

| | |
|------------------|--------------------------------------|
| Ex No: 2 | SOFTWARE REQUIREMENT ANALYSIS |
| Date: 19/07/2021 | |

AIM:

To determine a project with a plan requires an essential thing to be done. That is the Software Requirement Analysis, and which will be used to analyse the software needs and the requirement to be done. It will simply examine the functional and non-functional requirements of the E-Learning Website.

DESCRIPTION:

Software requirements analysis:

Requirements Analysis is perhaps the most difficult, most error-prone and most communication intensive software development. It and be successful only through an effective customer-developer partnership. It is needed to know what the users really need. There are several requirements elicitation methods. Few of them are listed below –

1. Interviews
2. Brainstorming Sessions
3. Facilitated Application Specification Technique (FAST)
4. Quality Function Deployment (QFD)
5. Use Case Approach

The success of an elicitation technique used depends on the maturity of the analyst, developers, users, and the customer involved.

FUNCTIONAL REQUIREMENTS:

In software engineering, a functional requirement defines a system or its component. It describes the functions a software must perform. A function is nothing but inputs, its behaviour, and outputs. It can be a calculation, data manipulation, business process, user

18CS2009-20CS2050L – Software Engineering Lab URK20CS2001

interaction, or may other specific functionality which defines what function a system is likely to perform.

Functional software requirements help you to capture the intended behavior of system. This behavior may be expressed as functions, services or tasks or which system is required to perform.

- Services the system should provide.
- What the system should do or not in reaction to particular situations.
- Example: “If a patient is known to be allergic to a particular medication, then prescription of that medication shall result in a warning message being issued to the prescriber”

Some of the more typical functional requirements include:

- Business Rules
- Transaction corrections, adjustments and cancellations
- Administrative functions
- Authentication
- Authorization levels
- Audit Tracking
- External Interfaces
- Certification Requirements
- Reporting Requirements
- Historical Data
- Legal or Regulatory Requirements.

NON-FUNCTIONAL REQUIREMENTS:

A non-functional requirement defines the quality attribute of a software system. They represent a set of standards used to judge the specific operation of a system. Example, how fast does the website load?

A non-functional requirement is essential to ensure the usability and effectiveness of the entire software system. Failing to meet non-functional requirements can result in systems that fail to satisfy user need.

18CS2009-20CS2050L – Software Engineering Lab URK20CS2001

- Constraints on the services or functions offered by the system.
- Example: “The system shall be available to all clinics during normal working hours (Mon-Fri, 0830-1730). Downtime during normal working hours shall not exceed 5 seconds in any one day”

Some typical non-functional requirements are:

- Performance – for example Response Time, Throughput, Utilization, Static Volumetric
- Scalability
- Capacity
- Availability
- Reliability
- Recoverability
- Maintainability
- Serviceability
- Security
- Regulatory
- Manageability
- Environmental
- Data Integrity
- Usability
- Interoperability

SYSTEM REQUIREMENTS:

As mentioned in the problem statement. This E-Learning platform is a website and, it will run as a domain-based website to provide 24/7 course materials to the students as well as the working professionals to view the course materials to the user must need network stability to watch and download the course material also, this website has a two-way chat application which will connect the instructors and the students without any third party applications like What's app, Telegram, Signal or Microsoft teams; Since the E-Learning platform provides some premium courses at low cost where the students and working professionals can make UPI payments to buy the course content and the other projects to get benefited;

SRS:

1.0 Overview:

The overview of this project is just an E-Learning website to provide the high-class education to the students at a low cost. This SRS will clearly explain the following questions.

How will instructors get benefited using this website?

How will the students get benefited?

What are the specifications to view/download the course materials?

How will this website help the students, working professionals and instructors?

2.0 GENERAL DESCRIPTION:

2.1 Product Perspective

This system allows stakeholders to invest in the student's project to get the expected outcome.

This system will display a wide variety of courses to the students and other working professionals.

This system will help the students to get constant improvement in the studies in any pandemic situation.

The system will provide information about the courses, real-time projects, sharable materials, and best instructors, depending upon their experience.

2.2 Product Functions:

The system provides the following functions:

- Life-time courses at one-time cost.
- Downloadable and sharable resources where the students can easily able to download, share the materials to the instructors by clearing doubts.
- 24/7 help and support.

- Secured authentication.
- Two-way chat application.
- Spambot to preventing phishing activities.
- Remainder mails to remind the enrolled students and working professionals to attend the quizzes and the assignments at an accurate time.
- After finishing a course, each student will get a credit and a badge as an appreciation where the badge is useful for further jobs and higher studies.

2.3 User Characteristics:

The users of this system are:

- **Level of User's computer knowledge:**
 - Since the users are students so, the students need a piece of basic computer knowledge to begin a course and, the student must know about how to create a Gmail account and how to enrol in the course.
- **Level of User's Business Knowledge:**
 - The admin panel users must know how to update the website. They need a piece of web development knowledge to work with this E-Learning dynamic website.
- **Frequency of Use:**
 - Since it was an E-Learning platform and the enrolment rate of the students is the frequency and, it will expect high use of user frequency.

2.4 General Constraints:

This E-Learning system will support the students to learn the course constantly without any interruptions.

This system will not allow the students to drop from the course that enrolled by them.

2.5 Assumption and Dependencies:

This system relies on the user's internet bandwidth, where the user needs a stable bandwidth to view or download the course materials.

The system must have a satisfying interface to provide the best user experience and, it also needs to support some offline materials.

SPECIFIC REQUIREMENTS

3.1 Functional Requirements

3.1.1 Unit Registration

Every dynamic website needs a login page to check the user's interactions with that particular website. This website has unit registrations which include the student's help in selecting, adding, dropping, and changing a unit.

- **SRS-002(3.1.1.2):**

The system shall allow the user to delete a unit if the user has chosen to drop that unit.

- **SRS-003(3.1.1.3):**

The system shall check if a unit has constantly been watching the daily courses/materials.

- **SRS-004(3.1.1.4):**

The system shall allow the users to download the course materials where they can reuse them later.

- **SRS-005(3.1.1.5):**

The System can automatically unenroll the inactive students from the course.

- **SRS-006(3.1.1.6):**

The system shall allow the users to delete or sync the chat application from the concerned chat to the third-party apps.

- **SRS-007(3.1.1.7):**

This system will allow the users to add the courses to the cart while the concerned materials/project while programs are on sale.

3.1.2 Retrieving and Displaying Unit Information

SRS-014(3.1.2.1):

3.2 Design Constraints

- **SRS-031(3.2.1):**

The system shall store and retrieve persistent data.

- **SRS-032(3.2.2):**

Since the E-Learning system is a website, It doesn't need any specific requirements in the system.

- **SRS-033(3.2.3):**

The system shall developed using HTML, CSS, JS for the front-end and Node JS with Express js for the back-end.

3.3 Non-Functional Requirements

- **SRS-034(3.3.1):**

This system shall respond to any retrieval in less than 5 seconds

- **SRS-035(3.3.2):**

This system shall generate an analysis report within 1 minute

- **SRS-036(3.3.3):**

This system shall allow the user to stay remotely connected.

- **SRS-041(3.3.8):**

This system will accompanied by a comprehensive help section, where the users can search and know about this website.

3.5.3 Security

The security requirements are concerned with security and privacy issues.

SRS-029:

This system has a multi-functionality database for the instructors and the students with different servers to protect the login details from unauthorized use of the system.

SRS-030:

This system shall allow the password manager functions to the users to add, remove, and modify the user id and passwords. The login credentials have an implementation of two-factor authentication, which provides two-layer security to the users.

RESULT:

The revised Software Requirements Specification is made for the E-Learning Platform to get the stakeholders' approval.