Developer Documentation

Youth Homelessness Project

Summer 2022

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# **HEY! LISTEN!**

If you don’t read anything else in the document, read the **Vision** section. This gives an idea of what we are trying to build.

# **What this Document is**

This document is designed to offer an introduction to the concepts and structure of this project. It is meant to communicate the “broad picture” of the project, its structure, what is is currently designed to do, what features it has, what features it still needs, as well as what features can be added. This document will refer to several other documents maintained alongside this document for more technical installation advice and more specific details on implementing features.

Please us this document to ascertain what we are trying to accomplish and see what we envision the end result to be. Its up to you

# **Introduction**

The Youth Homelessness project was started in the summer semester of 2022 as a Valencia college Senior project for the B.A.S Computer Technology and Software Development Degree. The Projects initial conception had it as a project which would parse data collected by a third party and build more in depth data analytics to help the City of Orlando visualize the problem. The inspiration came from a research study conducted that looked at instances of Financial disparity at Valencia in respects to comparable institutions.

The study drew the attention of the City commissioners and mayor to the instances of financial insecurity and more specifically instances of homelessness among students. The research service who provided the initial survey was unable to provide the raw data, so the project scope continued to grow to encompass not only the processing of the data, but its collection as well. Now as the summer term comes to an end and we are forced to package and analyze our project in scope and implementation, it is our hope that progress remains rapid and deployment near.

This project has an opportunity to make a difference in the lives of people just like you, and offers a frameworks for institutions across the US to use this tool to collect and build reports of their own data to combat these issues. Our hope is that this project can be used as a continuing tool to collect meaningful data and present it accurately and frequently to allow feed back in real time about resources made available. As you review this document preparing to build, work with, or use the software please do so with the vision of real change this project first started with.

-YHP Summer 2022

# Architecture

The system architecture has cleaned up from our initial design. Early on there was a mobile application to host survey taking, web portal to host administrative functions, and a DB to store everything. All reports would be built manually using an assortment of Java libraries to build graphics. Thankfully the project was narrowed down to a Java Spring Boot MVC RESTful web application which allows for any device to access the admin side of the application as well as the survey-taking and resource acquiring side. The current plan is for the project to be hosted on an AWS deployment to better manage dynamic traffic loads during times when a large group such as a college campus pushes the survey.

## Vision

The YHP goal is to provide an area for people in need (specifically college age youth) a way to access a long list of resources that will help combat that need, The information will be offered as a list of resources anyone can access at any time (This is the value added portion and the main reason people will log on.) Because every effort will be made to build an extensive list of resources, there will be a lot of information to sift through. To everyone's benefit, we solve that problem by offering a short survey to identify what resources will be a good fit for the users needs. This report will show what resources best fit the need and offer website and phone contact information to access the resource. The City of Orlando benefits by seeing what areas of need are most prevalent and see if there are state funded resources not being accessed. This will help the city by allowing more insight and feedback about the dynamic development of needs across the city by building and delivering reports.

The main objectives for this project are

1. remove barriers to participating in the survey

2. offer value to the users both survey takers and admins

3. make all resources readily available to everyone

## Pulling the Project

When pulling the project from the hosted git hub, break off of the project and start a new repository for your iteration on the project. There are several items you will need to transfer over like the issue log and any open branches pulled by team members who may not have been able to finish a feature. Feel free to start from scratch on the features or pull the branch and check the changes to continue where others have left off.

## Hosting

The Youth Homelessness Project has been set up to deploy on AWS Elastic beanstalk to better manage Dynamic load balancing, but can also be deployed locally or self hosted.

<https://aws.amazon.com/elasticbeanstalk/>

## Database

The YHP uses a MySQL database to store data collected and resources accessed by the application. The main areas of focus are the **resources** available, **questions**, and the **collected data**.

### Resources

The resources are stored in the DB These resources are there to help combat need. Good examples are food banks, shelters, housing assistance, childcare assistance, and Financial literacy resources.

### Questions

The questions currently in place were set by the YHP team, The goal was to use <50 questions (Shorter surveys are expected to receive more engagement). These Questions were sources from the original survey conducted to identify the need disparity this project seeks to address. Currently Dr. Lisa Macon is in discussion with the college board to hire a survey architect to build a better survey, however the current YHP team believes the current question set collects a manageable amount of information. As an alternative the City of Orlando may be able to hire a survey architect in the instance that the college board is unable to source one.

### Collected data

For the YHP the main focus is anonymity and security. We make every effort to not collect identifying information in the survey. The only identifying information we collect is the zip code the surveyor identifies with weather that's the zip code of the campus or the zip code of a residence.

### Legal

Legality is something that will need to be addressed near deployment. Legal notices, rights of use, non contractual agreements, Information about software used and their attribution licenses. This will be a job for the final group, but it would be beneficial to gather this information as the project progresses to make the final task easier

<https://opensource.guide/legal/>

## User interface

The UI allows Employees, Admins, and User to log in and take the survey, add resources, add questions, and build reports depending on their roles.

### Survey takers

Survey takes will be able to take a survey, access need scores and resources based on prior surveys, and access an index of resources available to anyone. Depending on how secure the City desires to keep the resources, different accounts can be shared with different groups through different campaigns or made individually.

### Employees

Employees will have access to add and remove questions and resources from the database.

### Admin

Admins are able to manage all the accounts, create new accounts, and update existing accounts

## Security

Different items are being considered for added security. The major security features implemented in this iteration of the project was Bcrypt for password storage.

### **Bcrypt**

The Passwords stored in the Database are encrypted using Bcrypt, but further action can be taken to ensure more secure storage of passwords and password management in the future.

<https://auth0.com/blog/hashing-in-action-understanding-bcrypt/>

### JWT

JSON Web Tokens is currently not implemented due to the scope of the overhaul and its relatively late addition to the working issues list. Any authentication service would be benifical, but JWT was the most ideal fit for session authentication our group identified.

<https://www.toptal.com/spring/spring-security-tutorial>

## Report building

The report building tools we used are Amazon Quicksight. This tool can be used for several things and really simplifies some of the features we are looking for. The enterprise edition allows us to do several of the key features we are looking for, but its deployment will be saved for later to reduce project costs. More details can be found in the Quicksight accompanying document

<https://docs.aws.amazon.com/quicksight/index.html>

### Building Dummy Data

There are several SQL files used to build a dummy data set to work with report building. These only focus on key features, more dummy data can be built as needed using this tool.

<https://generatedata.com/generator>

# Major Features

The summer group has closed several issues while several other are either unimplemented or only partially implemented These are the Majority of the Major features and their status.

## Good to go

- Survey question storage and survey point value calculations

- UI that allows Admins, Employees, and Users to access information and log in

- A way to graphically add questions to the DB

- A way to graphically add resources to the DB

- A method of taking the survey

- User Password Encryption

- TestNG framework implemented

## Need Improvement

- Security can always use improvement

- enable employees to view survey results

## Not yet implemented

- JWT or other session authentication service

- Legal and attribution licenses

- Quicksight report building tools

- Quicksight embedded quick-view in admin tab

- Quicksight quarterly reports to be sent out

- possibly eliminate log in requirements for survey taking