Software Requirements Specification

for

Coronavirus Vaccination Integrated System (CVIS)

**Version 1.0 approved**

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**Revision History**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Date** | **Reason For Changes** | **Version** |
| Robert Silvey | 3/4/21 | Starting work on document | 1.0 |
| All Group | 3/15/21 | Filling in info from part 2 | 1.1 |
| Kaleb Miller | 3/24/21 | Add use case diagram to appendix | 1.2 |
|  |  |  |  |
|  |  |  |  |

# Introduction

## Purpose

The purpose of the software is to optimize the distribution, scheduling, and shipment of vaccinations to minimize the Coronavirus spread. (v1.0)

*<Identify the product whose software requirements are specified in this document, including the revision or release number. Describe the scope of the product that is covered by this SRS, particularly if this SRS describes only part of the system or a single subsystem.>*

## Document Conventions

*<Describe any standards or typographical conventions that were followed when writing this SRS, such as fonts or highlighting that have special significance. For example, state whether priorities for higher-level requirements are assumed to be inherited by detailed requirements, or whether every requirement statement is to have its own priority.>*

## Intended Audience and Reading Suggestions

This SRS is intended for developers, project managers, users

*<Describe the different types of reader that the document is intended for, such as developers, project managers, marketing staff, users, testers, and documentation writers. Describe what the rest of this SRS contains and how it is organized. Suggest a sequence for reading the document, beginning with the overview sections and proceeding through the sections that are most pertinent to each reader type.>*

## Product Scope

The purpose of the software is to optimize the distribution, scheduling, and shipment of vaccinations to minimize the Coronavirus spread. The goal is to vaccinate as many people as possible.

*<Provide a short description of the software being specified and its purpose, including relevant benefits, objectives, and goals. Relate the software to corporate goals or business strategies. If a separate vision and scope document is available, refer to it rather than duplicating its contents here.>*

## References

*<List any other documents or Web addresses to which this SRS refers. These may include user interface style guides, contracts, standards, system requirements specifications, use case documents, or a vision and scope document. Provide enough information so that the reader could access a copy of each reference, including title, author, version number, date, and source or location.>*

# Overall Description

## Product Perspective

This software is a new self-contained product.

*<Describe the context and origin of the product being specified in this SRS. For example, state whether this product is a follow-on member of a product family, a replacement for certain existing systems, or a new, self-contained product. If the SRS defines a component of a larger system, relate the requirements of the larger system to the functionality of this software and identify interfaces between the two. A simple diagram that shows the major components of the overall system, subsystem interconnections, and external interfaces can be helpful.>*

## Product Functions

* Book a vaccination appointment
* Check eligibility for vaccination
* Prompt rescheduling of appointments
* Order more vaccines
* Send a FlashAlert and post a message
* Prepare and print vaccination appointment schedule
* Compute money spent and earned
* Visualize data

*<Summarize the major functions the product must perform or must let the user perform. Details will be provided in Section 3, so only a high level summary (such as a bullet list) is needed here. Organize the functions to make them understandable to any reader of the SRS. A picture of the major groups of related requirements and how they relate, such as a top level data flow diagram or object class diagram, is often effective.>*

## User Classes and Characteristics

**Class Specifications**

**Class name:**

Patient

**Documentation:**

**Definition:**

Either a student registered at any KSU campus, or a faculty or an employee, either part time or full time, that works for any Kent State University campus.

**Constraints:**

No additional appointment is permitted within the year, when the KSU-HS patient has completed the vaccination treatment (i.e. no more than 2 doses).

**Class name:**

Insurance

**Documentation:**

**Definition:**

The name of the patient and the name of the insurance company.

**Constraints:**

**Class name:**

Campus

**Documentation:**

**Definition:**

A campus is a Kent State Campus that holds multiple stations.

**Constraints:**

The campus must specify whether it’s the main campus or a regional campus in order to check for eligibility of vaccine orders.

**Class name:**

Station

**Documentation:**

**Definition:**

A station is the vaccination station at any campus which holds the total number of vaccines available at each station as well as the records of how many people have been vaccinated there.

**Constraints:**

A station must be a part of a campus.

**Class name:**

Appointment

**Documentation:**

**Definition:**

An appointment is a scheduled date and time for any patient to receive a vaccination of a certain brand from a doctor.

**Constraints:**

Appointments must inherit data from a patient such as their student ID and the boolean value of if the student has completed the full course of vaccinations or not and contain a date as well. Each station can deliver up to 50 vaccine doses per day. A vaccination appointment consists of 10 minute sessions between 8:00am and 18:00pm, Monday through Friday.

**Class name:**

Doctor

**Documentation:**

**Definition:**

A person administering vaccinations at a station.

**Constraints:**

**Class name:**

Date

**Documentation:**

**Definition:**

The day and time a vaccination is scheduled to take place.

**Constraints:**

**Class name:**

Vaccine

**Documentation:**

**Definition:**

An injection to boost immunity to Coronavirus.

**Constraints:**

Vaccines are supplied from pharmaceutical companies in limited quantities upon request. Requests are only valid when the station’s stock of vaccines is below 50.

**Class name:**

Data

**Documentation:**

**Definition:**

The data class holds the combined statistics of revenue generated by all campuses and will include a method to visualize the data.

**Constraints:**

Must get data from every object of type station

**Class name:**

Vaccine Order

**Documentation:**

**Definition:**

A particular station’s request to pharmaceutical companies for more vaccines.

**Constraints:**

Can only be ordered when the station’s stock of vaccines is below 50.

*<Identify the various user classes that you anticipate will use this product. User classes may be differentiated based on frequency of use, subset of product functions used, technical expertise, security or privilege levels, educational level, or experience. Describe the pertinent characteristics of each user class. Certain requirements may pertain only to certain user classes. Distinguish the most important user classes for this product from those who are less important to satisfy.>*

## Operating Environment

*<Describe the environment in which the software will operate, including the hardware platform, operating system and versions, and any other software components or applications with which it must peacefully coexist.>*

## Design and Implementation Constraints

*<Describe any items or issues that will limit the options available to the developers. These might include: corporate or regulatory policies; hardware limitations (timing requirements, memory requirements); interfaces to other applications; specific technologies, tools, and databases to be used; parallel operations; language requirements; communications protocols; security considerations; design conventions or programming standards (for example, if the customer’s organization will be responsible for maintaining the delivered software).>*

## User Documentation

*<List the user documentation components (such as user manuals, on-line help, and tutorials) that will be delivered along with the software. Identify any known user documentation delivery formats or standards.>*

## Assumptions and Dependencies

The software operates under the dependency of a supply of vaccines from pharmaceutical companies.

*<List any assumed factors (as opposed to known facts) that could affect the requirements stated in the SRS. These could include third-party or commercial components that you plan to use, issues around the development or operating environment, or constraints. The project could be affected if these assumptions are incorrect, are not shared, or change. Also identify any dependencies the project has on external factors, such as software components that you intend to reuse from another project, unless they are already documented elsewhere (for example, in the vision and scope document or the project plan).>*

# External Interface Requirements

## User Interfaces

*<Describe the logical characteristics of each interface between the software product and the users. This may include sample screen images, any GUI standards or product family style guides that are to be followed, screen layout constraints, standard buttons and functions (e.g., help) that will appear on every screen, keyboard shortcuts, error message display standards, and so on. Define the software components for which a user interface is needed. Details of the user interface design should be documented in a separate user interface specification.>*

## Hardware Interfaces

*<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 Interfaces

*<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.>*

## Communications Interfaces

*<Describe the requirements associated with any communications functions required by this product, including e-mail, web browser, network server communications protocols, electronic forms, and so on. Define any pertinent message formatting. Identify any communication standards that will be used, such as FTP or HTTP. Specify any communication security or encryption issues, data transfer rates, and synchronization mechanisms.>*

# System Features

*<This template illustrates organizing the functional requirements for the product by system features, the major services provided by the product. You may prefer to organize this section by use case, mode of operation, user class, object class, functional hierarchy, or combinations of these, whatever makes the most logical sense for your product.>*

## System Feature 1

*<Don’t really say “System Feature 1.” State the feature name in just a few words.>*

4.1.1 Description and Priority

*<Provide a short description of the feature and indicate whether it is of High, Medium, or Low priority. You could also include specific priority component ratings, such as benefit, penalty, cost, and risk (each rated on a relative scale from a low of 1 to a high of 9).>*

4.1.2 Stimulus/Response Sequences

*<List the sequences of user actions and system responses that stimulate the behavior defined for this feature. These will correspond to the dialog elements associated with use cases.>*

4.1.3 Functional Requirements

*<Itemize the detailed functional requirements associated with this feature. These are the software capabilities that must be present in order for the user to carry out the services provided by the feature, or to execute the use case. Include how the product should respond to anticipated error conditions or invalid inputs. Requirements should be concise, complete, unambiguous, verifiable, and necessary. Use “TBD” as a placeholder to indicate when necessary information is not yet available.>*

*<Each requirement should be uniquely identified with a sequence number or a meaningful tag of some kind.>*

REQ-1:

REQ-2:

## System Feature 2 (and so on)

# Other Nonfunctional Requirements

## 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.>*

## Safety Requirements

*<Specify 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.>*

## Security Requirements

*<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. Refer to any external policies or regulations containing security issues that affect the product. Define any security or privacy certifications that must be satisfied.>*

## Software Quality Attributes

*<Specify 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.>*

## Business Rules

*<List any operating principles about the product, such as which individuals or roles can perform which functions under specific circumstances. These are not functional requirements in themselves, but they may imply certain functional requirements to enforce the rules.>*

# Other Requirements

*<Define any other requirements not covered elsewhere in the SRS. This might include database requirements, internationalization requirements, legal requirements, reuse objectives for the project, and so on. Add any new sections that are pertinent to the project.>*

**Appendix A: Glossary**

|  |  |  |
| --- | --- | --- |
| Patient | linked to Vaccine/Appointment | StudentID  Name  # of doses  brand  date vaccinated  campus vaccinated at |
| Insurance | part of Patient | StudentID  Company |
| Campus |  | Stations  Regional/Main |
| Station | part of Campus | Total\_Vaccines\_Available  Total Vaccinations  Students Vaccinated  Revenue Generated |
| Appointment | linked to Patient/Date/Vaccine/Station | ID  Date  Brand  Dose  Doctor |
| Doctor | part of Station  Linked to Appointment | Name  Vaccines\_Administered  Salary  Station |
| Date | linked to Appointment/Vaccine order | Day  Month  year  Time |
| Vaccine | linked to Patient/Appointment/Vaccine Order | Brand  Price  ID  Date  does\_number |
| Data | Linked to Station | Total\_revenue  Total\_Students\_vacinated |
| Vaccine Order | linked to Vaccine/Date/Dependent on station | Vaccine  Station  Total\_Price  Number\_of\_Vaccines  Elegibility\_for\_order  Delivery\_Date |

**Appendix B: Analysis Models**

**Diagram

Description automatically generated**

*<Optionally, include any pertinent analysis models, such as data flow diagrams, class diagrams, state-transition diagrams, or entity-relationship diagrams*.>

**Appendix C: To Be Determined List**

*<Collect a numbered list of the TBD (to be determined) references that remain in the SRS so they can be tracked to closure.>*