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**FUNCTIONAL SPECIFICATIONS**

**AUTHOR**

**12/16/2022**

**Version 1.0.0**

| VERSION HISTORY | | | | |
| --- | --- | --- | --- | --- |
| VERSION | APPROVED BY | REVISION DATE | DESCRIPTION OF CHANGE | AUTHOR |
| 1.0.0 |  | 12/16/2022 | Initial Document | Stefanie Centi |
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**Functional Specifications Document**

**Authorization Memorandum**

I have carefully assessed the Functional Specifications Document for the RealLeads Website and Analysis of Real Esate and Census Data for Castle County, DE.

MANAGEMENT CERTIFICATION - Please check the appropriate statement.

\_\_\_\_\_\_ The document is accepted.

\_\_\_\_\_\_ The document is accepted pending the changes noted.

\_\_\_\_\_\_ The document is not accepted.

We fully accept the changes as needed improvements and authorize initiation of work to proceed. Based on our authority and judgment, the continued operation of this system is authorized.

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NAME DATE

Project Manager

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

NAME DATE

Director

*Add other names and roles as necessary.*

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# INTRODUCTION

Provide an overview of the entire Functional Specifications Document including the purpose, scope, definitions, acronyms, abbreviations, references, etc.

## Purpose

## Reference Documents

## Abbreviations and Acronyms

## Document Conventions

# GENERAL DESCRIPTION

## Product Context

## User Classes and Characteristics

## Overview of Functional Requirements

The RealLeads Website will be designed to allow agent/brokers and potential home buyers access our analysis of real estate and census data for the county of New Castle, DE.

## Overview of Data Requirements

Data will for this site comes from a variety of sources including but not limited to:

* Multi-Listing Service (MLS) Data
* Census Data

## Operating Environment

GitHub Pages will be used to host our website to enable anyone with internet access to use it.

TODO: Q: Do we need to add a login page?

## General Constraints, Assumptions, Dependencies, Guidelines

TODO: TBD

## Design and Implementation Constraints

## User Documentation

# REQUIREMENTS

## User Interface Requirements

### User Interfaces

UI.1 All pages on the site will have the same header, footer, styling, and control panel.

UI.1.1: Control Panel Requirements

The control panel will consist of buttons that will allow users to traverse to one of the routes that will render a page in the body of the home page via a flask template. The template that will be used will depend on which button was pressed on the control pane.

UI.1.1.1: The control panel shall have a distinct background that will match the RealLeads color scheme and will be located on the left-hand side of the site.

UI.1.1.2: The control panel shall have the following buttons which will be placed vertically in a column format:

* What’s the Story?

This button will bring up our Tableau Story.

* Let us Lead the Way

This button will bring up our interactive map to the census and real estate data for the county of New Castle, DE.

* What is the Value of my Home?
* How Fast can I Sell my Home?
* Comments from Agents on Homes like Mine

This button will show our analysis of the words most often used by agents when listing homes.

* Our Team

UI.1.2: Header Requirements

UI.1.2.1 The Header shall have a jumbo header with our logo as the background image in the same color scheme for RealLeads.

UI.1.3: Footer Requirements

UI.1.3.1 The left side of the footer shall contain links to the About, Home, and Contact Us pages.

UI.1.3.2: The center of the footer shall contain the copyright, name and logo for RealLeads.

UI.1.3.3: The right side of the footer shall contain icons with links to RealLeads social media sites. The links for these icons will be added as these sites are created. For demonstration purposes these links can present a message but it is not required for this release.

UI.2: Home Page Requirements

The user shall access the RealLeads website from this page. See FR.1 for additional requirements.

TODO: determine what kind of data we want to display in the body of the home page. Do we want it to look like a dashboard like the biodiversity project with interactive charts? Which data source would we like to use?

UI.3: Button 1 Requirements

UI.4: Button 2 Requirements

UI.x: Mock-up of RealLeads Home Page

Graphical user interface

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### Hardware Interfaces

### Software Interfaces

### Communications Interfaces

## Functional Requirements

This section will be broken down by the primary building blocks on the home page.

FR.3.1 Header Requirements

FR.3.1 Control Panel Requirements

The functional requirements in this section will be broken down by the interactive elements which are currently all buttons.

FR.3.1.1 Each button shall correspond to a Flask route.

FR.3.1.2 Each flask route shall render a template of a similar name to the text of the button.

FR.3.1.3 Each template shall extend the home page and with the same footer and control panel using Flask specific command/syntax.

FR.3.1.4 The following table shows the button, route and template with a link to the functional requirements for each template:

|  |  |  |  |
| --- | --- | --- | --- |
| Control Panel Button | Route/Module Name | Template Name | Functional Requirement # |
| Button 1 | get\_story/<story\_id> | get\_story\_<story\_id>.html | F3.4 |
| Button 2 | leads\_map | leads\_map.html | F3.5 |
| Button 3 | home\_value | TBD | F3.6 |
| Button 4 | turnover\_time | TBD | F3.7 |
| Button 5 | agent\_comments | agent\_comments.html | F3.8 |
| Button 6 | our\_team | our\_team.html | F3.9 |

FR.3.3 Footer Requirements

FR.3.4 Template Requirements for tableau\_story.html

TBD

FR.3.5 Template Requirements for leads\_map.html

This template shall render a map of New Castle County, DE. The map shall have markers designating each town/subdivision/?

TODO: these can be selected by the user in the earth quack module, I need to figure out how to do them in using python or how to get the js code to render in a flask template correctly.

FR.3.6 Template Requirements for button 3

TODO:

### FR.3.7 Template Requirements for agent\_comments.html

* **Purpose / Description**

This template shall render a dashboard of graphs to tell a story about the words agents use to attract a buyer’s attention.

* **Inputs**

FR.3.7.1 Data for this template will be retrieved from our real\_leads postgresql database. The comment data will reside in the <word\_frequency> table as individual words with other pertinent data TBD. This table shall have the following structure:

| Word Frequency Table (word\_frequency) | |
| --- | --- |
| Word | Varchar<40> |
| Frequency | int |
| Lat | float |
| Lng | float |
| TBD |  |

TODO: find out if there may be other information that we need to look for in the comments that may be useful to keep with each word. For example, do we want to know the location of the home where the words were used?

* **Processing**

FR.3.7.2 The data for the word\_frequency table shall be extracted from the comments.csv(?) file and transformed into individual words. The words must have significant meaning and shall not contain any punctuation and shall be lower case.

FR.3.7.2 Other transformations may be necessary as the data is analyzed and transformed.

* **Outputs**

FR.3.7.3 Once transformed into a clean format, each word with its frequency shall be loaded into the word\_frequency table defined in FR.3.7.1.

NOTE: Either Jupyter Notebook or Pyspark may be used to extract the most important words out of the comments section that are in the file <comment\_file\_name>.csv. See “Module 8: ETL – Extract, Transform, Load” for details on parsing and transforming the comments data.

FR.3.8 Template Requirements for button 5

TODO:

### Template for functional requirements

* **purpose / description**
* **inputs**
* **processing**
* **outputs**

## Performance Requirements

## Security

## Usability

## Other Requirements

1. Analysis Models

List any attached / referenced documentation such as data flow diagrams, class diagrams, state-transition diagrams, entity-relationship diagrams, etc.

| ANALYSIS MODELS | | |
| --- | --- | --- |
| DOCUMENT NAME | DESCRIPTION | LOCATION |
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1. Issues List

Detail any unresolved issues.

| ISSUES LIST | | |
| --- | --- | --- |
| ISSUE ID | ISSUE DESCRIPTION | STATUS |
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