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## Real-Time Twitter Sentiment toward Midterm Exams

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### ABSTRACT

Twitter is the most popular microblogging service today, with millions of its users posting short messages (tweets) everyday. This huge amount of user-generated content contains rich factual and subjective information ideal for computational analysis. Current research findings suggest that Twitter data could be utilized to gain accurate public sentiment on various topics and events. With help of Twitter Stream API, we collected 260,749 tweets on the subject of midterm exams from students on Twitter for two consecutive weeks (Oct 17-Oct 30, 2011). Our aim was to investigate the real-time Twitter sentiment on midterm exams by hour, day, and week for these two weeks, using a sentiment predictor built from an opinion lexicon augmented for this specific domain. At different levels of temporal granularity, our analysis revealed the variation of sentiment. The average sentiment of the first week (Oct 17-23) was more negative than the second week (Oct 24-30). For both weeks, the overall trend curves of sentiment increased from Monday to Sunday. For each weekday, there was a period around 9:00 am-5:00 pm EST that had maximum sentiment. On each weekend, the sentiment values during a day reached their maximum between 5:00 am to 8:00 am, and then decreased after 8:00am. Furthermore, we observed some consistent group behavior of Twitter users based on seemingly random behavior of each individual. The lowest number of tweets always occurred around 5:00 am-6:00 am each day, and the maximum number was around 1:00 pm except Sunday. The minimum of tweet lengths happened usually around 9:00 am and the maximum length was around 4:00 am everyday. Twitter users with positive sentiment appeared to have more friends and followers than those carrying negative sentiment. Also, users who shared the same sentiment inclined to have similar ratios of friends and followers, which is not true for general users.

### KEYWORDS

Twitter; Sentiment; Midterm Exam; Opinion; Lexicon; Social Media

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