TECHNICAL DOCUMENTATION

*Private Note*

*Phase 1 – Web-based System*

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# GENERAL INFORMATION

## Purpose

The purpose of this document is to provide information to the Amber Heart partnership to allow their endorsement of the development, maintenance, hosting, and use of an on-line web-application system. This document explains the high-level technical and functional requirements, and provides information about the roles and responsibilities needed to support such a system, including the obligations of the developer and the obligations of other parties. The document also includes a cost estimate for developing and maintaining this type of system for anyone wishing to use the platform.

## Scope

This Functional and Technical Requirements Document outlines the functional, performance, security and other system requirements identified by the developer as the proposed information system solution for the web application.

The On-line web application will

* + - House on-line profiles of users documenting the personal information needed to create their personal notes.
    - Allow admin to manage (add, change, delete) user rights for profile maintenance.
    - Allow admin to view user profiles.

## Acronyms and/or Definitions

**API** Application Programming Interface, a set of protocols or standards for communicating with web-based applications

**CSS3** Cascading Style Sheets; language used to describe the presentation of a document written in markup language, e.g., HTML

**Composer package manager** Tool for PHP development

**Entity** Heart/Trust institution participating in the pilot, identified by Amber Group of Companies.

**Git version control** Free and open-source version control system

**HTML 5** HyperText Markup Language; the fifth and current version of the HTML standard

**ISP** Internet Service Provider

**JavaScript** Programming language used extensively in website development

**jQuery for Javascript** Javascript library

**JSON format** Data-interchange format

**MySQL** Open-source database management system

**PHP** General-purpose scripting language especially suited to web development

**Laravel** PHP framework to create websites and web applications

**RESTful API** An API that uses a standard set of HTTP requests

## Points of Contact

### Administrative Support and Oversight

The developer will operate with the support team for performing the following tasks:

* Develop and maintain all necessary user documentation, FAQs, surveys and reports
* Review each profile when submitted or modified and review all profiles regularly to ensure data integrity remains high
* Maintain awareness of needs related to changes in data elements, additions, deletions or modifications
* Coordinate communication among the users and provide users regular updates and status reports on the Pilot
* Receive and track ongoing feedback from the users
* Maintain all user required resource documents on amber heart webpage

# 2.0 CURRENT SYSTEM SUMMARY

There is currently no single, on-line electronic database containing all information needed for pass-through entities to perform risk assessments and to do ongoing monitoring of static or annualized data related to sub recipient monitoring. Select data are instead.

* 1. **FUNCTIONAL REQUIREMENTS AND USER IMPACTS**

## Summary of Functions

The Amber Heart Hackathon requires a technology based solution for a community-wide data collection and management system whose primary functions include:

* Data Accessibility
* Entity Profile Administration
* User Accounts
* Data Integrity
* Staff Administration

### Functional Requirements

###### Data Accessibility

* + Entity profile information is publicly available via a searchable website
  + Profile data is available for direct system-to-system access via an HTTP API (read only)
  + System will track the date and time of last API data pull
  + Profile details for individual institutions can be downloaded in XML format

###### Entity Profile Administration

* + Authorized users can update the student profile directly on the website
  + Date and user name are logged when profile is changed
  + Designated entity representatives can delegate editing rights to other users at their institution

###### User Accounts

* + User accounts are password protected.
  + Password reminders and resets are handled by the website.

## Summary of Impacts

### Operational Impacts

In anticipation that the web-based will eventually replace the various data collection components currently maintained.

### System Development Working Group Impacts

The System Development Working Group will commit time and work together to accomplish the development and ongoing maintenance of the system in the following ways:

* Communication between and among group members
* A central location will be developed to maintain working group documents (Dropbox or similar)
  + Functional and technical specifications
  + Action lists and notes

# PERFORMANCE REQUIREMENTS

## Specific Performance Requirements

### Accuracy and Validity

The system will employ numerous data quality assurance techniques, including but not limited to:

* Drop down lists with standard responses
* Record data completeness requirements
* Manual review and validation of new draft entity profiles by a designated school administrator, prior to profiles being added to the system.

### Timing and Capacity

The system is intended to be available online 24 hours per day, 365 days per year with the exception of scheduled and pre- notified system maintenance downtimes, if needed.

### Failure Contingencies

The system is non-critical. Temporary inaccessibility, even up to several days, will not create a substantial burden on any user. The host site for the system will be chosen so as to include data backup capabilities and protocols.

# ADDITIONAL SYSTEM REQUIREMENTS

## System Description

The proposed system will consist of a web-based, centralized database Entity Profile and reporting to be utilized in the support of ongoing sub recipient entity monitoring activities and responsibilities by the Entities. Generally, all users will provide direct input into the system. However, to ensure growth ability, flexibility is also required for both input and output modes.

## Systems Integration

An additional desired functionality of the system is to integrate with other external systems. The system will be desired to have the capacity to import and export data without ongoing. To this end, the system will expose a RESTful API via HTTP to provide data in JSON format for external consumer access.

## Customization and Flexibility

The complexity of the system will limit the customizations available via the administrative interface at the staff level. However, the code should be structured to make customizations a reasonably accessible task for a PHP programmer.

## Sustainability and Open Source Plans

The developer and a group from Amber Group of Companies will have access to the source code for the software and may work with other parties to extend, enhance, or edit the system, provided the changes and enhancements are committed to the GitHub repository. Source code will be stored on GitHub or in another mutually agreed repository.

## System Documentation

There is no anticipated need for an end-user guide as system will include an intuitive user interface.

## Rights to Code and Data / Data Ownership

The student, as the primary developer, shall retain all right and ownership in the software product including but not limited to source code, including right to license the product (but not the data) to any third party. This shall include no more than one production instance at any time, with unlimited backup, development and test copies permitted to maintain, improve and test the software as necessary.

## Configurable System Parameters

The Heart/Trust Institution will work together to determine where the system may need to be configurable and ensure that all parties are in agreement and parameters are appropriately documented.

## System Development and Go-live Approval Process

Under the leadership of Amber Group of Companies, the initial system will be developed in iterations. As the developer complete portions of the application, they will make the updates available to Heart/Trust for review. These reviews are intended to keep the application development on course, addressing any miscommunications early and a clear understanding of how the work is progressing.

# EQUIPMENT AND SOFTWARE

## Equipment

The student developer will be responsible for utilizing currently existing equipment for contracting with a web hosting service for server space.

## Software

The application is built with PHP version 8, an open-source web scripting language. Data will be stored in a MySQL database, also open source. The user interface will be developed in HTML5, CSS3, and JavaScript. The apllication will be employing components from standard and commonly accepted libraries such as Laravel and jQuery for Javascript.

PHP dependencies will be managed via the Composer package manager. The application will be able to run on any web server that supports PHP 8 and has a MySQL database.

The application code will use Git version control, and all commits will be archived in a designated repository which can be made available to other developers for review. Source code will be stored on a mutually agreed platform