**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.

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 project

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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 a creator listed in a field contained therein. The creator will have the ability to add 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 codes based on their dimension, a list of unwanted codes, a Boolean to determine if unwanted codes can be incorporated into the generation by request, 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 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 unwanted 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). If utilize\_unwanted is True, then the user is allowed to enter a code that includes the unwanted codes, and the generator will incorporate it into its output.

Figure 2.0 below shows what a user sees when viewing a project they are a member of.

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Figure 2.0: Project display page.

The UI includes a button to create a new project, a + tab to add study subjects to the current project, buttons to add and manage columns in the data table, and a hamburger menu to manage project and user settings. Only admins/owners will be allowed to add to and manage data table columns and add new tabs, but anyone can make a new entry or create a new project.

Figure 3.0 below shows the contents of the hamburger menu.

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Figure 3.0: Hamburger menu.

The hamburger menu consists of interface options that allow the user to manage their account, leave projects they are members of, or manage the current project (if they are an owner).

Figure 4.0 below shows the Manage Project interface, which allows an owner to change the project name, add contributors and admins to the project, and manage members of the project. Contributors and Administrators are added using their email address.

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Figure 4.0: Manage Project.

Figure 5.0 below shows the Manage Account interface, which allows the user to edit their name, email address, and password.

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Figure 5.0: Manage Account.

Figure 6.0 below shows the Memberships interface, which allows the user to leave a project that they are a member of.

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Figure 6.0: Membership Management.

Figure 7.0 below shows the interface of Field Day Flex when the user is not a member of any project. The user may create their own project or wait until an owner adds them to a project. If the user is a member of some project, this page won’t show.

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Figure 7.0: Landing page for memberless user.

Figure 8.0 below shows the interface for creating a new project. The creator is able to name the project and add contributors and administrators if they already know their email addresses.

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Figure 8.0: Create new project.

Figure 9.0 below shows the landing page if the user is the creator of the current project, but the project does not have any study subject tabs created yet. When a tab exists for a project, this page won’t show.

A computer screen shot of a computer screen

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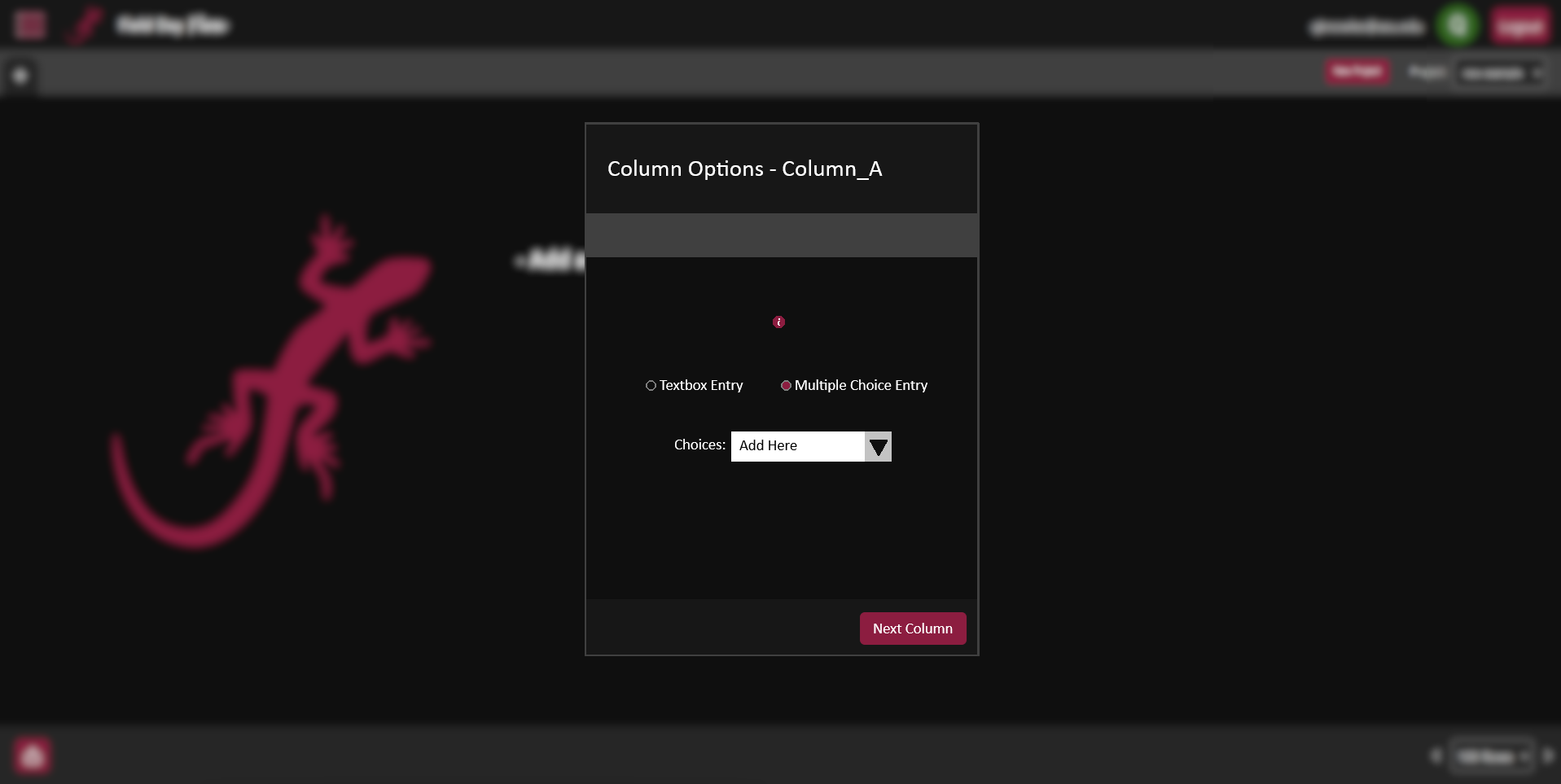
Figure 9.0: Project with no study subjects.

Figure 10.0 below shows the interface that allows the admins/owners to add a new study subject tab to the project. The study subject will have a name, column names, and an option to have the ability to generate unique identifying codes for each entry. The next step button takes the user through each provided column name to set up the entry options for that column.

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Figure 10.0: Add new study subject.



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