



How to Discover Twitter Friendship through REST API

Importance of Online Social Network

Social networking has exploded over the last decade bringing a new aspect to the Internet experience:

- People find use in communicating with friends and family
- Businesses find value in the ad data obtained from users
- Research institutions, like ASU, study information in collected data regarding user relationship and interactions to understand how people interaction in online communities



Purpose of Project

- To understand the business model of different type of online social networks
- To investigate approaches of collecting large scale online social network dataset and implement a tool to utilize Twitter's REST API to collect user's friendship information
- To provide a visual representation of the Twitter friendship

REST API Approaches

Web Browser

- Twitter's REST API can be used simply through URL requests in a web browser.
- Requests are counted towards the rate limit the public facing IP.
- Maximum limit for unauthenticated requests is set to 150 per hour.

Twitter OAuth

- Twitter's OAuth gives out tokens to registered applications.
- Requests are counted towards the token's rate limit.
- Maximum limit for OAuth requests is set to 350 per hour.

Twitter REST API Architecture

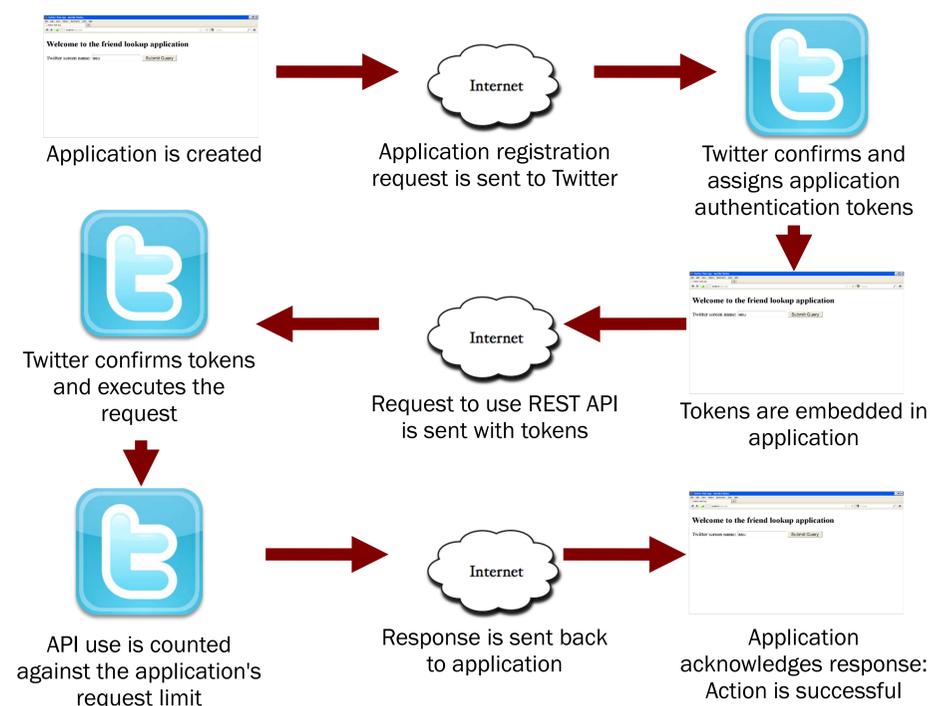


Figure 1: Twitter REST API Architecture

Figure 1 illustrates the Twitter REST API design philosophy and steps to issue requests. Twitter REST API provides an application program interface embedded in the application along with tokens for authentication. Once the application is registered with Twitter, it is assigned tokens that can be used to increase the rate limit per hour from 150 to 350 request. In our tool, the application is implemented with php.

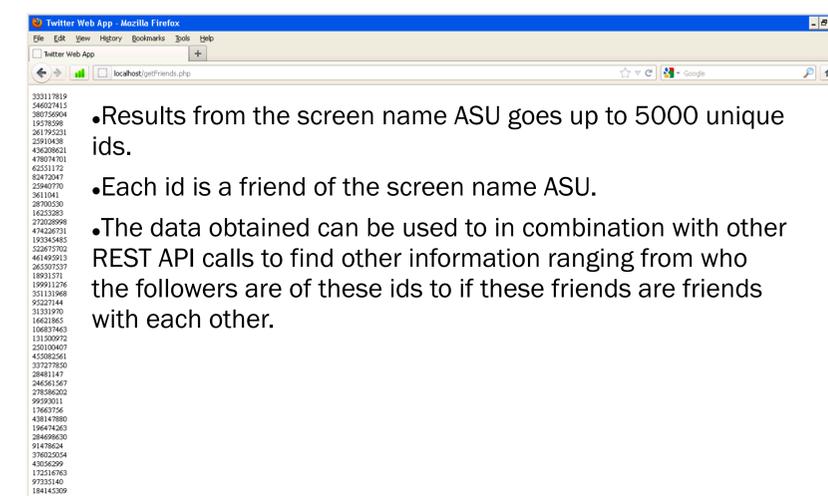
Application Files

- **Data.txt**
Contains the friend list output from the input screen name.
- **GetFriends.php**
Holds the functions for retrieving and interpreting the get friends request from Twitter.
- **Index.php**
The main page that prompts user for screen name input.
- **Oauth.php**
The authentication code written to communicate with Twitter.
- **TwitterOAuth.php**
The php functions used along with Twitter's OAuth for authenticated requests to Twitter.

Twitter Web Application



Application Results Screen Name Input: ASU



- Results from the screen name ASU goes up to 5000 unique ids.
- Each id is a friend of the screen name ASU.
- The data obtained can be used to in combination with other REST API calls to find other information ranging from who the followers are of these ids to if these friends are friends with each other.

Conclusion

- Twitter's REST API is a powerful tool to use embedded in a web application. It allows developers to gather information to be used in any way imaginable.
- In this project, I developed a web-based tool to collect friendship relations with Twitter REST API calls after researching PHP scripting and Twitter's REST API architecture.
- I plan can expand the tool to efficiently gather dataset in larger scale from Twitter. The data gathered is valuable to support online social network research.