

IT-314 Software Engineering

Team 17

Software Requirements Specification

**A web application for
M.G. Coaching Centre**

Version 1.0

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DA-IICT Gandhinagar**

Overview

The purpose of this document is to present a detailed description of the requirements of our stakeholder. These requirements were found out by taking interviews, personal meetings with the client and internal discussions among the development team. This document is intended for both the stakeholders and the developers of the system and will be proposed to **M.G. Coaching Centre**.

Target Audience

This document is intended for the client, explaining all the requirements of the project understood by the project team. It is work product for the developers and testers to follow the same.

Document Revision History

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1.0	Akshay, Ankit, Rashmi, Vismay, Kundan, Nishant, Darshan, Gaurav.	Nishant, Vismay,	18th Feb, 2016

Group Members

Sr No.	ID	Name
1	201201047	DEVANG PATEL
2	201301032	DARSHAN PARSANA
3	201301033	RASHMI WILSON
4	201301041	BHAYANI GAURAV
5	201301059	TANK NISHANT
6	201301087	TARAL ANKITKUMAR
7	201301170	PATEL VISMAY
8	201301196	KUNDAN KUMAR ARYA
9	201301216	MALLIPEDDI AKSHAY

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1 .Introduction

The aim of this document is to gather and analyze and give an in-depth insight of the complete **Coaching Institute Management System** by defining the problem statement in detail for client “**M.G. Coaching Centre**”. Nevertheless, it also concentrates on the capabilities required by stakeholders and their needs while defining high-level product features.

1.1 Purpose

The purpose of this document is to define the requirement gathering phase used to collect requirements from the client. It provides a detailed overview of our software product, its parameters and goals. This document describes the project's target audience and its user interface, functional, non-functional, performance, development, hardware and software requirements and deliverables. This document would serve as an agreement between the client and the developers about the software features and functionalities and would be used as a base for validation of the final product. This document will help in designing, coding and testing of the software and reduce unnecessary development efforts as it clearly states all the requirements that both the client and developers have agreed upon.

1.2 Document Conventions

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- a. Heading: Font - Times New Roman, size - 18
 - b. Sub Heading: Font - Times New Roman, size - 14
 - c. Body: Font - Arial, size - 12

1.3 Intended Audience and Reading Suggestions

The document is intended for project developers , managers, marketing staff, testers , documentation writers and users. Users such as students, parents and the instructor can use this document for better understanding of different system components and functionalities for optimum use of the system. Reader may use the table of content for quick overview and navigate through the document easily.

1.4 Project Scope

The overall goal of this project is to build a website for **M.G. Coaching Centre**. The website will be used as a platform for the institute and students, and their parents to provide performance history, attendance information, study material and query/doubt submission. Parents can monitor student's performance and also interact with the course instructor. The website can be accessed from any platform like on a browser from mobile phone - android and iOS or on a desktop etc. A unique log-in ID and password would be given to students from the institute, the website can be accessed only by the registered students. In future, more functionalities can be added and we could develop this system further so that it can be used by any educational institute and students studying there.

1.5 References

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- IEEE Recommended Practice for Software Requirements Specifications, IEEE Std 830 -1998, IEEE Computer Society.
 - www.meridianinstitute.in
 - <https://en.wikipedia.org>

1.6 Deliverables

- Project Proposal
- Feasibility Report
- Project Plan
- Software Requirements Specification
- Requirements Traceability Matrix
- User Manual
- System Test Plan
- Gantt Chart
- Cost Estimation Document
- Software Quality Assurance Plan
- Software Configuration Management Plan
- Risk Management - Monitoring and Mitigation Plan
- Design Documents- High Level, Low Level , UI Design Documents
- Test Cases
- Test Reports
- Deployment Plan
- Product- Website

1.7 Abbreviations

Abbreviations	Full Forms
CO	Constraints

ASU	Assumptions
DE	Dependencies

2. Overall Description

2.1 Product Perspective

Our product is a new self-contained system, which enables easier interaction between the instructor, parents and students. Nowadays ,it becomes really hard for the parents to be aware of their child's performance in a coaching institute. Students at times, hide or lie about their test scores to their parents. Also it's hard for parents to take time out of their busy schedule and meet with the instructor.

We intend to create such a platform that will help parents keep a track of their child's performance and attendance as well as have information about the course timeline. Parents will not have to worry about any false information about their child's academics and they will know what is taught and what's going on with the course. They can also communicate their queries to the instructor through this web application.

Students will have the records of weekly and monthly exams, which will help them to analyze their performance and work on their weak points.

Students can have access to study materials through the 'Download' section. Instructor will also have a medium to make important announcements for the students and parents

2.2 Product Features

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- Only admin or instructor can change web content and upload reports.
 - Parents and students can see progress of students through individual and class average score report.
 - Parents can ask query about the student progress and take suggestion from professors.
 - Timeline feature will help the student and professor to manage the course and schedule other academic activities.
 - Student can download practise papers, assignment for better performance.
 - Platform for parent, professor or student to interact on any query.
 - Only Parent can ask for leave permission online, making it simple.
 - News feed will update students regarding any latest changes in the academic schedule.
 - Parents will get 'fees due alert' a week before.
 - Notice Board for students if any emergency comes up like instructor will not be coming.
 - Students will have their own profile page.
 - Parent will get the mail of the student result and any further instruction or suggestion from the instructor.

2.3 User Classes and Characteristics

2.3.1 Administrator

Administrator has knowledge about all features and how to manage the web application and its content. Administrator is the person who coordinates with the developer team and has information about all features and facilities of the product. Administrator manage the web application by uploading documents , marksheet, attendance sheet, exam schedule,etc.

2.3.2 Students

This class is the beneficiary of the product. These are the students who have been enrolled in the institute. Each and every student will be having their own account on the website. They will be able to see their academic performance and compare it

with the class performance. Also, they will be able to see their past performance and assess their improvement. They can access documents which will be uploaded by admin, which will help them with the study process. They will be able to see notice board and be updated with the latest announcements of the instructor.

2.3.3 Parents

This class is beneficiary of the product. They are the parents of the students who are enrolled in the institute. Each parent will be having their own unique ID and password, different from that of a student. They will be able to see performance of their child through marksheets, graphical representation of their child's progress, plot of class performance, and attendance sheet. They will be able to see notice board and news feed also. Also, they have the facility to request permission for their child's leave or ask a query to the instructor on the site.

2.4 Operating Environment

OE-1: The system shall operate with the following Web browsers: Microsoft Edge, Mozilla Firefox, Chrome to the latest version.

OE-2: Our system will run on the approved server.

2.5 Design and Implementation Constraints

CO-1: The system shall use the standard database engine. *//This is very vague. Sir will ask what it means*

CO-2: The HTML code shall conform to the HTML 5.0 standard.

CO-3: The code shall be written in SUBLIME TEXT.

CO-4: The organization will be responsible for maintaining the delivered software.

Include these points as well :

- The features of this application are only available to the students enrolled in M.G. Coaching Centre, and their parents.
- The web content will be in English

2.6 Assumptions and Dependencies

ASU-1: All should have working internet.

ASU-2: All the users are well aware on how to use the peripheral software interfaces.

ASU-3: Student and their parents are not interested to see the profile or data of any other student.

ASU-4: We are accessing all the data from the database.

ASU-5: Accessible 24x7

ASU-6: Admin is a representative from the institute.

ASU-7: Updates in the system will be done by the developers.

DE-1: Working will depend on the updates installed if any, by the permission of the admin.

3. System features

We intend to create a basic website for the coaching centre which will help outsiders to acquire information about the institute. This website will display the Home Page, About Us Page, Contact Us Page as well as provide information about the institute's past achievements and results. This website will have separate logins for the administrator, students and parents and following are the features accessible to each of them.

3.1 For Website Administrators

3.1.1 Login :

The administrator will have just a single login id and password information.

3.1.2 Upload Marksheets :

The admin will have the feature on the web page where he can upload the mark sheet. Admin will have to specify the test number as well as the student's year while uploading the mark sheet and this information will be added to the students' database.

3.1.3 Upload Attendance sheet :

Admin uploads the attendance sheet specifying the date and the semester and the information is added to the students' database.

3.1.4 Upload Assignments, Question Paper, Paper Solutions :

Admin will have the feature to upload pdf files of assignments, question paper and paper solutions which will then be displayed in the download section for the students.

3.1.5 Create/View student information

Admin can insert a file with all the information of all the students and this will be added to the database. Admin can also search for a particular student's information.

3.1.6 Manage Newsfeed

The website will have a page displaying the class announcements which will be managed by the admin.

3.1.7 Class Progress Report

Admin will be able to view the class progress report for every test.

3.2 For Students and Parents

3.2.1 Login :

The users of the website will be able to login using their respective username and password. There will be separate account for student and parents.

3.2.2 My profile :

In my profile section, User can see his/her photo, name, email id, contact number and other details.

3.2.3 News feed :

New updates by admin will be shown in this page.

3.2.4 Results, Attendance :

All the results, attendance sheet and progress report will be provided in this section.

3.2.5 Timeline, Exam Schedules:

Timeline of the course, class timings and exam schedules will be shown here.

3.3 For Students

3.3.1 Download :

Students have access to the 'Download' section where they can download assignments, papers and other course materials which are uploaded by admin.

3.3 For Parents

3.4.1 Application for leave :

For parents, there will be option for leave from which they can apply for leave and it will inform admin about this.

3.4.2 Ask query :

If parents have some query or problem with student's progress, he/she can contact to admin by filing form given in this section.

4. External Interface Requirements

4.1 User Interface

- The user interface will be clear and appropriate. It needs to be simple and convenient. It should be easy to use so that even a user with low knowledge on computers can use it. The complexity in the design should be avoided.
- The user interface will be user friendly.

- The designing of the website will help the user in saving their time.
- Some of the icons will be kept centered, so that user can get it easily which will save the time.
- We will model our UI keeping in mind the modern material design concepts.

4.2 Hardware Interfaces

Resource	Application(Required)	Recommended
Operating System	Windows XP(or higher),Linux,MAC etc	Windows 7,Higher Linux Versions and latest Mac OS.
RAM	512MB	512GB
Hard Disk Required	100-150MB	500MB
Processor	233MHz	0.5GHz
Display Resolution	800*600	800*600(or higher)

4.3 Software Interfaces

FOR TEAM COORDINATION	SOFTWARES USED
For tracking team members assigned tasks.	Trello
For collaborative editing of documents.	Google Docs
For sharing documents made.	Google Drive
For messaging among team members.	Whatsapp,Slack.

For version control system.	GitHub.
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FOR DEVELOPMENT	SOFTWARES USED
Text editor for coding.	Sublime Text Editor or gedit.
Operating system as a platform.	Linux/Windows.
Frontend.	HTML,CSS and Bootstrap, Angular JS
Backend.	Django Framework
UI design.	Adobe Photoshop

4.4 Communication Interfaces

The communication interfaces for our website are mentioned below:-

- Our website runs on a computer having an internet connection and a web-browser.
- Our website will run on a network that follows TCP, as it is default setting.
- Communication standards that would be used are HTTP/HTTPS.
- Login feature used for our website would act as a communication security, the password would be stored in encrypted way, so that no one knows the password of the corresponding user.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

- Being a website, many factors such as increase in number of application users,internet speed and client's system and browser affect the performance. Since there can be an uncertain increase of the application users,the system should be able to handle the sudden requests, without causing decline in system performance or response time of an individual user. This is achievable by implementing the application at server with high configuration i.e. system

that will efficiently handle multiple client requests simultaneously.

- All the constituents of the software should run and update independently without interfering with other portions, whereas common database will be shared and updated by users depending upon permissions and restriction level which are given to them.
- The application shall be able to sustain the uploading or downloading of files with proper authentication and user verification. It shall also be able to recover after crashes and undesired hardware failures.
- The application will be accessible to users 24x7, i.e. server will be on all the time.

5.2 Safety and Security requirements

- The students and parents will be given 'unique' user-name to access the user account.
- If any user logs out, then the session is said to be closed and he has to login again to use the software.
- Different levels of authority and permission is given to different category of users to prevent any ambiguity. For example, admin is given the authority of uploading files like assignments, lecture schedules etc while student can only download those files.
- The computer must be well protected from viruses and other Internet-based threats in order to avoid crashing of server system.
- Database should be secured with appropriate passwords and data backup options.
- Any change in the information of the authenticated user in the system shall be immediately reflected in the database.

5.3 Software Quality Attributes

1. Maintainability

- The user must be able to browse through the application without any difficulty.

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- All the requirements and system features are well documented in both, soft (in-built help) and hard versions user manuals. Along with it, the user interface developed will be simple. Both these factors will add to proper utilization of resources by user.

2. Portability

- The website can be accessed from any platform like a browser, mobile phone - android and iOS etc.
- There are no prerequisites for accessing the website on the host machine but having an internet connection with certain minimum speed for smooth access.
- Having latest updated browser is preferred for having a better experience.

3. Usability

- The website shall provide a user friendly interface such that it is usable with minimum extent of struggle.
- All steps of the website development will be well documented to make sure the maintenance of the product throughout its lifetime.

4. Reliability

- We intend to provide facility of backup of entire system along with information for the admin and user to deal with problems like power failure, disk failure, etc.

5. Robustness

- The system should be able handle situations like unexpected termination and unexpected actions.

Appendix A: Requirements Gathering

For our requirements gathering phase we worked in the following steps:-

Step 1:- We as a group tried to understand the requirements of the client and come up with features that would be needed for a coaching institute website. We divided these requirements for two classes, namely the admin and the parents.

Step 2:- We talked to the client and they provided a list of their requirements to us which included :

- Marksheet upload
- General attendance
- News Flash
- Student Web Profile Page
- Student Progress and Toppers list

Also we learned that client had separate batches for 11th and 12th grade. We took all of this information into consideration, and also suggested our own features. Based on this we formed a common list of features.

Step 3 :-The group sat down and reviewed each feature and narrowed down the requirements list on the basis of how feasible these features were keeping in mind the time constraints as well as the team skill set.

Appendix B: Background Study

www.meridianinstitute.in/

Meridian Institute is another well established coaching institute in Vadodara and they have a website which is similar to the one we intend to make for M.G. Coaching Centre. As a part of our background study, we looked into their website and the features they currently possess. This site has a different login for students and the parents. Also this site has the feature of parent reporting where the parents are notified of their child's performance through mail. We decided to incorporate both these features for our web

Appendix C: Use Case Diagram



