ICES4HU
System-Wide Requirements Specification

1. Introduction

This section of the Software Requirements Specification document provides the purpose of the document, scope of the document, and an overview of the document's structure.

1.1 Purpose

The purpose of this document is:

● To specify the system's quality characteristics and the requirements that design choices must meet in order to achieve the desired business goals, objectives, or capabilities
● To evaluate the proposed system's profitability
● To realize the service-level criteria for the solution's operational management

1.2 Scope

ICES4HU is an online instructor and course evaluation system specific to Hacettepe University called Instructor and Course Evaluation System for Hacettepe University. This web application system is designed and developed by the Here to Slay team for BBM384 Software Engineering Lab. This system was developed for students to evaluate instructors and courses. Instructors create surveys for their courses, and students can evaluate courses through this survey.

1.3 Overview

This document, along with the attachments Use Case Definitions, Graphical User Interface Design, and Test Case Definitions, defines both the functional requirements, that is, the features and functions of the application, as well as non-functional requirements and how to test them, as well as any other constraints to be taken into account during and/or after the development of the system.

Requirements of the system are detailed in the Use Case Definitions document. Therefore, section 2, "System-Wide Functional Requirements", of this document describes the functional requirements of the system that are system-wide and haven't been described in use cases.

In the third section "System Qualities", non-functional requirements such as performance, stability, and usability are described both quantitatively and qualitatively. In both sections 2 and 3, the requirements are given unique identifiers to provide traceability.

The fourth section "System Interfaces", describes the requirements to be considered while developing the user interface and the requirements for the interfaces to external systems.

The fifth section "Business Rules", describes the requirements of the business domain. They include corporate regulations and guidelines that the system's operation must follow.

The sixth section "System Constraints", describes requirements that must be met throughout the system's deployment or development.

The seventh section "System Compliance", describes any usage restriction restrictions, applicable regulations, and rules that the system must comply by.

The eighth section "System Documentation", describes the specifications for user guides, help systems, and any other documentation needed for system use in the future.

2. System-Wide Functional Requirements

This section provides the functional requirements that are system-wide, they affect multiple use cases and haven't been represented or cannot be represented in use-case descriptions.

2.1 Audit

The major responsibility of system administrators is to keep an eye on and regulate all system-wide activities. The primary goal of the audit is to regulate and keep an eye on user requests, user records, and user information. Moreover, the database will hold information like surveys that will be sent to students and user login details.

2.2 Authentication

The user needs to register with the system so they can use it. This requirement covers the security of logins, users, and administrators. Information security for users, administrators, and databases is our goal.

2.3 Printing

Users will receive pop-up messages from our system when an operation is successful.

2.4 Security

Access must be protected since every data in the system and database could be restricted. The password will be hashed for account security.

3. System Qualities

This section describes the required system quality standards, which differ from the precise functional specifications outlined in Section 2 and the Use Case Definitions document.

3.1. Usability

Our aim in ICES4HU is that students can easily make assessments and these assessments can reach instructors. The requirements for this convenience are:

● **Abstraction:** Users do not need to see the details. In order to participate in the survey, it is sufficient to be a student taking that course. In addition, instructors will not be able to see who cast their surveys.

● **User Interface:** Our goal here is to make it a user-friendly platform. User access to courses and their surveys should be easy and uncomplicated.

●**Ease of Learning:** In order for a person who enters the system for the first time to reach the surveys they want without any problems, it should be as far away from complexity as possible. Also, the instructor should be able to create surveys easily.

3.2. Reliability

A system also needs to be reliable. In order to enable member transactions where a user can create a member by email, reliability standards have been adopted. It is the user's capacity to use the system without a problem even while it is busy.

3.3. Performance

Performance is a must for a successful system. The requirements for performance are as follows:

● **Responsive:** The pages should load as fast as possible. There shouldn't be any system delay while the user is performing transactions.

● **Capacity:** The system should be able to store the access, information of all registered members. It must never lose its mobility. The importance of database needs comes from this.

●**Efficiency:** The system must work efficiently and not crash. The product has to be modified if it fails.

3.4. Supportability

● **Adaptability:** The system's adaptability allows it to easily accommodate new conditions and upgrades.

● **Compatibility:** The program's previous versions do not have any device continuity specifications.

● **Configurability:** The product will be configured during routine maintenance after deployment.

● **Installation:** A simple internet connection and email address are sufficient for installation.

● **Level of support:** Customers can receive support via email or through the help page.

● **Maintainability:** Overnight is the optimal time for general system repairs.

● **Scalability:** The system's capacity will increase as the database and network capacity expand.

● **Flexibility:** The system's architecture allows for flexibility in terms of customization and integration with other software or hardware systems.

● **User-friendliness:** The system is intuitive and user-friendly, with a simple and easy-to-use interface that requires minimal training for users.

● **Availability:** The system is designed to be highly available and accessible to users, with minimal downtime or maintenance windows.

● **Analytics and reporting:** The system provides robust analytics and reporting capabilities, allowing users to gain insights into usage patterns, trends, and other key metrics.

● **Compliance:** The system adheres to all relevant industry standards and regulations, ensuring compliance with data privacy, security, and other requirements.

4. System Interfaces

4.1. User Interfaces

4.1.1 Look & Feel

The design of the system will be modern and it will have white and lilac as colors. Everything will look compatible and understandable. There will be understandable logos for deleting something and they will complete the modern look of the website.

4.1.2 Layout and Navigation Requirements

For easy navigation there will be header and footer sections for every page. The header should include all the main pages that the type of user has access to and also an icon where it leads to their profile. From this icon, the user should also be able to log out. As for the footer, in this part, there should be contact information in case the users want to communicate with the admin directly. These two sections should be on every page and for different pages, there should be different bodies. For the main page there should be a menu, for example, an instructor should have; to see courses, create surveys, see statistics, etc pages. The user should select the operation from this menu and for each option different pages should appear.

4.1.3 Consistency

This website will be built using responsive web design principles so it will be fit to adjust all types of devices. Some buttons will look smaller on mobile devices and if there are boxes next to each other on a large screen, on the smaller screen they might seem over one another.

4.1.4 User Personalization & Customization Requirements

Minimal personalization may be allowed such as using viewing the website in dark or light mode but since this is an official website much customization should not be allowed.

4.2. Interfaces to External Systems or Devices

4.2.1 Software Interfaces

Google Analytics offers an embeddable API that may be used during the development of this website.

4.2.2 Hardware Interfaces

Since this is a simple responsive website, no special hardware requirements are needed.

4.2.3 Communications Interfaces

As network communication either Ethernet or Wi-fi may be used. As for internet protocol, HTTP/HTTPS will be used.

5. Business Rules

5.1. Security

5.1.1 BR-1

5.1.1.1 Student information such as email should not be shared.

5.2. Privacy

5.2.1 BR-2

5.2.1.1 An instructor should not be able to see a student's name in direct messages or as a survey answer.

5.3. Code of Conduct

5.3.1 BR-3

5.3.1.1 Students should abide by the code of conduct and mind their language.
5.3.1.2 Admin has the right to delete students' messages that do not apply to this rule.

5.4. Data Quality

5.4.1 BR-4

5.4.1.1 At the end of the survey period, all answer data should be calculated correctly.
5.4.1.1 All data should be shown clearly and the visualization should not be misleading.

6. System Constraints

The system will be designed as a web application.
The web application must be compatible with modern web browsers such as Chrome, Firefox, and Safari, and must be designed to be responsive for use on both desktop and mobile devices.
The system must be developed using the **C#** programming language.
The user interface of the system must be designed using **Vue.js**.
The database used by the system must be **MSSQL**.
The system must follow industry-standard security practices, such as encrypting sensitive data, preventing SQL injection attacks, and implementing secure authentication and authorization mechanisms.
The database schema must be designed to support the specific needs of the application, such as storing user data, transaction records, or other types of data. Additionally, the system must support the ability to perform database backups and data restoration in case of data loss or corruption.
The system must comply with any legal or regulatory requirements that apply to the application, such as data protection laws or accessibility guidelines.
The system must be fully documented, including source code comments, technical specifications, user manuals, and system architecture diagrams. This documentation must be maintained throughout the development process and updated as needed.
The decision to utilize the Iterated **Waterfall** model as the development methodology may pose certain limitations in the project's development.
Due to a predefined deadline of June 2nd, 2023, and individual milestones, our project is bound by time constraints. Moreover, since all project members are currently enrolled in an undergraduate program, efficient utilization of time is crucial.

7. System Compliance

7.1. Licensing Requirements

The Hacettepe University Computer Engineering Department is the creator and rightful owner of this system. The system is designed to support open-source code and will be publicly available for access.

7.2. Legal, Copyright, and Other Notices

The system is licensed under an open-source code license, allowing anyone to use, copy, distribute, and modify it. Hacettepe University Computer Engineering Department bears no legal responsibility for any such transactions.

7.3. Applicable Standards

The survey system has been designed to comply with the European GDPR regulations for the protection of personal data. This is particularly important in cases where personal information is collected through the survey.
In addition, the system is developed with ISO/IEC 27001 standards in mind, which provide a framework for managing and securing information. These standards are highly relevant for ensuring the confidentiality and privacy of the survey data and can help maintain the system's information security.

8. System Documentation

The system developers will be responsible for creating a comprehensive user manual to help system users understand how to use the system efficiently. This manual will provide step-by-step instructions, troubleshooting tips, and answers to frequently asked questions. It aims to ensure users have a seamless experience while using the system.

9. Distributions of Tasks

The System Requirements Specification document: This document is shared between the members Zübeyde Civelek, Ayça Akyol, and Şura Nur Ertürkmen. Other team members have checked.