



# ANJUMAN-I-ISLAM'S KALSEKAR TECHNICAL CAMPUS

## School of Engineering & Technology

Affiliated to : University of Mumbai, Recognised by : DTE (Maharashtra) & Approved by : AICTE (New Delhi)

Course Code:	Course Name:
Class :	Batch :
Roll no :	Name :

### Experiment : 02

**Aim :** Develop Software Requirement Specification (SRS) document in IEEE format for the project.

### Theory :

Explain the importance of SRS?

Explain the following components of SRS:

1. Purpose
2. Scope
3. Functional and Non-Functional requirements,
4. Software and Hardware requirements
5. Software quality attributes of the projects.

### Reference:

1. SRS-template.doc template on <http://172.16.224.43/se>
2. <http://www.cse.msu.edu/~cse435/>
3. <https://web.cs.dal.ca/~hawkey/3130/>
4. [https://gephi.org/users/gephi\\_srs\\_document.pdf](https://gephi.org/users/gephi_srs_document.pdf)

### Conclusion:


## #Theory

### 1. Importance of SRS

Major importance are as follows

- i. Helps user understand his needs.  
users do not always know their needs It must analyze and understand the potential  
the requirement process helps clarify needs
- ii. SRS provides a reference for validation of the final product  
Clear understanding about what is expected. Validation - “ S/W satisfies the SRS”
- iii. High quality SRS essential for high Quality SW  
Requirement errors get manifested in final software. It is to satisfy the quality objective, must begin with high quality SRS
- iv. Requirements defects cause later problems  
25% of all defects in one study; 54% of all defects found after user testing defects often found in previously approved SRS.
- v. Good SRS reduces the development cost  
SRS errors are expensive to fix later Req. changes can cost a lot (up to 40%)  
Good SRS can minimize changes and errors\_Substantial savings; extra effort spent during req. saves multiple times that effort.

### 2. Component of SRS

#### Purpose:

SRS establishes basis of agreement between the user and the supplier.

- Users needs have to be satisfied, but user may not understand software
- Developers will develop the system, but may not know about problem domain

#### Scope:

It provides a short description of the software being specified and its purpose, including relevant benefits, objectives, and goals.

#### Functional and Non-Functional requirements:

- Functional – Functional requirements capture the intended behavior of the system. This behavior may be expressed as services, tasks or functions the system is required to perform. Here, we should list in detail the different product functions
- Non-Functional – It includes the following
  - i. Performance Requirements- if there are performance requirements for the product under various circumstances, state them here and explain their rationale, to help the developers understand the intent and make suitable design choices. Specify the timing relationships for real time systems. Make such requirements as specific as possible. You may need to state performance requirements for individual functional requirements or features

- ii. **Safety and Security Requirements** - Specifies those requirements that are concerned with possible loss, damage, or harm that could result from the use of the product. Define any safeguards or actions that must be taken, as well as actions that must be prevented. Refer to any external policies or regulations that state safety issues that affect the product's design or use. Define any safety certifications that must be satisfied. Specify any requirements regarding security or privacy issues surrounding use of the product or protection of the data used or created by the product. Define any user identity authentication requirements.
- iii. **Software Quality Attributes** - Specifies any additional quality characteristics for the product that will be important to either the customers or the developers. Some to consider are: adaptability, availability, correctness, flexibility, interoperability, maintainability, portability, reliability, reusability, robustness, testability, and usability. Write these to be specific, quantitative, and verifiable when possible. At the least, clarify the relative preferences for various attributes, such as ease of use over ease of learning

Software and Hardware requirements:

- **Software** - Describe the connections between this product and other specific software components (name and version), including databases, operating systems, tools, libraries, and integrated commercial components. Identify the data items or messages coming into the system and going out and describe the purpose of each. Describe the services needed and the nature of communications. Refer to documents that describe detailed application programming interface protocols. Identify data that will be shared across software components. If the data sharing mechanism must be implemented in a specific way (for example, use of a global data area in a multitasking operating system), specify this as an implementation constraint.
- **Hardware** - Describe the logical and physical characteristics of each interface between the software product and the hardware components of the system. This may include the supported device types, the nature of the data and control interactions between the software and the hardware, and communication protocols to be used.

Software quality attributes of the projects.

Specifies any additional quality characteristics for the product that will be important to either the customers or the developers. Some to consider are: adaptability, availability, correctness, flexibility, interoperability, maintainability, portability, reliability, reusability, robustness, testability, and usability. Write these to be specific, quantitative, and verifiable when possible. At the least, clarify the relative preferences for various attributes, such as ease of use over ease of learning



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**Software Requirements Specification**

**for**

**Online Adaptive  
Assessment Platform**

**Version 1.0**

**Prepared by**

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**Date: 21-01-2019**

# Contents

<b>CONTENTS.....</b>	<b>II</b>
<b>REVISIONS.....</b>	<b>III</b>
<b>1 INTRODUCTION.....</b>	<b>1</b>
1.1 DOCUMENT PURPOSE.....	1
1.2 PRODUCT SCOPE.....	1
1.3 INTENDED AUDIENCE AND DOCUMENT OVERVIEW.....	1
1.4 DEFINITIONS, ACRONYMS AND ABBREVIATIONS.....	1
1.5 DOCUMENT CONVENTIONS.....	2
1.6 REFERENCES AND ACKNOWLEDGMENTS.....	2
<b>2 OVERALL DESCRIPTION.....</b>	<b>3</b>
2.1 PRODUCT OVERVIEW.....	3
2.2 PRODUCT FUNCTIONALITY.....	3
2.3 DESIGN AND IMPLEMENTATION CONSTRAINTS.....	4
2.4 ASSUMPTIONS AND DEPENDENCIES.....	4
<b>3 SPECIFIC REQUIREMENTS.....</b>	<b>5</b>
3.1 EXTERNAL INTERFACE REQUIREMENTS.....	5
3.2 FUNCTIONAL REQUIREMENTS.....	5
<b>4 OTHER NON-FUNCTIONAL REQUIREMENTS.....</b>	<b>6</b>
4.1 PERFORMANCE REQUIREMENTS.....	6
4.2 SAFETY AND SECURITY REQUIREMENTS.....	6
4.3 SOFTWARE QUALITY ATTRIBUTES.....	6
<b>5 OTHER REQUIREMENTS.....</b>	<b>7</b>
<b>APPENDIX A – DATA DICTIONARY.....</b>	<b>8</b>
<b>APPENDIX B - GROUP LOG.....</b>	<b>9</b>

## Revisions

Version	Primary Author(s)	Description of Version	Date Completed
1	Shadab Shaikh Obaid Kazi Mohd Adnan Ansari	Modeling of project	14/01/2019

# 1 Introduction

Aspirants/Students can be assessed on different fields using this website. Fields can be Reasoning, Aptitude, Technical MCQ, Coding etc. This will be an online platform with questions at different levels (Difficulty). Candidate would start at assessment with a medium difficulty question and depending on its response, the platform should decide the next level of questions to be shown (level would increase or decrease as per response). Each question would be assigned a weight-age and time duration

## 1.1 Document Purpose

The purpose of this document is to give a detailed description of the requirements for the “Online Adaptive Assessment Platform” (OAAP) software. It will illustrate the purpose and complete declaration for the development of system. It will also explain system constraints, interface and interactions with other external applications. This document is primarily intended to be proposed to a customer for its approval and a reference for developing the first version of the system for the development team.

## 1.2 Product Scope

The platform is open source, and cloud based mechanism implementation. The end user can start with a medium level of difficulty and based on his/her answering ability the questioning will become tougher (Complex). Due to this factor, this platform can be utilized by various faculty to assess the students knowledge on particular domain. Also, this platform could be easily maintained and managed by various organization for recruitment purposes.

## 1.3 Intended Audience and Document Overview

This document is created for various roles involved such as faculty (professor) and also recruitment organization. The remainder of this document includes three chapters and appendixes.

The second one provides an overview of the system functionality and system interaction with other systems. This chapter also introduces different types of stakeholders and their interaction with the system. Further, the chapter also mentions the system constraints and assumptions about the product.

The third chapter provides the requirements specification in detailed terms and a description of the different system interfaces. Different specification techniques are used in order to specify the requirements more precisely for different audiences.

The fourth chapter deals with various quality aspect of the product.

The Appendixes in the end of the document include the all the key related terms used throughout the entire document.

## 1.4 Definitions, Acronyms and Abbreviations

Term	Definition
User	Someone who interacts with the mobile phone application
Web-Portal	A web application which present special facilities for Various users
Database	A structured set of data held in a computer
Desc	Description
RAT	Rational
MCQ	Multiple Choice Question

## **1.5 Document Conventions**

This document follows MLA Format for referencing. Bold faced text has been used to emphasize section and sub section headings. Highlighting is to point out words with important terms and italicized text is used to label and recognize diagrams.

## **1.6 References and Acknowledgments**

[1] IEEE Software Engineering Standards Committee, "IEEE Std 830-1998, IEEE Recommended Practice for Software Requirements Specifications", October 20, 1998.

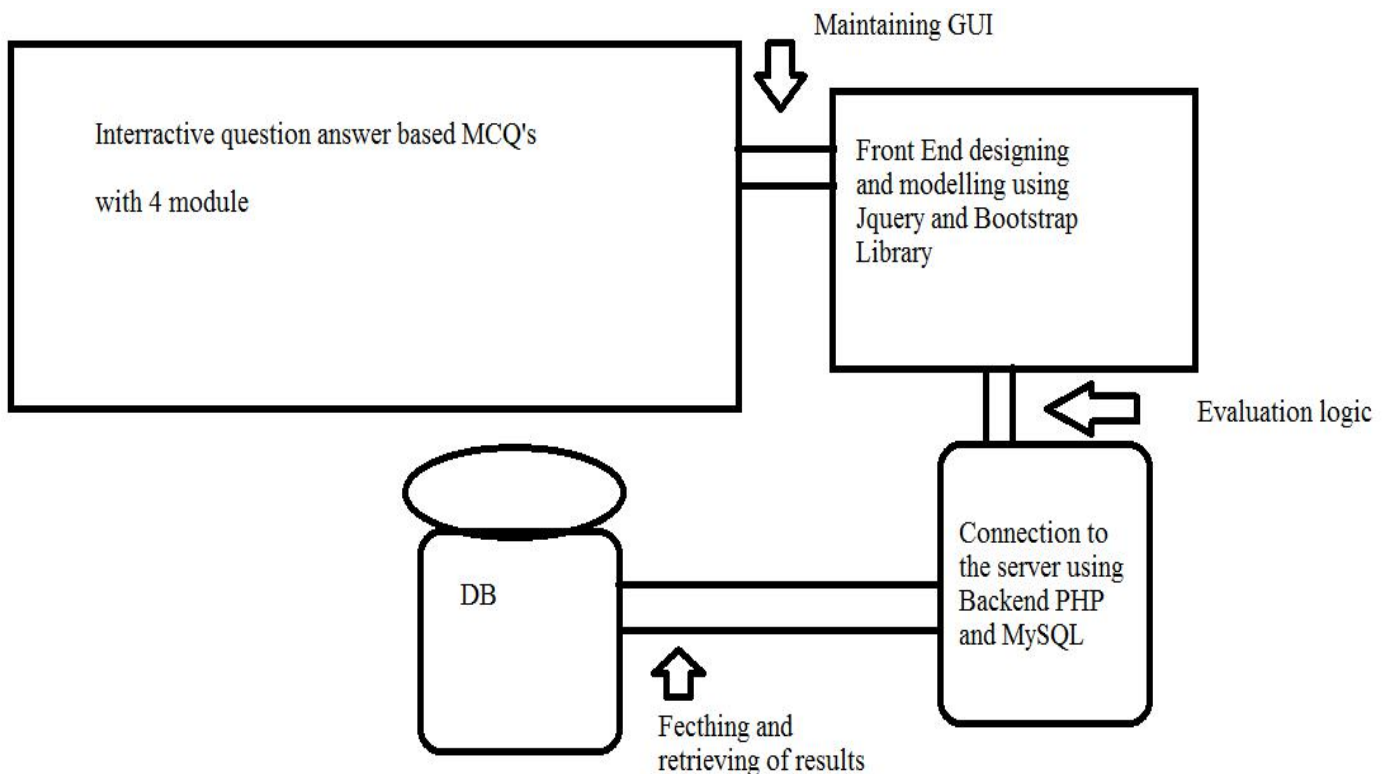
[2] Davis M A, "Just Enough Requirements Management: Where Software Development Meets Marketing", New York, Dorset House Publishing, 2005.



## 2 Overall Description

### 2.1 Product Overview

Aspirants/Students can be assessed on different fields using this website. Fields can be Reasoning, Aptitude, Technical MCQ, Coding etc. This will be an online platform with questions at different levels (Difficulty). Candidate would start at assessment with a medium difficulty question and depending on its response, the platform should decide the next level of questions to be shown (level would increase or decrease as per response). Each question would be assigned a weight-age and time duration.



### 2.2 Product Functionality-

- Multiple choice questions with up to 4 answers
- Measures your cognitive aptitude: The Platform measures your ability to think critically, solve problems, digest and apply new information, and learn new skills, all of which determine your ability to perform a new job.
- Based on your ability of answers more complex questioning will raise enhancing you to help get a detailed overview about the skills you inculcate
- Easy to access the portal at any given point of time.

## **2.3 Design and Implementation Constraints**

This product scope is adversely addressing the aspirant belonging to job seeking opportunity or the students testing their knowledge and enhancing their reasoning skills. So, there can be multiple users accessing the system/portal at the same instance of time.

The server managing and maintaining the sustainability of the aspirant data should stay stable and must be available. Also, the structure of the database carrying large effect on the system should be effectively managed.

## **2.4 Assumptions and Dependencies**

For designing and layout the website has been implemented with the online sources of bootstrap framework. The library of jquery manipulating various client side validation is also implemented in the similar manner. All of the online sources library used must be in the same form as when used during the implementation phase for the sustainability and timely conduction of successful execution.

Also, The data in the database must remain in the consistent state.

## 3 Specific Requirements

### 3.1 External Interface Requirements

#### 3.1.1 User Interfaces

At first user saw the log-in page when he/she appear for the test, If the user has not registered, he/she should be able to do that on the log-in page. after log in he/she will be able to give the test and according to the test result he/she will avail the required result in certified format. Also he/she can track the level of difficulty. For interactivity various types of JavaScript is included for validation and to enhance the gui different framework is used for the best use and betterment of the end user

#### 3.1.2 Hardware Interfaces

A basic computer or any internet access device with a internet connection is only required.

#### 3.1.3 Software Interfaces

The platform communicates with the student in order to get adaptive learning information about where the user is performance and the visual representation of it, and with the database in order to get the information about the previous test,. The communication between the database and the web portal consists of operation concerning both reading and modifying the data, while the communication between the database and the platform consists of only reading and writing the answer operations.

### 3.2 Functional Requirements

This section includes the requirements that specify all the fundamental actions of the software system.

#### 3.2.1 ID: FR1

Title : User registration

DESC : The user should be able to register through the WEB-APP. The user must provide user-name, password and email address, qualification.

RAT : In order for the enrollment of user

DEP : None

#### ID: FR2

Title : User-login

DESC : Given that a user has registered, then the user should be able to log in to the Web Application. The log-in information will be stored on the database and in the future the user should be logged in automatically.

RAT : In order for the user to access the app

DEP : FR1

#### ID: FR3

Title : Adaptively Increasing The complexity

DESC : The system shall be able to enhance difficulty level of the test as per the answering of the question

RAT : In order for the system to run effectively

DEP : FR1, FR2

## 4 Other Non-functional Requirements

### 4.1 Performance Requirements

The portal must ensure the availability that whenever the system is being accessed and various end user query request is being made to the databases it must generate the responses in a quick time. The system being used in the end user environment must also contain a recommended hardware specification so that the portal can run in a smoothly manner.

### 4.2 Safety and Security Requirements

Ensuring the authenticity & authorization is also one of the major concern issues related to this project. It can be assured by implementing such a mechanism that the password and logic credential stored in the databases is in encrypted form and also the backup of data is done in timely conduction manner.

While in the assessment process there must be an incharge monitoring the activity of the end user so that any fraud or mis behavior activity never arises.

### 4.3 Software Quality Attributes

#### 4.3.1 Availability:

Availability is the guarantee of reliable and constant access to your sensitive data by authorized people. It is best guaranteed by properly maintaining all hardware and software necessary to ensure the availability of sensitive data. It's also important to keep up with system upgrades. Providing adequate communication throughput and preventing bottleneck helps as well. Redundancy, failover, RAID, and clustering are important measures that should be considered to avoid serious availability problems.

A quick, adaptive disaster recovery plan is crucial for the worst-case scenarios, which will depend on the successful execution of a full disaster recovery plan.

Safeguards against interruptions in connections and data loss should consider unpredictable events such as a fire or a natural disaster. To prevent data loss, backup should be located in a geographically separate location, and in a fireproof, waterproof vault.

To prevent downtime due to malicious attacks such as denial-of-service DOS attacks and network intrusions, extra software and security equipment should be used as well.

#### 4.3.2 Security:

Generally, data is most vulnerable when it is being moved from one location to another. Encryption works during data transport or at rest, making it an ideal solution no matter where data is stored or how it is used. Encryption should be standard for all data stored at all times, regardless of whether or not it is deemed "important".

Hackers don't just steal information, they also can benefit from altering data to commit fraud. While it is possible for skilled individuals to alter encrypted data, recipients of the data will be able to detect the corruption, which allows for a quick response to the cyber-attack

#### 4.3.2 Run time Evaluation:

A large amount of runtime data is required for the various planning and monitoring functions. This runtime data is collected from real runtime information. Based on this information, the estimated runtime can be calculated.

## **5 Other Requirements**

The portal is implemented using new HTML elements thus, it require latest version of HTML5 browsers some of the examples are google chrome, Mozilla firefox, Apple safari and etc.

As there could be feedback from various user groups, appropriate incharge person must be able to handle different query related to the online examination/test.

## Appendix A – Data Dictionary

Term	Definition
Application	application software, is a computer software package that performs a specific function directly for an end user or, in some cases, for another application
Browser	A web browser is a software application for accessing information on the World Wide Web
Web-App	a web application or web app is a client–server computer program which the client runs in a web browser
HTML	Hypertext Markup Language is the standard markup language for creating web pages and web applications
Encryption	encryption is the process of encoding a message or information in such a way that only authorized parties can access it and those who are not authorized cannot

## Appendix B - Group Log

Date&Time	Work Carried out	Done By
7 <sup>th</sup> january 2019, 12:30 to 2:30pm	Finalization of the core module of the project	Shadab Shaikh Mohd Adnan Ansari Kazi Obaid
14 <sup>th</sup> januray 2019, 12:30 to 2:30pm	Modeling and designing of project, Considering the requirement Specification, Building SRS Document	Shadab Shaikh Mohd Adnan Ansari Kazi Obaid