
GSoC'21 Project Blog

Release 1.0.0

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CONTENTS

1	Week 1 (June 7 - June 13)	3
2	Week 2 (June 14 - June 20)	5
3	Week 3 (June 21 - June 27)	7
4	Week 4 (June 28 - July 4)	9
5	Week 5 (July 5 - July 11)	11
6	Week 6 (July 12 - July 18)	13
7	Week 7 (July 19 - July 25)	15
8	Week 8 (July 26 - August 1)	17
9	Week 9 (August 2 - August 8)	19
10	Week 10 (August 9 - August 15)	21
11	Important Links	23

Project: **Measure the Quality of CerebUnit Validation Tests**

Hi!, I would begin with Thanking You for your time to read about my stuff for **GSoC 2021 @ INCF**. Google Summer of Code (GSoC) is a great opportunity for students to meet with professionals from diverse communities and backgrounds with a chance to work and flourish under their guidance as a mentee.



Fig. 1: *Fig. Google Summer of Code*

I am **Harsh Khilawala**, Sophomore at *Charotar University of Science and Technology (CHARUSAT), India*. I would be contributing on the Project: **Measure the Quality of CerebUnit's Validation Tests**. Also have great interest in the field of **Research** in the domains not limited to *AI/ML, Neural Networks, Web Semantics*.

WEEK 1 (JUNE 7 - JUNE 13)

- Initial interaction with the mentor.
- Learn more about the project.
- Discussed mode of communication and its frequency.
- Discussed approaching the project during the initial phase.

WEEK 2 (JUNE 14 - JUNE 20)

- Learn Docker and containerization.
- Setting up the project locally.
- Learn about agile methodologies.
- Learn about Behavior Driven Development.
- Learn about Test Driven Development.

WEEK 3 (JUNE 21 - JUNE 27)

- Fixing issues faced during local installation of project due to dependencies issue (wild goose hunt along with the mentor to fix the bug !).
- Running the validation test against sample data.
- Get idea about the results obtained from validation.
- Learn basic concepts of Statistics and Hypothesis Testing.
- Discussed possible approach with mentor to measure quality of validation tests. (Didn't work)

WEEK 4 (JUNE 28 - JULY 4)

- Make small changes in sample data.
- Observe and analyse the change in results obtained from validation tests.
- Develop Python script to generate set of JSON files with mock data generated at random.

WEEK 5 (JULY 5 - JULY 11)

- Running the validation tests against the generated mock data.
- Calculate the relative error percentage for result obtained from each mock data file.
- Store the results obtained from validation tests in tabular format.
- Prepare a document for storing the table containing stats and error percentage.

WEEK 6 (JULY 12 - JULY 18)

- Running validation tests against different set of mock data values.
- Keep track of all the results obtained in tabular format.
- Approach to obtain outcomes like True Positives, False Positives, True Negatives and False Negatives theoretically.
- Theoretical Calculation of Specificity, Sensitivity, Negative Predictive Value and Positive Predictive Value from the obtained outcomes.

WEEK 7 (JULY 19 - JULY 25)

- Improve code efficiency by eliminating the redundant member variables.
- Improvising code to change the class methods for MockData class to static methods.
- Modified TestMetrics class to entirely have class instance methods instance of seperate kind of methods.

WEEK 8 (JULY 26 - AUGUST 1)

- Work on Documentation for some of methods for MockData class using ReStructuredText.
- Work on Documentation for some of methods for TestMetrics class using ReStructuredText.
- Make some minor changes in code as in context to user experience.

WEEK 9 (AUGUST 2 - AUGUST 8)

- Complete Documentation for MockData Class.
- Complete Documentation for TestMetrics Class.
- Project Presentation to the community (Mentor and his working group).
- Build the documentation with the help of Sphinx.

WEEK 10 (AUGUST 9 - AUGUST 15)

- Get the documentation up and working with Sphinx.
- Improve code and documentation as in context for better user experience.
- Prepare blog for sharing the GSoC journey in Weekly accomplishments.
- Update the Final report.

IMPORTANT LINKS

- Link to Project Repository: [CerebStats](#)
- Link to the PR which includes contributions made during GSoC'21: [Pull Request](#)
- Link to CerebStats Documentation: [CerebStats Documentation](#)
- Link to GSoC'21 Project Report: [Project Report](#)
- **Link to Data Tables generated from the results obtained by running validation tests against varying mock data:**
 - [Data Table 1](#)
 - [Data Table 2](#)
 - [Data Table 3](#)
 - [Data Table 4](#)
- Link to Table for Theoretical calculation of various metrics: [Metrics Table](#)