# Description of the Information System Product and its comparison to existing systems

- **Description:**

A web application that can allow users to enter their usernames and generate a detailed analysis on their GitHub behavior.

The application will make API calls to the GitHub API endpoints, extract user information on repositories, commits, etc., and then perform calculations and further analysis based on the response received, and display the analysis result in a visualized format to the users.

The application will automate the analysis tasks and generate new insights based on existing data, making information more accessible for users.

- **Comparison:**

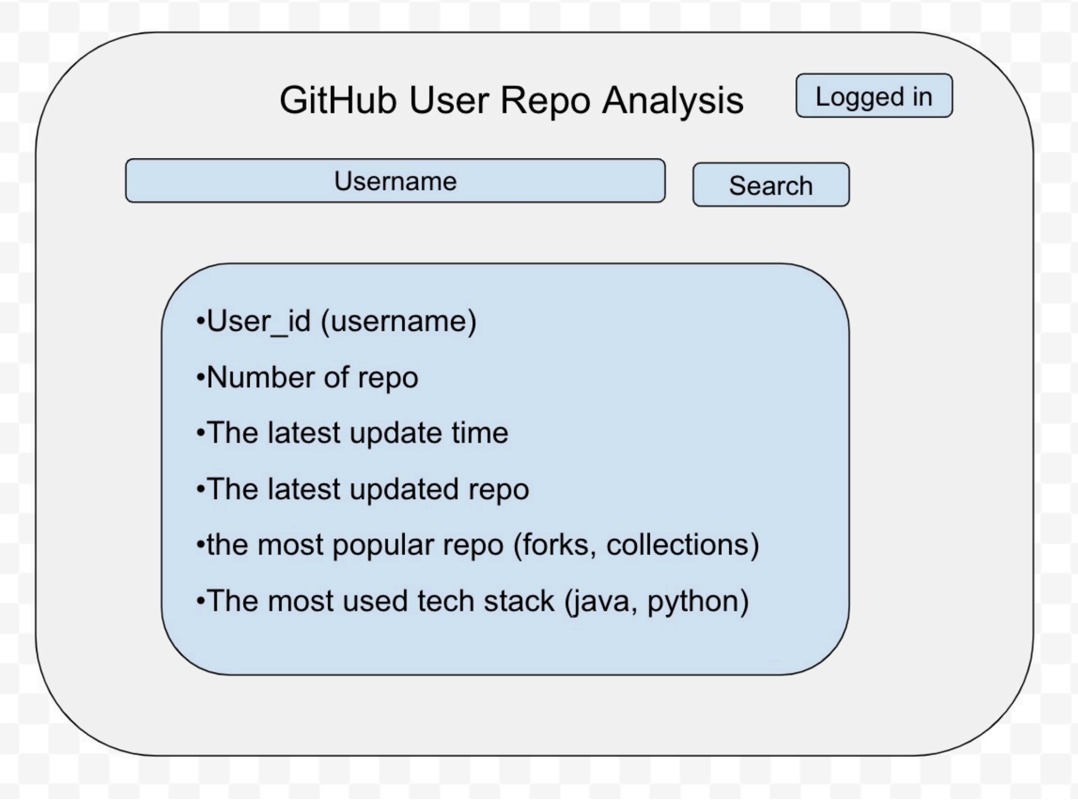
The existing GitHub endpoints only provide general information such as ‘listing the repositories of a user.’ However, further analysis can be  performed on these information to generate deeper insights on a user.

Moreover, users need to be familiar with API technologies in order to retrieve information from the GitHub endpoints.

This application can automate the tasks of information retrieval and make information and new insights about GitHub users more accessible to everyone.

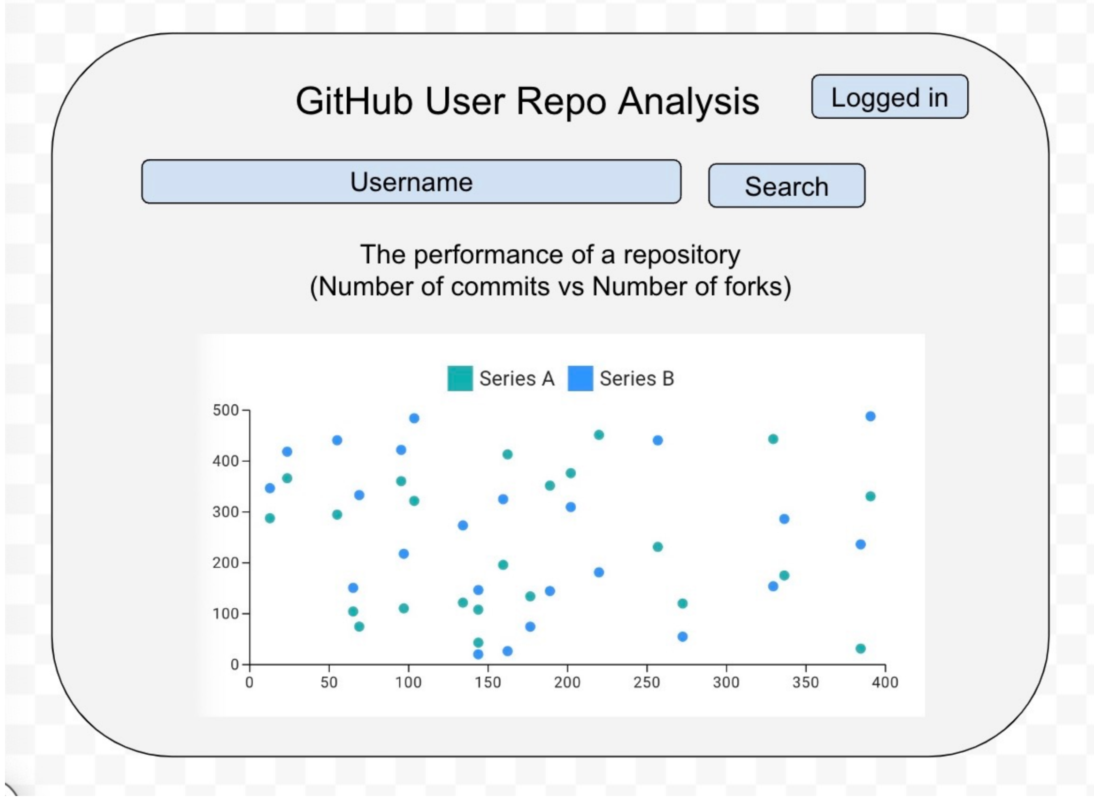
# Information wireframes

Information extracted from GitHub API endpoints



- User_id (username)
- Number of repo
- The latest update time
- The latest updated repo
- the most popular repo (forks, collections)
- The most used tech stack (java, python)

New insights generated from the information extracted



The performance of a repository
(Number of commits vs Number of forks)

# Description of main concepts

- Controlled vocab list

| Accepted term | Variant terms | Meaning |
|---|---|---|
| name | No variant terms seen yet | The name of the repository |
| description | | The description of the repository |
| language | | The main language used in the repository |
| forks_count | | The number of forks of the repository |
| stargazers_count | | The number of star gazers of the repository |
| created_at | | The creation time of the repository |
| updated_at | | The recent update time of the repository |
| Total_popularity_score | None | Calcualted based on information retrieved from the GitHub endpoint. This can  be calculated based on the forks_count and stargazers_count to measure how popular a repository is |
| Age_of_repository | None | Calcualted based on information retrieved from the GitHub endpoint. By calculating the difference between ‘updated_at’ and ‘created_at’, we can measure how long the repository has been active |

# Basic Architecture for System

**Information structure:**

1. Repo information extracted from GitHub API endpoints

e.g.

- name of the repo

- number of commits of that repo

- creation and update time of the repo

2. Repo analysis derived from information extracted from the API

e.g.

- name of the repo
- Total popularity score of the repo (calculated)
- Age of repository (calculated)

**Hosting:**

Localhost/Cloud hosting/Netlify

**Technologies:**

Frontend:

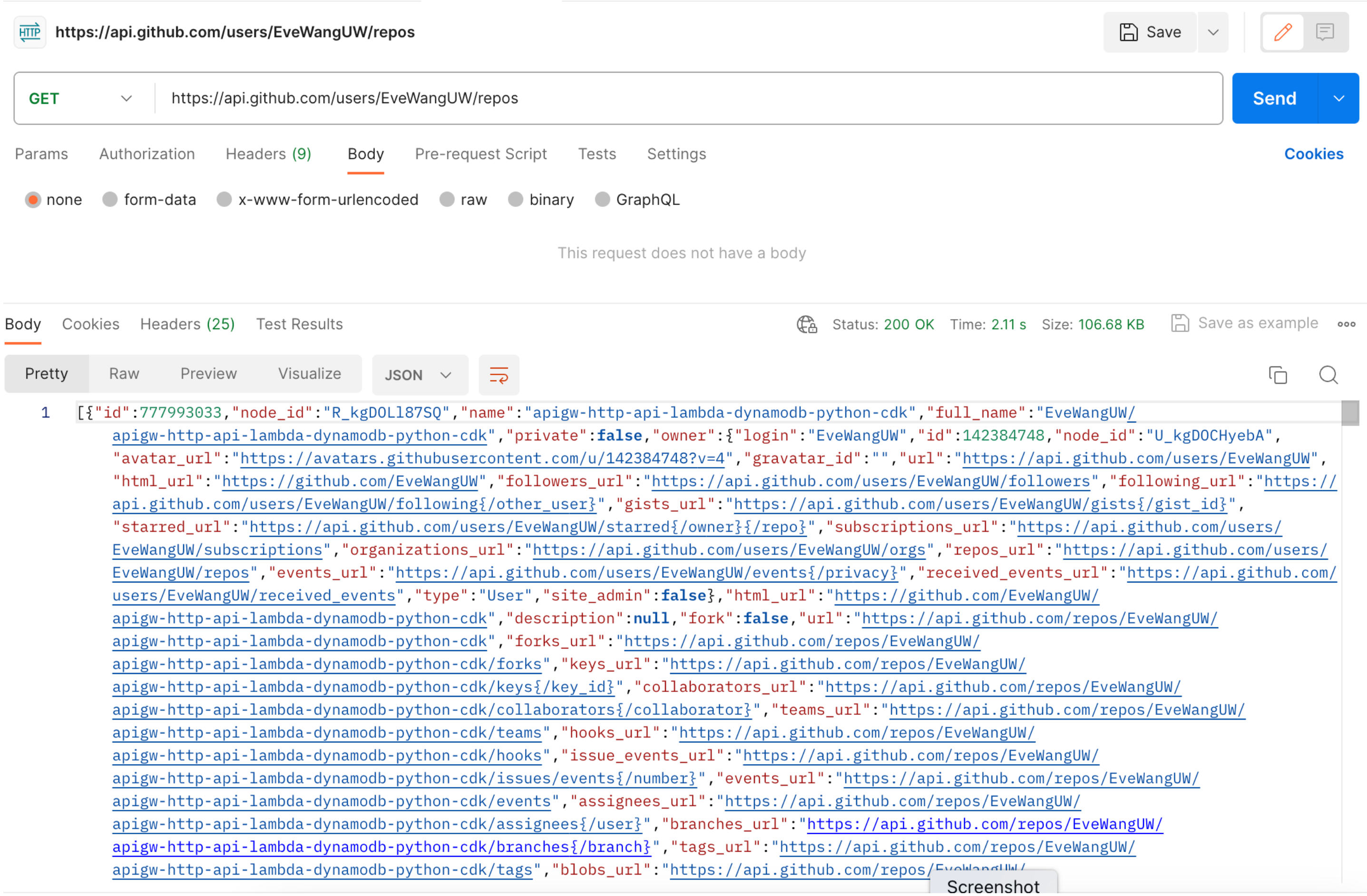
React & TypeScript, Material UI

Backend (if needed):

Java & SpringBoot / Python & Flask

# Other: current progress on API calls

## Get GitHub User's Public Repos



https://api.github.com/users/EveWangUW/repos

GET https://api.github.com/users/EveWangUW/repos Send

● none ○ form-data ○ x-www-form-urlencoded ○ raw ○ binary ○ GraphQL

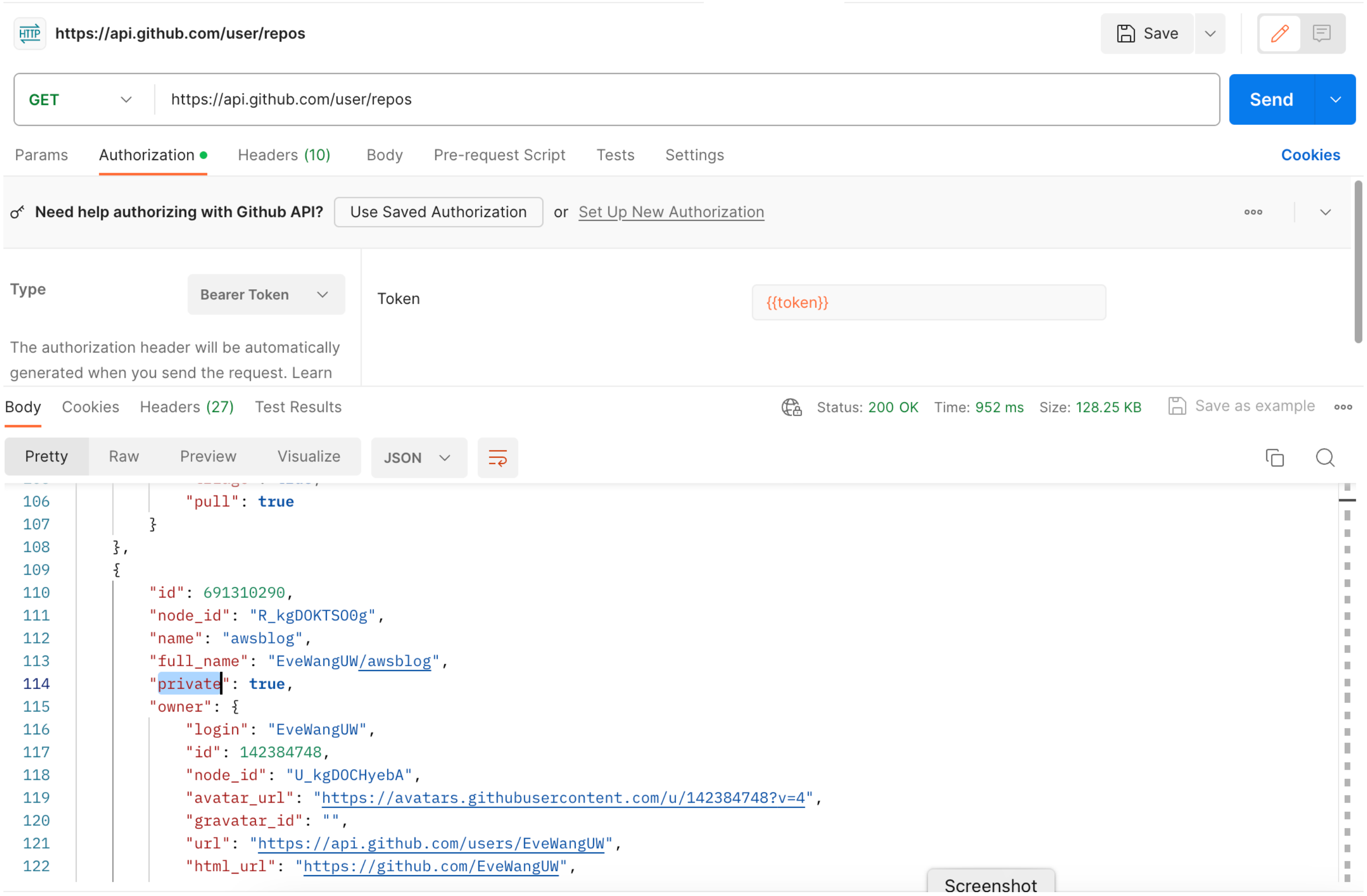
This request does not have a body

Status: 200 OK Time: 2.11 s Size: 106.68 KB

```
[{"id":777993033,"node_id":"R_kgDOL187SQ","name":"apigw-http-api-lambda-dynamodb-python-cdk","full_name":"EveWangUW/
    apigw-http-api-lambda-dynamodb-python-cdk","private":false,"owner":{"login":"EveWangUW","id":142384748,"node_id":"U_kgDOCHyebA",
    "avatar_url":"https://avatars.githubusercontent.com/u/142384748?v=4","gravatar_id":"","url":"https://api.github.com/users/EveWangUW",
    "html_url":"https://github.com/EveWangUW","followers_url":"https://api.github.com/users/EveWangUW/followers","following_url":"https://
    api.github.com/users/EveWangUW/following{/other_user}","gists_url":"https://api.github.com/users/EveWangUW/gists{/gist_id}",
    "starred_url":"https://api.github.com/users/EveWangUW/starred{/owner}{/repo}","subscriptions_url":"https://api.github.com/users/
    EveWangUW/subscriptions","organizations_url":"https://api.github.com/users/EveWangUW/orgs","repos_url":"https://api.github.com/users/
    EveWangUW/repos","events_url":"https://api.github.com/users/EveWangUW/events{/privacy}","received_events_url":"https://api.github.com/
    users/EveWangUW/received_events","type":"User","site_admin":false},"html_url":"https://github.com/EveWangUW/
    apigw-http-api-lambda-dynamodb-python-cdk","description":null,"fork":false,"url":"https://api.github.com/repos/EveWangUW/
    apigw-http-api-lambda-dynamodb-python-cdk","forks_url":"https://api.github.com/repos/EveWangUW/
    apigw-http-api-lambda-dynamodb-python-cdk/forks","keys_url":"https://api.github.com/repos/EveWangUW/
    apigw-http-api-lambda-dynamodb-python-cdk/keys{/key_id}","collaborators_url":"https://api.github.com/repos/EveWangUW/
    apigw-http-api-lambda-dynamodb-python-cdk/collaborators{/collaborator}","teams_url":"https://api.github.com/repos/EveWangUW/
    apigw-http-api-lambda-dynamodb-python-cdk/teams","hooks_url":"https://api.github.com/repos/EveWangUW/
    apigw-http-api-lambda-dynamodb-python-cdk/hooks","issue_events_url":"https://api.github.com/repos/EveWangUW/
    apigw-http-api-lambda-dynamodb-python-cdk/issues/events{/number}","events_url":"https://api.github.com/repos/EveWangUW/
    apigw-http-api-lambda-dynamodb-python-cdk/events","assignees_url":"https://api.github.com/repos/EveWangUW/
    apigw-http-api-lambda-dynamodb-python-cdk/assignees{/user}","branches_url":"https://api.github.com/repos/EveWangUW/
    apigw-http-api-lambda-dynamodb-python-cdk/branches{/branch}","tags_url":"https://api.github.com/repos/EveWangUW/
    apigw-http-api-lambda-dynamodb-python-cdk/tags","blobs_url":"https://api.github.com/repos/EveWangUW/
```

# Other: current progress on API calls

## Get GitHub User's Public and Private Repos



https://api.github.com/user/repos

GET https://api.github.com/user/repos

Need help authorizing with Github API?

Type Bearer Token

Token {{token}}

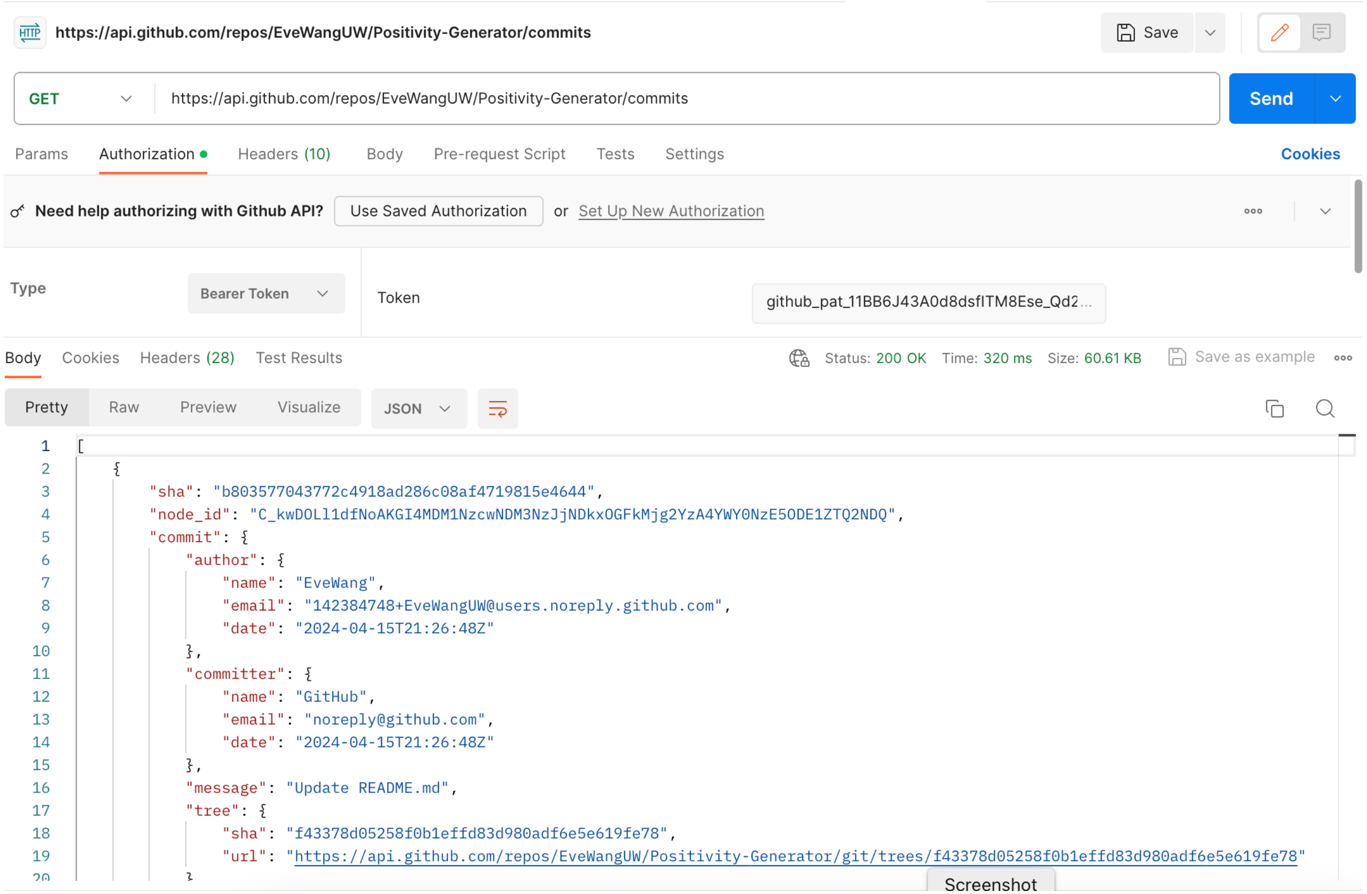
The authorization header will be automatically generated when you send the request. Learn

Status: 200 OK Time: 952 ms Size: 128.25 KB

```
            "pull": true
        }
    },
    {
        "id": 691310290,
        "node_id": "R_kgDOKTSO0g",
        "name": "awsblog",
        "full_name": "EveWangUW/awsblog",
        "private": true,
        "owner": {
            "login": "EveWangUW",
            "id": 142384748,
            "node_id": "U_kgDOCHyebA",
            "avatar_url": "https://avatars.githubusercontent.com/u/142384748?v=4",
            "gravatar_id": "",
            "url": "https://api.github.com/users/EveWangUW",
            "html_url": "https://github.com/EveWangUW",
```

# Other: current progress on API calls

## List GitHub Commits from Repo



https://api.github.com/repos/EveWangUW/Positivity-Generator/commits

GET https://api.github.com/repos/EveWangUW/Positivity-Generator/commits

Need help authorizing with Github API?

Type: Bearer Token

Token: github_pat_11BB6J43A0d8dsfITM8Ese_Qd2...

Status: 200 OK Time: 320 ms Size: 60.61 KB

```
[
    {
        "sha": "b803577043772c4918ad286c08af4719815e4644",
        "node_id": "C_kwDOLl1dfNoAKGI4MDM1NzcwNDM3NzJjNDkxOGFkMjg2YzA4YWY0NzE5ODE1ZTQ2NDQ",
        "commit": {
            "author": {
                "name": "EveWang",
                "email": "142384748+EveWangUW@users.noreply.github.com",
                "date": "2024-04-15T21:26:48Z"
            },
            "committer": {
                "name": "GitHub",
                "email": "noreply@github.com",
                "date": "2024-04-15T21:26:48Z"
            },
            "message": "Update README.md",
            "tree": {
                "sha": "f43378d05258f0b1effd83d980adf6e5e619fe78",
                "url": "https://api.github.com/repos/EveWangUW/Positivity-Generator/git/trees/f43378d05258f0b1effd83d980adf6e5e619fe78"
            }
```