

**Software Requirements Specification**

**for**

**“College Automation System”**

**submitted by**

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1. **Introduction**

**1.1** **Purpose**

The purpose is to design software for college database which contains up to date or accurate information of the college. That should improve efficiency and flexibility of college record management and to provide a common and or simple platform for everyone to access the student’s information.College Automation System consists of different modules such as student, faculty, admin etc. Our main purpose is to create a software which will manage the working of these different modules. The interconnectivity among modules reduces the time to perform different operational task.

**1.2** **Document Conventions**

The bold characters are the topic headings while normal font and non bold characters are the content or description of points or headings. Identation is provided to indicate which point is under which heading.

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

The document is intended for software developers and stakeholders to get a brief overview of the entire College Automation System project . The document can be well understood if the overall description section is read first .

Schools / Colleges : For attendance system, For Test , Lectures, Extra Curricular activities.

Universities : Get benefited for Whole departments management.

**1.4** **Product Scope**

College management is becoming a very essential component in education in this modern day age. With the help of College Automation System we can gather all the useful information needed to the management in few clicks. The College Automation System now computerizes all the details that are maintained manually. Once the details are fed into the system or computer there is no need for various persons to deal with separate sections. Only a person is enough to maintain all the reports and records. The security can also be given as per the user requirement.

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**1.5** **References**

• Software Engineering-A Practitioners approach by Roger S Pressman

• Fundamentals of database systems by Ramez Elmarsi and Shamkant Navathe

1. Elmasri and Navathe: Fundamentals of Database Systems, 7th Edition, Pearson Education, 2016.

2. Ian Sommerville: Software Engineering, 10th edition, Person Education Ltd, 2015.

3. Roger S Pressman: Software Engineering- A Practitioners approach,8th edition, McGraw-Hill Publication, 2015.

4. https://en.wikipedia.org/wiki/Requirements-engineering

5. https://web.cs.dal.ca/ hawkey/3130/srs-template-ieee.doc

6. https://www.tutorizlspoint.com/

1. **Overall Description**

**2.1** **Product Perspective**

This Automation system contains the techniques and concepts for integrated management of business as a whole, from the viewpoint of effective use of management resources to improve the efficiency of enterprise management. A fully integrated web-based Automation system will capture and create accurate, consistent and timely relevant data, and assist in intelligent business decision-making. The primary purpose of college automation is to provide mechanisms for automated processing and management of the entire institution. It reduces data error, ensures that information is managed efficiently and is always up-to-date. Complete student histories for all years, can easily be searched, viewed and reported on press of button. It will be made available after the study of all the departments like student, faculty, etc of colleges for their database handling, department management and student/staff management. Higher education institutions are persisting by adopting and implementing such automation system.The need to evaluate their benefits and impacts on organizations and individuals are increasingly essential.

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**2.2** **Product Features**

• Each teacher will be able to enter attendance and marks for their respective students.

• Each student will be able to view the attendance status for their respective courses.

• The teachers will be able to apply for various types of leave directly through the system.

• The students will be able to Communicate and provide feedback to their teachers.

• The students will have access to a forum page where they are communicate will each other.

• The administrator will be able to view and update information such as departments, classes, teachers, students, courses.

**2.3** **Operating Environment**

The operating environment for College Automation System are listed below:

• Operating System: Windows 10 / Linux (Ubuntu)

• Database: MySQL database

• Front end: HTML/CSS/Bootstrap

• Back end: Django

**2.4** **Design and Implementation Constraints**

* + 1. Response management
    2. Time management
    3. Accuracy
    4. Web hosting will be better option for handling the database system . As it is used on localhost server, to have efficient use for the universities hosting will provide access at any time with fast response. Many hosting companies can provide 24/7/365 telephone, email, and/or chat support .

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**2.5** **User Documentation**

A user manual will be available with the software in which description of features will be given.

Also there will be a help section in the application.

**2.6** **Assumptions and Dependencies**

The user should install the respective packages to run the software properly and for this whole process user need to have a good quality of knowledge regarding front end and basic knowledge is required of django for the back end development such that the accuracy of the software increases.

1. **External Interface Requirements**

**3.1** **User Interfaces**

Django comes with a built-in admin interface—with Django's admin you can authenticate users, display and handle forms and validate input; all automatically. Django also provides a convenient interface to manage model data.

This software also consisits of Teacher’s (admin) and students interface . All the functionalities will be displayed onto the web page of students portal . Teacher’s will be able to add as many students wanted for the course . That many portals of each student will be accessed by their login details .

We will be providing interface for uploading students report cards, timetable, marks and their attendance for their respective courses where they have registered. The User interface will be made using Bootstrap and Html. Firstly, there will be a simple login page separate for students and teachers. Each student and teacher will have a unique interface. There will be a fixed sidebar with links to all the modules. The teachers will be able to view their respective students and update their attendance and marks using an effortless interface.

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**3.2** **Hardware Interfaces**

Since neither the mobile application nor the web portal have any designated hardware, it does not have any direct hardware interfaces. Any browser can be used to access the webapp.

**3.3** **Software Interfaces**

The following is a list of software used in making of the project.

• Operating System: Users can choose Windows or Unix based operating system where they fill to code effectively and efficiently.

• Django: We have chosen to use Django for the back-end of the website as Django is a simple python framework and is suitable for beginners.

• Database: We are using SQLite database, which comes as default with Django.

**3.4** **Communications Interfaces**

This project is to be deployed an online website. All the users can connect to the database server from anywhere and have access to their information.

1. **System Features**

**Functional Requirements :**

**Expected requirement:**

Student and staff information Description and priority Information regarding students, teachers and courses are stored in the database. Every user can view only certain information based on their user class. For example, a teacher can view student and course information that they are

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handling. This feature is of high priority as the information must be viewed by only the authorized users.

Functional requirements :

• Each user shall be able to view information in the database based on their user class.

• The administrator shall be able to view all the information in the database.

**Normal requirement:**

Attendance and marks entry Description and priority Attendance and marks entry is the main feature of the College Automation System. Hence, the priority is high. Teachers update the attendance and marks of the students who are part of her class. Students can view their respective Attendance and marks of the courses they have taken.

Functional requirements :

• Teachers shall be able to view, update and edit the attendance and marks of the students, part of their class.

• Teacher shall be able to take extra classes, switch classes with other teachers.

**Exciting requirement:**

Communication among students and teachers Description and priority Students and teacher will be able to communicate with each other directly using the Automation System. Students may give their queries and feedback to a teacher and they may respond accordingly. A simple version of this feature is to be implemented.

Functional requirements :

• Students shall be able to communicate with their teachers by sends personal messages.

• Students shall be able to communicate with other students through a forum section.

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1. **Other Nonfunctional Requirements**

**5.1** **Performance Requirements**

The software will have minimum requirement of RAM and hard disc storage. Quick responses are required for user acknowledgement. Accuracy should be maintained over all types and duration of commands.

The software works fine under all sorts of condition if there is proper internet connectivity available.

**5.2** **Safety Requirements**

If there is extensive damage to a wide portion of the database due to catastrophic failure, such as a disk crash, the recovery method restores a past copy of the database that was backed up to archival storage (typically tape) and reconstructs a more current state by reapplying or redoing the operations of committed transactions from the backed-up log, up to the time of failure.

**5.3** **Security Requirements**

The database contains sensitive information of all the students and staff. Therefore, optimal security measures must be taken to ensure data is safe from unauthorized users.

**5.4** **Software Quality Attributes**

Availability: The users must always be able to view their information so that they can keep track regularly.

Correctness: The information about attendance and marks must be correct to not feed wrong information to the users.

Portability: The users access the automation system from various platforms such as desktops and mobile phones. The webapp must be portable to all platforms and the user experience must be optimal.

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**5.5** **Business Rules**

The teacher can upload data regarding day by day to update attendance , also modifying class timetable and generate the students report cards and get output will be shown to the students portal . While admin can create, modify or update the database and create as many as students who wanted to register for their courses of specific departments.

1. **Other Requirements**

No other requirements.

**Appendix A: Glossary**

UI : User Interface

OS : operating system

**Definitions / Meanings:**

SQLite : A variation of SQL query language supported by Android OS.

Django : Django is a high-level Python Web framework that encourages rapid development and clean, pragmatic design.

**Appendix B: Analysis Models**

No models

**Appendix C: To Be Determined List**

Nothing