# Software Engineering Analysis and Design



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1. **Summary of the project**

**1.1 Project overview**

To keep track of all the stocks of the school throughout the whole supply chain that the university has can be rather challenging and tiring if done by hand. Noting everything in a piece of paper can also bring up many mistakes that can lead to many situations that the university does not want to be in. In order to keep track of every good and possession that the university has it is very useful to have a system that sorts everything in classes, offices of the professors and in the storage rooms.

The Inventory System web application is the best solution to sort all these problems. The information will be stored in a protected server which would be very flexible in the way of modifying it.

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* 1. **Purpose and scope of this specifications**

The main focus of our program will be **STOCKS**. Everything will be related to the stocks of the university.

Stocks will be divided in **Classes, Offices, Storages** and **Special Classes** (laboratories, etc.)

This program will help to keep track of the stock of the university via the web-application which is easier to manage rather than doing everything by hand. This web-application will save time, will make the inventory system more efficient and the departments will be informed of the stocks the university has and what is in need of.

**2.Product and product description**

**2.1 User characteristics**

This program will be used by these users:

* + HRS
  + Finance
  + IT
  + Professors
  + Stock providers

1. HRS

Another important administrator is the HRS which will decide which stock will be removed, where the stock will be placed and in which storeroom it will be held.

This administrator will manage the inventory system, also will keep track of inventory status. The HRS department will also take care of the user privileges. They can also accept or decline offers from stock providers.

1. Finance

The Finance department can get a report from the web-application of what is missing and they can add what they will provide for the university and whether the objects will be held in the Storage or be used in one of the above mentioned places. This user will also see the status of a product and the web application can predict what the university might need in the future.

1. IT

The IT department will get requests from different faculties and will be aware if any stock is needed that is related to the IT.

This administrator will decide where the stock will be placed and it will also be updated in the inventory web-application system. If the IT department wants to add a device or is in need of a device, it will make a request which will go to the HRS department.

1. Professors

The person that will report in the application about offices will be the professor that utilizes the office. The reports on the special classes will be made by the professor that is in charge of the special class

(for instance for the Physics lab the Physics professor will make the report). Classes have no one in charge, but the professor that detects the problem can submit the report via the web-application to the HRS or the IT department based on the problem.

1. Stock provider

Stock providers will be able to see what does the university need and they can submit an offer via the web-application and they will get notified if their offer is accepted or rejected.

**2.2 Assumptions**

* It is assumed that the data generated and registered will be fully confidential and it will be available only for the specific departments of the university.
* It is assumed that every user has the appropriate equipment (computer or mobile device, internet access) to use the program.
* It is assumed that the users of this program have general knowledge on how to use the internet and their respective device effectively.
* It is assumed that every change that happens should be updated ion the program for better organization and better usage of this program.
* It is assumed that every user of the program has his/her university email activated and working properly.
* It is assumed that the stock is already registered by the service department.
* It is assumed that the users will update the inventory for every object that is missing, damaged or broken.
* It is assumed that we have all the barcodes for each product registered.

**2.3 Constraints**

The system may be constrained by:

* Having every user to understand how this system works and making sure they do

not do any mistakes.

* Problems with access management or security.
* The system does not allow the user to make customizations regarding the system name components as it make cause anomalies.
* Other constraints can be found during the way.

**2.4 Dependencies**

List of dependencies that affect the requirements:

* The user should always have internet access.
* The user should have an electronic device.
* The need of at least moderate internet speed.
* There should be a user from HRS department to make changes such as adding or deleting a user, adding or deleting stocks etc.
* The response time is depended on the volume of requests and the number of users that are currently using the system.

**3.1 Functional Requirements**

**(vazhdoje)**

**3.2 Non-Functional Requirements**

**3.2.1 User Interface Requirements**

* The interfaces must be user-friendly and should be easy to learn.
* Each role in the system has its own graphical user interface.
* The interface for the other users should be protected and only accessed if the correct email and password are taken as input.
* If the login is successful, the system will direct the user only to the page that they have access on.
* Management page, where the users that have the permission can manage other lower-ranking users.
* Dynamic screen size for any device like mobile phone, tablet, laptop or computer.
* Real time notification for HRS and It departments.

**3.2.2 Usability**

* The program is restricted to some specific users which means that it will know when a particular activity is prohibited.
* The software will be web-based which means it can be accessed by any browser, such as Google, Safari, Opera etc.
* Must be easy to use, navigate and to remember even for users not familiar with similar applications.
* Must allow for easy and quick completions of tasks.
* This program will be available to use any time either day or night.

**3.2.3 Performance**

This particular application will be a web-application and will be stored in a web server. The performance of this application will depend on:

* The internet connection
* The efficiency of retrieving data from the database
* The number of active users accessing or using the application
* (continue)

**3.2.4 Availability**

The availabilities of this application are:

* This software is supposed to cover everything physical that the university possesses
* This application will be accessible any time during the day and night which means that it will be accessible 24/7
* If something goes wrong or if an action gives an error, messages related to that action will be displayed
* Different type of users will have different availability and access

**3.2.5 Latency**

The latency of this application will depend on:

* The size of the database
* The internet connection data transfer rate
* The speed of which data is retrieved from the specific database
* How many users are operating in the website at that specific time

**3.3 Manageability/Maintainability**

**3.3.1 Monitoring**

* This application will be built to be secure, and trustworthy
* For every error that occurs a message will pop up and the user will be notified about the problem and its possible causes
* The user should put the correct and corresponding email and password in order to proceed and use this application, and if the login credentials are not valid an error message will pop up and the user will get notified about that
* This application will also be built to be reliable and all information entered by the users will be validated
* A hierarchy will be set among users as we mentioned earlier by the HRS department

**3.3.2 Maintenance**

In case this application crashes the system will restart and redirect the user to the homepage. Everything that the user has done in the application will be saved. If the error occurs it’s safe to restart the web-page. If the application crashes again a maintenance break will occur and the users will get notified for this.

**3.3.3 Operations**

* The software will be online 24/7
* All data of the users will be validated
* All operations based on the user will be available
* In case of something uninspected happens it will be a backup server available to restore all the information
* Each user has his own unique credentials and they are the only ones that can access their page
* The password of the user will be encrypted, and can be modified only by him
* The web-application will be properly updated if other needs are required