Non-Functional Requirements**

### **3.3.1 Performance**

Easy tracking of records and updating can be done. All the requirements relating to performance characteristics of the system are specified in the section below. There are two types of requirements.

### **Static Requirements**

These requirements do not impose any constraints on the execution characteristics of the system. They are:

### **Number of Terminals:**

The software makes use of an underlying database that will reside at the [[6]](#footnote-5)server, while the front end will be available online to the administrative and departmental computers as well as students and teachers.

### **Number of Users:**

The number of users may vary, as this software finds applications in almost all department of the organization.

### **Dynamic Requirements**

These specify constraints on the execution characteristics of the system. They typically include response time and throughout of the system. Since these factors are not applicable to the proposed software, it will suffice if the response tine is high and the transactions are carried out precisely and quickly.

### 

### **Reliability**

The software will not be able to connect to the centralized database in the event that the internet is not available.

**Availability**

The software will be available only to authorized users of the colleges like teachers to mark the students attendance, student to view their enrolled course, admin to add an update students records student Management System

### **Security**

The security requirements deal with the primary security. The software should be handled only by the administrator and authorized users. Only the administrator has right to assign permission like creating new accounts and generating password. Only authorized users can access the system with username and password.

### **Maintainability**

Backups for database are available.

### **Portability**

This is an android Application which can be installed in any android mobile using apk or can be downloaded from playstore.

## **3.4 Design Constraints**

This software provides security. The login form prevents the system from being misused by unauthorized users. Only an authorized operator will be granted rights to modify as per requirements. This software is also reliable and fault tolerant. The system developed is designed to handle invalid inputs. Since reliability is major area of concern the system has a backup to avoid data loss. The user should know the programming language very well that is used to develop a software.

# **Appendices**

## **Appendix 1: Glossary**

Following abbreviations have been used throughout this document:

**DFD** : Data Flow Diagram

**ERD** : Entity Relationship Diagram

**SRS** : Software Requirement Specification

**SQL** : Structured Query Language

**SMS** : Student Management System

**STD** : State Transition Diagram

[[7]](#footnote-6)

1. [↑](#footnote-ref-0)
2. [↑](#footnote-ref-1)
3. [↑](#footnote-ref-2)
4. [↑](#footnote-ref-3)
5. [↑](#footnote-ref-4)
6. [↑](#footnote-ref-5)
7. [↑](#footnote-ref-6)