# CS 340 README

## About the Project/Project Title

This project is a dashboard for Grazioso Salvare, accessing the Animal Shelter database as per their specifications.

## Motivation

This project is intended to make it easier for Animal Shelter staff to look up (read) records within the Animal Shelter database. This should make the process of looking up existing animals easier, as database records can be accessed through human-readable prompts, with no knowledge of database languages necessary.

## Getting Started

## Installation

This project relies on Python and Jupyter Notebooks. To install Python, visit this link <https://www.python.org/downloads/>

Instructions for installing Jupyter Notebooks are available at https://jupyter.org/install

## Usage

## Main DashboardA picture containing graphical user interface Description automatically generated

### Search for Water Rescue animals specified by Grazioso SalvareTable Description automatically generated - Search for Mountain / Wilderness Rescue animals specified by Grazioso Salvare Graphical user interface, table Description automatically generated

### Search forDisaster Rescue / Individual Training animals specified by Grazioso SalvareTable Description automatically generated

* **Describe the tools used to achieve this functionality and a rationale for why these tools were used.**

**The tools used for this project are as follows:**

* + Python – This programming language was chosen for its ease of use and common industry application. <https://www.python.org/>
  + MongoDB – This fast, lightweight database language was chosen for its speed, flexibility and ease of use. It was also chosen for its interfacing abilities with Python. PyMongo allows for the development of Python code which can directly interface with MongoDB databases. <https://www.mongodb.com/>
  + Jupyter / Dash – The use of Jupyter Dash applications was chosen for its ease of use in developing applications. Jupyter applications can be run multiple times in a row without creating new servers or instances, which makes checking work much easier. <https://jupyter.org/>
  + Plotly / Dash - Dash is a lightweight JS framework which has preset components for drawing graphs and maps through Plotly, which were used in this project. <https://plotly.com/>
* **Explain the steps that were taken to complete the project.**
  + The first step was importing the required components, such as Dash, Plotly, PyMongo, Pandas, and NumPy.
  + Then, I set up the connection to the AnimalShelter database with the relevant credentials.
  + Using the code provided by the client, I was able to create a DataFrame, which stored the records from the database.
  + Then, I created filters to sort the DataFrame according to client specifications.
  + After this, I set up a map to draw the location of the selected row.
  + Last, I set up a pie chart to show the quantity of each breed being shown at any time.
* **Identify any challenges that were encountered and explain how those challenges were overcome.**
  + **One of the biggest challenges is the rendering of the map. Using jupyter\_dash instead of jupyter\_plotly\_dash fixed this problem.**

## Contact

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