# Student Portal Application Documentation

## Overview

This application is a desktop GUI program built with PyQt5 that allows users to query and download site data from the SCWMP database. The GUI was built with PyQt5 designer program and all functionality was built in python. The application currently allows the user the download data in a csv format from a specific site based upon a start and end date.

## Core Components

### Main Application Structure

* Uses PyQt5 for the GUI interface
* Implements a stacked widget system for navigation between screens
* Consists of three main screens:
  + Welcome Screen
  + Site Lookup Screen
  + Data download screen

### Welcome Screen (WelcomeScreen class)

* Serves as the main entry point of the application
* Provides two main options:
  + Check Sites: Navigate to site lookup functionality
  + Download Data: Navigate to data download functionality

### Site Lookup Screen (SiteLookupScreen class)

* Dropdown menu populated with available site names
* Site selection dropdown
* File type selection based on available data
* Two download options

### Data Download Screen (DownloadScreen class)

* Facilitates downloading data and metadata based on user-specified parameters.
* Calendar widget for selecting start and end dates.
* Dropdown menus for selecting the site and file type.
* Buttons for downloading site metadata and data files.

### Login Screen (LoginScreen class)

* Main screen when starting the program
* Used to capture the username and passwords of user
* Only links to the main screen

### Classes and Methods main.py

* resource\_path:
  + returns the absolute path to a .ui file
  + takes in the relative path
  + used in all the classes
* WelcomeScreen
  + \_\_init\_\_: Initializes the screen, sets up UI elements, and connects buttons to methods.
  + gotositelookup: Navigates to the site lookup screen.
  + gotodownload: Navigates to the download screen.
  + gotologin: Navigates to the login screen.
* DownloadScreen
  + \_\_init\_\_: Initializes the screen, sets up UI elements, and connects actions to methods.
  + sitedatadownload: Downloads site metadata and exports it as a CSV.
  + tablesearch: Queries database for file types and updates dropdown.
  + setfile: Sets the selected file type.
  + download\_data: Downloads data based on selected site and date range and exports it as a CSV.
  + setsite: Sets the selected site.
  + gobacktowelcomescreen: Navigates back to the welcome screen.
  + date\_selected: Handles date selection for start and end dates.
* SiteLookupScreen
  + \_\_init\_\_: Initializes the screen, sets up UI elements, and connects actions to methods.
  + gobacktowelcomescreen: Navigates back to the welcome screen.
  + checksites: Checks if a site exists in the database and displays a result.
  + activated: Placeholder for actions triggered when dropdown is activated.
  + text\_changed: Placeholder for actions triggered when dropdown text changes.
  + index\_changed: Placeholder for actions triggered when dropdown index changes.
* LoginScreen
  + \_\_init\_\_: Initializes the screen, sets up UI elements, and connects actions to methods.
  + getunameandpassword: Handles login by validating username and password.
  + gobacktowelcomescreen: Navigates back to the welcome screen.

### Methods siteQuerys.py

* loadsites: Fetches the list of sites from the database.
* sitequery: Queries the database for a specific site.
* filetype: Retrieves available file types for a given site and date range.
* datadownload: Fetches data for a given site, date range, and file type.
* siteDesUnitsQuery: Retrieves metadata and unit descriptions for a specific site.
* latAndLong: Fetches latitude and longitude for a specific site.
* login: Validates username and hashed password against the database.

### Pyinstaller

To make the exe pyinstaller is used. One thing to note is that the absolute path to the ui file is needed when making the exe. Here is the command to run pyinstaller on my computer, it will be different for yours:

pyinstaller --onefile --windowed --hidden-import PyQt5 --add-data "C:\Users\klyell\Documents\Projects\user\_interface\field\_telemetry\test2\welcomescreen.ui;." --add-data "C:\Users\klyell\Documents\Projects\user\_interface\field\_telemetry\test2\downloadscreen.ui;." --add-data "C:\Users\klyell\Documents\Projects\user\_interface\field\_telemetry\test2\loginscreen.ui;." --add-data "C:\Users\klyell\Documents\Projects\user\_interface\field\_telemetry\test2\sitelookup.ui;." main.py