



Medical School LIC Scheduler

Vision Document

Version 2.1

The Yellow Walkman

Revision History

Date	Version	Description	Author
07/Oct/2018	1.0	Initial Draft	LIC Team
28/Feb/2019	2.0	Revisions to accommodate new information and decisions reached by our team and the client	Katie Ortstadt
25/Apr/2019	2.1	Minor revisions about server	Alexander Parris

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Vision

1. Introduction

1.1 Purpose

The purpose of this document is to collect, analyze, and define high-level needs and features of the TCU/UNTHSC LIC matching and scheduling (LIC-scheduling) system. It focuses on the capabilities needed by the stakeholders, and the target users, and why these needs exist. The details of how the TCU/UNTHSC LIC matching and scheduling system fulfills these needs are detailed in the use-case and supplementary specifications.

1.2 Scope

This vision document pertains to the TCU/UNTHSC LIC matching and scheduling system which will be applied to the Texas Christian University and University Northern Texas combined medical school. This system will be developed by a team of five TCU computer science students. The system will allow medical students to create clerkship schedules for their second year at the TCU/UNTHSC medical school. The system handles actual schedule creation, and exports the schedules as an excel or .csv file.

1.3 Definitions, Acronyms, and Abbreviations

See the project's [Glossary](#) for a comprehensive list of terms.

1.4 References

Currently no external references in use.

2. Positioning

2.1 Business Opportunity

This project will take the place of the manual process involved in creating student schedules for TCU's medical school with an online system that will create student's appropriate schedules based off given doctor and student information.

Without our system, administrators would need to manually collect over 480 doctors' availabilities and schedules, likely via email. Additionally, administrators would need to manually collect location preferences from the 60 medical students, again via email. After they have recorded all this data, they would need to create each student's schedule by selecting from the pool of 480 doctors and, by trial and error, trying to find a combination of matches that works.

The new system will streamline this process and create one unified place where doctors and students can enter their necessary information and students can design and request their schedules.

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This new system will allow the administrator to focus on finalizing schedules, minimize mistakes, and remove the manual process of creating schedules for incoming students. It significantly increases efficiency.

2.2 Problem Statement

The problem of	The manual process of creating student schedules for the TCU Medical School.
affects	Students, doctors, and TCU Medical School administrators.
the impact of which is	A slow and tedious, error-prone process that forces students and doctors to wait unnecessarily for their schedules.
a successful solution would be	Efficient schedule creation, professional image for TCU Medical School, and overall improved convenience for everyone involved.

2.3 Product Position Statement

For	Students, doctors, and administrators of TCU Medical School.
Who	Attend, mentor, and administer at TCU's Medical School.
The (product name)	Is an online tool.
That	Gathers information and creates schedules for incoming medical students.
Unlike	The existing manual process that is currently going to be used.
Our product	Gathers student and doctor information and allows students to build their own appropriate schedules.

3. Stakeholder and User Descriptions

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This section describes the users of the LIC Scheduling Application. There are 3 types of users; the Administrator, the Students, and the Doctors.

3.1 Market Demographics

The pool of doctors from the DFW area involved in TCU's Medical School will be at least eight times greater than the amount of students involved every year, which leads to a large amount of information needed to be gathered to create schedules. Additionally, there are eight separate specialities, including emergency medicine, family medicine, internal medicine, neurology, ObGyn, pediatrics, psychiatry, and surgery. The ability to easily gather and process this information to create schedules will be a convenience for every user involved as well as a large burden lifted from administrators.

The doctors and students involved with TCU's Medical School will have access to this application from any device with online access.

The initial release of this system will be solely for TCU's Medical School, as they are the first to attempt an LIC scheduling model of this kind.

3.2 Stakeholder Summary

Name	Represents	Role
Medical Student	Incoming Students of TCU's Medical School	Ensures that the system will meet the needs of students.
Administrator	The office of the TCU Medical School that oversees student needs and scheduling.	Ensures that the system will meet the needs of the administrators, who will manage the student scheduling, including doctor and student schedules.
Doctor	Doctors involved with TCU's Medical School	Ensures that the system will meet the needs of doctors.

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3.3 User Summary

Name	Description	Stakeholder
Administrator	Manages access and user schedules, handles them for further input, editing, and distribution.	self-represented
Student	Inputs desired schedule, based on location and time.	self-represented
Doctor	Inputs information for upcoming involvement.	self-represented

3.4 User Environment

The doctors and upcoming medical students are a sophisticated group of users who have basic IT skills. They either own and work on personal computers or have access to school computers.

Currently, there are 60 students and about 480 doctors who will use the system per class to fill out information forms. This activity will last for about 2-3 weeks and happen once per year. Our product will greatly improve the quality and efficiency of the matching and scheduling process.

TCU Medical School uses a student portal called LCMS+. Our product will integrate with system if possible.

3.5 Stakeholder Profiles

3.5.1 LIC Coordinator

Representative	Kayla Beeler
Description	Coordinator, Administrator, School Representative
Type	Main user of the system. Understands the matching and scheduling process as well as any information regarding the Medical School

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Responsibilities	Represents TCU Medical School. Monitors the project's status. Provides most requirements from an user's perspective. Ensures that the project meets long term and short term goals. Plans for the maintenance of the system.
Success Criteria	Success is the completion of the product on time and meets all requirements, and a demonstrated increase in efficiency and quality of the matching and scheduling process. The user is rewarded by a reduction in workload and increase in work quality.
Involvement	Project reviewer – especially related to functionality and useability of features required by the Registrar staff.
Deliverables	None
Comments / Issues	None

3.5.2 Student

Representative	Self-represented
Description	Student. System User
Type	Educated user with basic IT skills.
Responsibilities	Provide requirements and test cases (UAT). Ensure that the system is user friendly
Success Criteria	User can submit their information, and change/review their submitted information in a clear and efficient way.
Involvement	Review features of the system

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Deliverables	None
Comments / Issues	None

3.5.3 Doctor

Representative	Self-represented
Description	System User
Type	Educated user with basic IT skills.
Responsibilities	Provide requirements and test cases (UAT). Ensure that the system is user friendly
Success Criteria	User can submit their information, and change/review their submitted information in a clear and efficient way.
Involvement	Review features of the system
Deliverables	None
Comments / Issues	None

3.6 User Profiles

Covered under the previous section.

3.7 Key Stakeholder or User Needs

Need	Priority	Concerns	Current Solution	Proposed Solutions
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Collect information (location, availabilities) from doctors and students	High	There is too much information to reliably collect manually	The coordinator has to collect all information from doctors and students from emails, then store it in an Excel file.	The product shall collect information from doctors and students and store them automatically in a database.
Create student schedules	High	The scheduling/ matching process is inaccurate and slow	Then administrator matches the doctors to students by hand. This is unreliable and inaccurate as the number of doctors and students combined is about 600.	The product shall allow each student to design and submit their own schedules, thereby taking the burden off of the administrator.
Access submitted information	Medium	Students and doctors cannot access their submitted information	Currently there is no way for the doctors and students to review their submitted information. They have to contact the LIC coordinator to make any changes.	The product shall provide a portal or web app that allows users to review and make changes to their submitted information.
Publish schedule to LCMS+	Low	Publishing schedules onto LCMS+ is slow and inefficient	Currently the LIC coordinator has to publish each schedule to each student to LCMS+ by hand as the platform does not support uploading different schedule for each student.	The system shall generate a .csv file that is compatible with LCMS+ to simplify the process of publishing the generated schedule for each student.

3.8 Alternatives and Competition

The LIC Coordinator is not aware of any alternative solution or off-the-shelf system that function as the scheduler for doctors and medical students.

4. Product Overview

This section provides a high level view of the LIC-scheduling system capabilities, interfaces to other applications, and systems configurations.

4.1 Product Perspective

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Because the TCU/UNTHSC medical school was not a preexisting school, the LIC-scheduling system will be the first implementation of any matching and scheduling processes for the program. The system is an alternative to collecting information from medical students and doctors and then manually matching and generating schedules.

The system will be independent of any other systems but the information generated will be exported to a .csv file and then manually uploaded into the LCMS+ system.

4.2 Summary of Capabilities

The table in this section identifies the main capabilities of the LIC Program Scheduler in terms of benefits and features.

Customer Benefit	Supporting Features
Access from any College or Personal PC.	Students, doctors, and administrators may access the scheduler from any College PC or from their home PC via the internet.
Secure and confidential.	A valid user ID and password is required to gain access to the LIC Scheduler. Output will only be seen by system administrators for further use.
Convenient schedule creation	The user interface for students is easy to understand, and gives students control over their own schedule creation. After they design their schedules, the schedules are automatically stored in the database.
Easy fix/update capability	Administrator has ability to make any appropriate changes or updates to schedules after creation.

4.3 Assumptions and Dependencies

The following assumptions and dependencies relate to the capabilities of the LIC Program Scheduler as outlined in this Vision Document:

- All end users interacting with the system will be using personal computers instead of tablets or mobile devices.
- Users will not use Internet Explorer to access the site
- Scheduler cannot be integrated into existing LCMS+ system.

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4.4 Cost and Pricing

The program will be hosted on AWS servers, the server costs are roughly \$60 per month. This varies month to month based on usage and AWS pricing.

4.5 Licensing and Installation

There are no licensing requirements for V1.0 of the system, as it will be available to TCU Medical School.

5. Product Features

5.1 Logon

The system shall allow administrators to logon to the system using a username and password. Only administrators can hold and create new accounts.

5.2 Import Doctor Information

The system shall allow the administrator to upload a spreadsheet containing the names, emails, and specialties of all the doctors.

5.3 Import Student Information

The system shall allow the administrator to upload a spreadsheet containing the names and emails of all the students.

5.4 Unique Links

The system shall generate unique links for doctors and students. These links negate the need for accounts.

5.5 Send Emails

The system shall distribute the unique links via email to doctors and students.

5.6 Collect Doctor Information

The system shall allow doctors to enter their availability and the location of their practice. The form for this will be accessed via unique link.

5.7 Scheduling

The system shall allow students to fill out their preferred schedules and submit them to the database. The page for this will be accessed via unique link.

5.8 Schedule Output

The system will have final schedule information for administrator to use for input into LCMS+.

6. Constraints

No other current system constraints.

7. Quality Ranges

This section defines the quality ranges for performance, robustness, fault tolerance, usability, and similar characteristics for the LIC Scheduler:

Availability: The System shall be available until all schedules for enrolled students and participating doctors have been created.

Usability: The System shall be easy-to-use and understand, as well as be appropriate for the target market of computer-literate students and doctors.

Maintainability: The System shall be designed for ease of maintenance for the future.

8. Precedence and Priority

This section provides some direction on the relative importance of the proposed system features. Because we are approaching the design with an iterative approach, all features are addressed at each release. They are initially all built to low fidelity, and then the fidelity is raised with each iteration. Priority is ultimately given to the scheduling feature, listed as Use Case 04.

9. Other Product Requirements

9.1 Applicable Standards

There are no legal requirements with which the product must comply. It must operate safely on both Windows and Mac operating systems. We will also be using third-party email, and so our program must appropriately comply with that email server's regulations.

9.2 System Requirements

Our application should run independently of any operating system. The system must be able to run a Java program .jar file.

9.3 Performance Requirements

The highest anticipated load on the server is 60 people at a time. When the student schedules are sent out, there is a possibility that all 60 students will try to access our server at the same time. Thus, the system must be able to handle a load of 60 users.

9.4 Environmental Requirements

The application was built using the Spring Boot framework. Any upkeep, therefore, must be done in Java Spring. Additional maven dependencies are also required, as indicated in the .pom file.

10. Documentation Requirements

10.1 User Manual

The User Manual will instruct the administrator, doctors, and students on how to use the system. It will be written for someone with no technical background. The user manual will include screenshots and pictures to fully explain how to use the system.

10.2 Online Help

Although most of the system should be fairly self-explanatory, we will include “How to Use” instructions on the student scheduling page. Additional help can be found in our User Manual.

10.3 Installation Guides, Configuration, and Read Me File

We will release the project with Amazon Web Server (AWS). With Spring Boot, we will be able to simply run a .jar file. No additional installation or configuration should be necessary. We will create a ReadMe file with known issues and workarounds, as well as a basic description of the project.

10.4 Labeling and Packaging

The project uses official TCU/UNTHSC logos on its pages. Since it is a software product exclusively, there is not packaging.