Visualisation User Guide

Introduction

Stackoverflow is an online site where developers of all experience levels go to ask questions and share answers about technologies, tools and other matters related to software. For a student of Information Technology such as ourselves, Stackoverflow is a valuable resource that we often take for granted. As such, we built Awesomeness Overflow, a web application that consist of visualizations that help us understand what technologies are used together, as well as how user contribution patterns differ across the community.

Setting Up

Pre-requisites

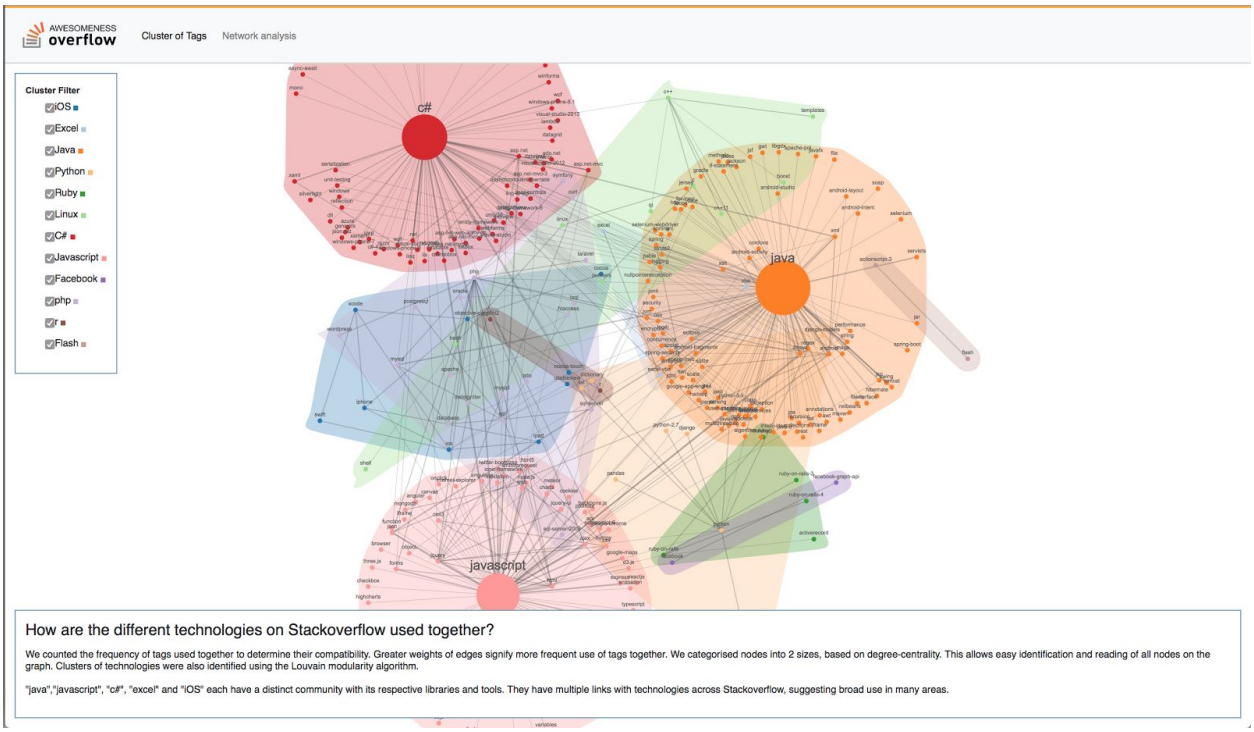
You should have the latest version of node.js installed.

Instructions

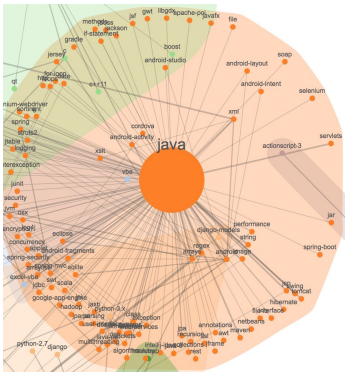
1. Unzip the project folder and navigate the webapp.
2. Install the project dependencies by typing in npm install in the terminal or command prompt.
3. Start the nodejs server by typing in npm start in the terminal or command prompt.
4. Open your browser and navigate to localhost:3000/

Cluster of Tags

On the homepage is the first visualisation that describes which groups of technologies are used together. There is a checkbox filter on the left-hand side of the screen, which allows the user to show or hide any one of the twelve communities shown in the visualization. The controls are fixed in place, allowing the user to drag the graph anywhere in the screen and zoom in and out of the visualization.

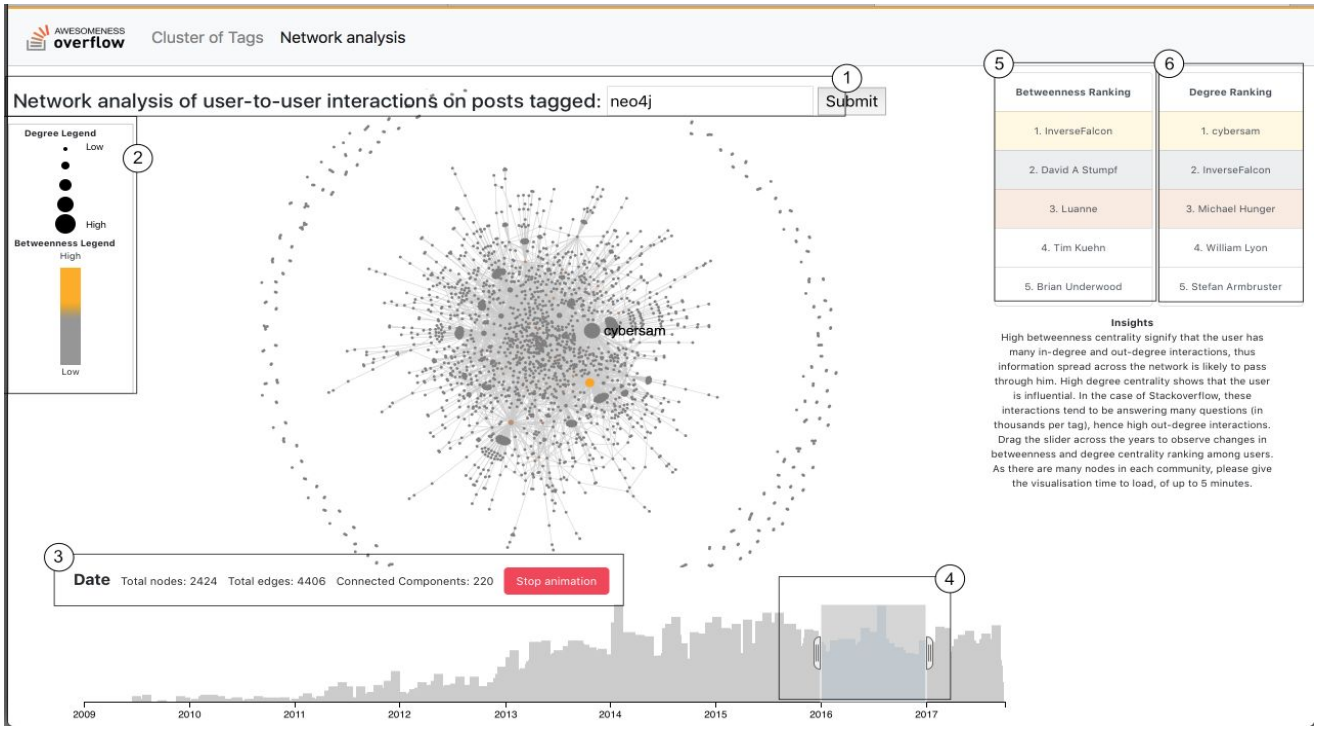


Each node on the visualization represents a tag on Stackoverflow (“javascript”, “C#”, etc), while each edge represents an existing post that any two tags were tagged on. The length of the edge connecting any two tags is determined by the number of posts where the two tags were tagged on – the longer the edge, the higher the number of posts the two tags share, and vice-versa.



Network Analysis of each Stackoverflow Community

The second visualization can be located by clicking “Network Analysis” on the Header of the site. This visualization describes the user-to-user interactions within each community (each tag has its own community). The different components available to the user are as follows:



1. Textbox for searching tags
    - Users can use the search feature to look for different communities to visualize.
2. Legend
    - The legend is located at the left hand side of the screen. The size of each circle to indicates the degree of each node and the color of each node to indicate the betweenness centrality metric.
3. Number of nodes, edges and component label, Stop Animation button.
    - In addition to the main visualisation, the user is able to view basic metrics about the graph, such as the size (total nodes), number of edges and total connected components.
    - The stop animation button allows the user to permanently stop the force atlas layout at any point in time. This is especially useful for small graphs.
4. Barchart/Date slider
    - This control consists of two parts. 1) A barchart that shows the number of user interactions over the years. 2) A brush control, that allows the user to slide along the X axis of the barchart as well as change the size of the brush that will change

the graph acordingly. Note that the resultant graph is an aggregate across the selected time period.

5. Top-5 Betweenness ranking
    - This table shows the top 5 individuals in terms of betweeness centrality sorted in descending order
6. Top-5 Degree ranking
    - This table shows the top 5 individuals in terms of degree centrality sorted in descending order.