# Introduction

## Purpose

The purpose of this document is to illustrate a detailed description of the Museum Experience Survey system’s business logic and requirements. This document serves as foundation of the system, underlying key features, interfaces, constraints, and system interactions. This document is not meant to include any information about the design of the system.

## Intended Audience and Reading Suggestions

Reviewers: The requirements in this documented should be reviewed by the sponsors from Lockheed Martin as well as the project representatives from the museum. The reviewers should put their focus on [system features](#h.r7jsfh4yk7xq), [external interface requirements](#h.1v5vcaf19kap), [other nonfunctional requirements](#h.tmg6fy6ppznb).

Developers: Developers should be familiar with all parts of this document.

## Project Scope

The museum experience survey shall be accessible only on location at the Discovery Center. Being on a closed network limits traffic load to the system. Decreased traffic and the requirement of being on site to perform an attack bolsters the security of the system. Integration with existing systems at the Discovery Center is limited through the use of exporting data in a known format. An Application Programming Interface, or API, for continued integration is low priority. The major scope of the project is to collect demographic information and information on what the museum visitors would like to see.

## References

Original Project Scope - See the “Project Plan” document.

# Overall Description

## Product Perspective

This application is designed to collect visitor demographic information, as well as feedback for each visit to the Discovery Center. It will utilize Android tablets acting as kiosks to collect information through two surveys running simultaneously. One survey shall be designed for adults and the other for children. Though only two surveys will be running simultaneously, more may be created through an administrator interface. Data from these surveys will be saved in a database which can be retrieved and viewed in various ways, such as .csv files and graphs. Using this information, market research for expansion will be conducted by employees of the Discovery Center.

## User Classes and Characteristics

The system will have two primary users, Admins and Visitors.

Visitors - Visitors are museum attendees that are the target for the survey. Their only function is to fill out a survey and submit it. Ages vary widely as the museum is geared towards children, who may fill out a survey if they choose, but also their parents and guardians who accompany them. Because of this we break down the visitors into two subclasses of users, Adults and Children.

* Adults
  + Will use the survey to gather demographic information and museum feedback
  + Frequency of use: medium
  + Technical skills: Low to High
* Children
  + Assumed to be at a 4th grade reading level to coincide with the rest of the museum.
  + Assumed to have no technical skill and only capable of the simplest of gestures and menu selection.
  + Frequency of use: medium

Admins - Admins are the management of the Museum itself. They are all adults. They will be able to access admin only features that visitors cannot, such as configuring surveys and viewing/exporting data. It is assumed they have a low technical skills. Accessing the system as an Admin will require a user to log in. Though there may be multiple Admins, there will not be separate accounts, and every admin will share the same view into the system. The frequency of use is expected to be low.

## Operating Environment

The system will be operating inside the museum. Kiosks accessing the survey, usable by visitors, will be most likely located in the front lobby, though may be moved to different parts of the museum as the admins see fit.

The lobby is expected to have up to a few dozen people in it at any one time, as there is often groups of children arriving at the same time. However, one device at a kiosk is meant to serve only one visitor at a time.

Due to the amount of people at one time and the age of the visitors, care is advised for the placement of the kiosks. They shall be secured so that people can not remove them (except admins with the proper tools) and the software should be configured so that visitors cannot navigate to other apps/websites with the kiosk device.

## Design and Implementation Constraints

* Users have low technical knowledge.
* Existing hardware and software choices
* Hardware (See [hardware interfaces](#h.r8vjd5xswymi) for more details)
  + Windows 7 Desktop for the webserver
  + Touch Screen devices running android for the visitor input
  + Using the network set up at the museum. (see communication interfaces for more details)
* Software (See [software interfaces](#h.is59et7yxkqr) for more details)
  + Compatibility with android browser
  + what the staff currently uses for their desktops.
  + Exporting data to be compatible with excel.

## User Documentation

There will be a user manual pdf that shall be included with the project. This manual shall include:

* Installations
  + Tablet
  + Survey
* How to use the admin tools
  + Reporting
  + Configuring survey
* How to use the survey
  + Childrens Survey
  + Adult Survey

## Assumptions, Dependencies, and Unknowns

This system will depend on a local area network being set up at the museum. The team understands that a wireless network already exists, but there may be some additional work to be done to fully secure the devices used by the visitors.

We will be assuming that any networking work that needs to be done will be able to be completed by the IT staff that currently helps the museum. The goal is to make a one click installation. Failing this, create an installation process with the minimal number of steps.

We also assume that any hardware will be purchased by the museum to run this system.. Recommendations shall be provided for any hardware the museum does not currently own.

# System Features

# **Survey** - A survey designed to gauge user interest on exhibits and gather demographic data on museum visitors.

* 1. Configurable questions - Questions may be answered in a number of ways
     1. Multiple choice
        1. Single Select Answer
        2. Multi-Select Answer
     2. Open answer. The quantity of open answer questions shall be limited as it is difficult to obtain pertinent information from them.

1. **Targeted design** - There shall be a survey target towards adults and a survey targeted towards younger users.
   1. Adult Survey
      1. Increased Access to navigation Features
      2. Use of informational graphics
   2. Children’s Survey
      1. Limited Access to navigation Features
      2. Use of Child friendly graphics

1. **Admin Console** - A section of the application shall be dedicated to the configuration of the survey and its questions.
   1. The console will only be accessible through login credentials. Username and password.
   2. Most questions themselves will not be configurable, but comment blocks will have guiding instructions.
   3. The admin console be able to configure what type of reports are generated from the gathered data.
2. **Exporting Data** - Data shall be exported into an Excel-compatible format.
   1. Using demographics gathered through the survey and stored in a database, the system shall compile a list of patrons interested in learning more about what the Discovery Center has to offer.
3. **Statistical Analysis** - Charts and or graphs shall be generated to easily interpret gathered data from the survey. Statistical Analysis has not been directly requested by the customer and is therefore the lowest priority.
   1. An admin web page will show data in pie graphs, line graphs, and bar graphs.
      1. What information is displayed in the graphs is configured by the admin through a configuration interface.

# External Interface Requirements

## User Interfaces

Visitor Interface: This interface shall be hosted on an Android touch screen tablet that is in kiosk mode. The interface shall use full screen mode on the Chrome browser. The interface should have color to appeal to kids while keeping the touch screen interface in mind (ex. larger button size).

Admin Interface: Museum administrators shall interact with a web browser on a desktop computers that is connected to the museum wifi. It should be kept in mind that museum administrators do not have a lot of experience with computers so usability is important.

## Hardware Interfaces

The application shall run as a web application on an Android tablet. Two tablets shall be used, one for the adult survey and one for the children survey. These tablets will be installed in button-limiting enclosures inside the front lobby of the Discovery Center, so that they can be accessed as kiosks. Administrative features of the application shall be accessible through a desktop web browser.

## Software Interfaces

The survey portion of the application shall run as a web application inside a mobile web browser running on Android 4.x. Precautions will be taken within Android as to limit access to buttons and menus both within the web browser and Android.

The admin portion of the application shall be accessible from a browser on a desktop computer.

The web server portion of the application shall run on a desktop computer running Windows 7.

## Communications Interfaces

The Android tablets will communicate with the web server over a secured private wireless connection. The web application will send information to the web server over secure protocols through HTTPS.

# Other Nonfunctional Requirements

## Performance Requirements

1. The application shall be responsive within 15 ms when answering questions.