

# Technical Exercise

## Question

Find the most active contributors to the OpenStack Nova project.

## Solution

A script has been written in Python and attached as a part of this submission to process the commits in the Git repository of the OpenStack Nova project (located here: <https://github.com/openstack/nova>).

## Executing the Python script

### Prerequisites

- This script relies on the GitHub access token for authentication. Before you run the script, login to your GitHub account, navigate to settings then developer settings and generate a token if you do not already have one.
- Install the following libraries: NumPy, Pandas, Matplotlib, PyGithub.

### Executing in Terminal

- Create a python virtual environment.
- Download the python script into a folder and navigate to the folder in a terminal.
- Open a code editor e.g., VS Code and run the python script using,  
*python mostActiveGitRepoContrib.py*

### Executing in Jupyter Notebook

- Open the python script in a text editor and copy the contents into a running notebook environment.
- Paste the script and run the notebook cell containing the script.

### After executing the script

Upon executing the script from either the Terminal or Jupyter notebook, you will be prompted to supply some information.

- Enter the access token when requested.
- Enter the repository in the requested format.
- Enter the number of top active contributors you are looking to view.
- Wait for processing to complete and a bar chart containing the requested information will be displayed.

## Result and Observation

A horizontal bar chart showing the top 15 most active contributors is shown in Figure 1 below. Activeness was determined by the number of commits in the specified time frame. There are 1491 total commits in the repository from April 16, 2020 to April 16, 2021 and the following observations were made after processing the commits: Not all commits in the repository have an author; Only 727 of 1491 commits have authors; Every commit with an author had login data populated; Not all commits with authors and logins have names; Only 710 commits with authors and logins have names; Two-third of contributions in the last 12 months were made by 4 authors.

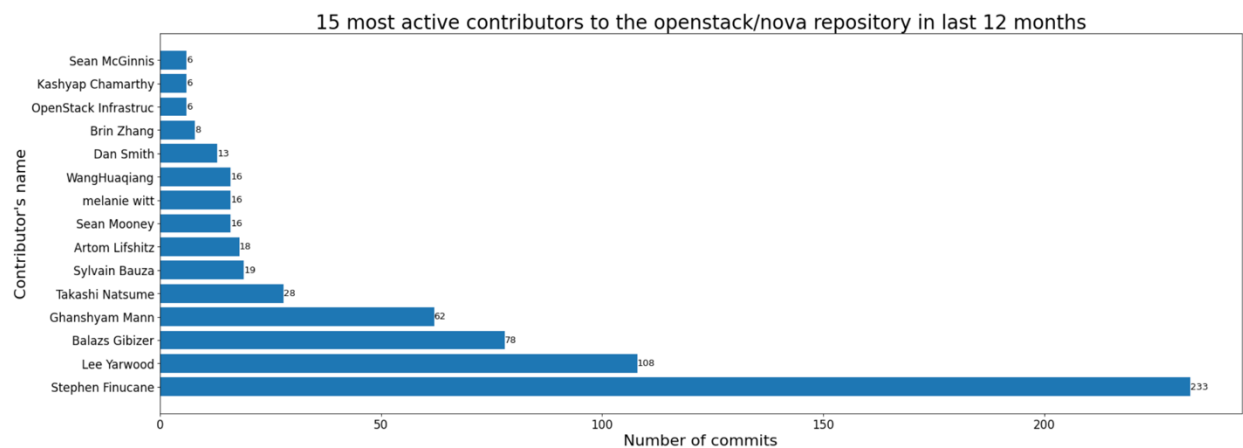


Figure 1: Horizontal bar chart showing the names of the 15 most active contributors in the Openstack Nova project in the last twelve months