Take Home Assessment

**Instructions and Guidelines:**

* You are free to use visualization tools like Power BI, Tableau etc. You can also code them using Python/R packages and submit the code.
* Please answer the questions below and submit this back along with the code/tableau workbook.
* Please find the dataset attached for this assessment.
* If you have any questions, please email to **Karan Dave (kdave@greenlightbio.com).**

**Data:**

|  |  |
| --- | --- |
| ***Column*** | ***Description*** |
| Experiment ID | Unique Identifier for the Experiment |
| Experiment Name | Name of the Experiment |
| Sample Type | Control and Sample are different sample type of Sequence |
| Source | Source of the Sequence |
| Sample ID | Unique Identifier for the Sample |
| Sequence ID | Name of the Sequence |
| Concentration | Concentration of the experiment |
| Metric | Metric collected during experiment |
| Time Point | Day on which metric was collected |
| Value | Value of the Metric |

**Questions:**

Q1) Build visualization plots for the following:

* Make a plot to show the number of samples in each experiment.
* Sequence ids vs mortality % (For one time Point & 1000.00ng/ul)
* For Day 6, plot the sequences which showed greater > 50% mortality at 1000.00ng/ul.

Q2) How did you aggregated the percent mortality for sequences across multiple experiments?

I averaged per sequence ID.

Q3) Dashboard setup questions:

* How would you make this dashboard available to stakeholders?

I would publish the dashboard and share the link to everyone or connect to Tableau Server where the dashboard could be published and then alert via email or message that it is posted.

* How would you connect the dashboard to a database and ensure that the dashboard is updated automatically?

In Tableau, you can embed the password and credentials to the database when publishing to the Tableau Server and set up schedules for auto-refreshing of an extract. You can also use a REST API where you can set up a personal access token and query Tableau to find the information to build specific refresh requests. This can also be used to automate the manual refresh process and you can write a program that runs the code when triggered by a certain event, for example, a data update to the database.

* How would you work with stakeholders/end-users to develop dashboards and make best use of them?

I would ask to see examples of dashboards that they like and work with the stakeholders on specific graph styles, colors, fonts, etc. I would ask for feedback and look for ways to improve the dashboards if something needs to be added or changed. The main goal is to create a functional dashboard that is meaningful to the end-user and I would find a way to make it work.