**Project Name:** Field Day Flex

Field Day Flex is a scientific tool that allows the creator to customize their interface to meet their data collection needs. The tool will allow the creator to add new projects in which they can add different subjects of study, ranging from plants and animals to volcanoes and constellations. Each study subject is fully customizable, allowing the user to choose what data will be measured. Data entry fields for each study subject are also customizable, allowing the creator to define available choices in a dropdown menu or allow free entry using a text box. Field day flex can also generate unique identifiers for entries within a study subject for a wide range of use cases.  
  
The figure 1.0 below defines the structure of the document-based database that supports the customizable functionality of Field Day Flex.

A diagram of a software project

Description automatically generated

Figure 1.0: Document-based database design.

The root of the database consists of a collection of projects that are created by users. The creator of a project will be an admin listed in a field contained therein. The admin will have the ability to add other admins or contributors to the project. Each project contains a collection of tabs, each of which map to a desired study subject the creator wishes to measure. Each tab has a name which will be displayed in the UI, a Boolean value that determines if the creator wants the app to generate unique codes automatically, the definition of the possible toe codes based on their dimension, forbidden codes that won’t be generated, and a map array that defines the data columns and their method of entry. Then each entry contains a map array of name-data pairs.

The map array in each tab document will be able to determine if the creator wants a text entry method for a data value or a dropdown selector. If a column\_name is associated with an empty string array, then it will be assumed that column will have a text entry interface. If the array is not empty, then what it contains will be displayed in the dropdown menu when entering data.

The identifier\_dimension attribute will allow the user to map the generated toe codes to their study subject. For instance, a lizard that will be identified with toe clippings has 4 feet and 5 toes per foot. The corresponding identifier\_dimension would be [4, 5] which would map to a combination (not permutation) that allows [A-D, 1-5]. This system will allow creators flexibility in how they choose to identify their study subjects.

The forbidden codes will be an entry option for the creator to prevent the code generator from producing codes that include the forbidden codes (for example C4 or D4 with lizard toe codes).