## **Title: Pull Request Data Visualization**

## **Description**

User wants to get data visualization about an open-source project’s health and sustainability metrics concerning GitHub pull-requests.

User inputs query parameters for REST API and receives response schema.

**Triggers**

1. User wants to get data visualization about an open-source projects health and sustainability metrics.
2. Data scientist wants to produce graphs that illustrate various metrics of data from various open-source projects. This may aid them in data analysis and presenting their results clearly to both technical and business audiences, the scientific community, and the general public.
3. Student wants to compare the GitHub pull-request metrics for a few different open-source projects using visualizations to aid in their consideration of which project to work on in the future (is project healthy, likely to sustain itself, etc.)
4. Open-source foundation wants to promote and influence the health of the open-source community as a whole.
5. Researcher wants to gather information about current open-source projects that are in use in major commercial software and determine the health and security metrics to determine if they should be used in the future or switched to healthier projects providing similar usability.

**Actors**

1. Data scientist
2. Researcher
3. Student
4. Open-source foundation

## **Preconditions**

## Data exists in Database

1. Graphic Software
2. Server connection stability
3. User interest to view and/or compare pull-request metric visualizations

## **Main Success Scenario (Goals)**

## User can download a generated visualization which may be used for public release, scientific presentation, a blog post, etc.

1. User is able to determine from a list of three projects, that they want to work on project two because of the comparison of pull-request metrics from the generated visualization.
2. The health and activity of the community of several important open-source projects may be compared and tracked by looking at pull request data visualizations that were taken at intervals over periods of time.
3. User can decide on the practicality of different commercial software based off the trends observed regarding health and security.

## **Failed End Condition**

1. Insufficient or no data to generate any visualization
2. Request times out
3. Data is too similar in the metric that user is attempting to compare, so no meaningful conclusion can be drawn.

## **Extensions**

1. Compare metrics between input data using generated visualization

## **Steps of Execution (Requirements)**

1. User provides URL to one or more GitHub repositories, and query parameters if needed/desired
2. Metrics are computed
3. Graphing API is called, and the generated visualization(s) are displayed to the user
4. User has the option to save/download the generated visualization(s)

## **Use Case Diagram**Inserting image...

## **Dependent Use Cases**

N/A

**Reference(s)**

Use Case template and examples in Module 3 of the MUSoftwareEngineering/CS-4320 GitHub repository <https://github.com/MUSoftwareEngineering/CS-4320/tree/main/03-requirements/exercises>

Visualizations from Augur API documentation <https://oss-augur.readthedocs.io/en/main/rest-api/api.html#tag/visualizations>