

ASSIGNMENT I (CS 8803 Social Computing)

Due date	11:59pm, September 14
Topic	Propose the design and implementation of a tool that would give real-time notifications of “trending topics” based on the users you follow on Twitter
What to hand in?	3 page report, with a mockup of what the tool will look like
How/where to submit?	T-Square
Grade	10%; 2% extra credit for proposing novel implementation/visualization technique (see below)

Question: Current social media tools like Twitter are good at showing the current “worldwide” trending topics, and even let you filter them based on geographical regions. However, most users belong to one or more niche communities, and there is currently very limited ways in which they can derive real time information about those niche topics from their friends and contacts on social media. **This assignment requires you to propose the design and implementation of a tool that would reveal such real-time, ego-centric network focused trending topical updates to a user. Note that I do not expect you to actually implement the tool and have it working, but you should demonstrate in writing, how you may do so.**

Consider the following two use cases to frame your ideas:

- a) Alice, for instance, follows Bob, Charlie, and David on Twitter because she is interested in photography, and Bob, Charlie, and David are all good photographer who share photography content and tips and tricks on social media. However Alice is not a frequent Twitter user, and often misses what Bob, Charlie, and David are posting on Twitter. How can we help Alice with a tool that shows her if photography is trending in her feed, i.e., whether Bob, Charlie, and David are posting a lot of content about photography in her feed at some point in time?
- b) Alice doesn't live in California, but has many people she follows, who live in the Silicon Valley and bay area: Bob, Charlie, and David are three of them. Her Twitter trending topic was set to “worldwide”, so she had no idea about the recent earthquake that happened there. Bob, Charlie, and David all had shared content on their Twitter feeds immediately after the earthquake using the hashtag (#CAearthquake), however Alice missed seeing those postings, and the manner in which the rest of her social network was engaging with Bob, Charlie, and David about conversations regarding the quake. How could we design a tool that would float up this highly discussed/trending hashtag in her personal Twitter feed, so that she would not miss it next time something like that happens?

Contents of the report:

Section 1 (Main idea): How will the tool work? For instance, will be a smartphone application, a website they can visit, or an added feature on Twitter? You will need to rationalize your choice of any of these. How will the user interact with it? For instance, will the user have to open the application every time, or it will show a notification at the top every so many minutes, or will it send a “digest” or a “report” as an email or a text message every so many hours, with the trending topic information?

Section2 (Method): What do you need to do to get access to your friends' posts? This will involve you writing about how you will use the official Twitter and Facebook APIs to get this information. Next you would need

to discuss how you identify trending topics. There are three ways to go about this: (1) you detect only hashtag mentions in your friends' feeds, and if the frequency is above a certain threshold, then you flag it as a trending topic (#CAearthquake example above); (2) the user, time to time, or at the set up time of the app, supplies a set of topics (typically words) they are interesting in, and for which they would like to know when trending; so over time you detect mentions of those words in their friends' tweets (photography example above); and (3) you come up with your own idea how you would determine trending topics (see the reference papers at the end of the document, if interested). Students who choose (3) will get 1% extra credit. For any of the three approaches you adopt, you need to justify in your report why this will work, as well as the potential limitations of the particular approach. This section also will need to describe how frequently the tool will "refresh" the trending topics, and how frequently you will have to collect your friends' data to 'refresh' trending topics.

Section 3 (Design process): In this last section you will justify why you chose the particular design you show in the mockup, e.g., how your tool will visualize the trending topics. The simplest option will be to show a list of topics, however students will get 1% extra credit if they propose interesting non-list ways to present the information to the end user. Other aspects you should discuss here are: (1) Will your tool allow people to click on a trending topic? If so, will it lead to a page where they can see which friends are talking about it? (2) Will it allow people to directly respond to these friends on the trending topic? (3) Can the user know which trending topics are more discussed than others?

Mockup: Using your favorite graphics editor (it can be something as simple as a power point slide saved as a picture), show how your tool's user interface will look like. It should show the various buttons and should have sample content to show (e.g., sample trending topics; you can get creative there!). If there are clicks involved, where the user is directed to a different view, you should include mockups of those pages/views as well. It does not have to be "beautiful", but should come out as something someone could prototype and use.

References

- [1] Becker, H., Naaman, M., & Gravano, L. (2011). Beyond Trending Topics: Real-World Event Identification on Twitter. *ICWSM*, 11, 438-441.
- [2] Osborne, M., Petrovic, S., McCreadie, R., Macdonald, C., & Ounis, I. (2012). Bieber no more: First story detection using Twitter and Wikipedia. In *Proceedings of the Workshop on Time-aware Information Access. TALA* (Vol. 12).
- [3] Nichols, J., Mahmud, J., & Drews, C. (2012). Summarizing sporting events using twitter. In *Proceedings of the 2012 ACM international conference on Intelligent User Interfaces* (pp. 189-198). ACM.
- [4] Hu, Y., Farnham, S. D., & Monroy-Hernández, A. (2013). Whoo. ly: Facilitating information seeking for hyperlocal communities using social media. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 3481-3490). ACM.