SOFTWARE USER MANUAL

Software

Download
The database user interface tool can be found on github under the sequential_circuits_exploration folder. To access it, clone the project using the following command:

git clone https://github.com/igemsoftware2021/TEC_COSTA_RICA

Once cloned, install numpy since it is required by the software. You will also need to install MongoDB and have it running to run the application.

Execute

Add the src folder path to the PYTHONPATH environment variable, and run one of the example files inside the examples folder. Make sure to modify the connection port to the mongodb in the file you are testing.

User Interface

Download
The database user interface tool can be found on github under the database_visualization folder. To access it, clone the project using the following command:

git clone https://github.com/igemsoftware2021/TEC_COSTA_RICA

Execute
To execute the project move to the database_visualization project and execute the following command:

node server.js

By default this will host the application at http://localhost:8081/ you should get the interface on your browser. The port can be adjusted in the server.js file

The application is using dummy data to facilitate testing without connecting to the mongo database. it takes data from dummy_circuit.json, dummy_data.json and dummy_filtered.json. You can introduce the data exported from mongodb directly into these files to visualize it.

Use

In the user interface, all of the circuits are shown as nodes or vertices of a graph. Each node can be selected to show different information related to it.

The menu on the right shows the circuit´s ID, which can then be matched to the rest of the database, the list of parts, each with the corresponding index (position in the sequence starting from 0), orientation (forward or reverse strand), type (promoter, terminator, gene, etc), and whether it is a coding part or not. For the parts that get expressed, the promoter(s) that enables the transcription is linked.

The filter panel includes a text field button to change the names of the parts of the specific selected circuit. The user types the default name of the part they want to change and the new name they want to give it.

Another text field button allows the user to filter the circuits based on the inclusion of defined parts, the number of times they are present, the position in the circuit, and a drop-down for whether each is expressed or not. However, every parameter is optional.