Clarification regarding the "follows/friendship" relation:

- The term "friends" is misleading in the context of twitter, as it is (usually) a symmetric relation
- For all purposes of the exercise, "X is my friend" means "I follow X"
- So if B is my friend, it means I follow B (and want to see B's tweets in my timeline), not necessarily that I'm also B's "friend", i.e., B does not necessarily follow me, and does not necessarily want to see my tweets

Until the new year

- **Finish** your first implementation of the timeline query
  - Reminder: Timeline != my tweets; Timeline == the 40 newest tweets of my "friends"
  - Each Timeline query thus returns at most 40 tweets (not 40 for each of my "friends")
  - Your implementation should return the queried data as JSON (see next slide for an example)
- **Measure** with **3 different database sizes** (100, 1000, 10000 users), as far as possible
- **Measure** your import time (setup_db.py's output for each step is enough)
- **Think** (and present about) how to improve your read times (mainly via denormalization), **keeping in mind** that we later want to distribute our database
- **Prepare** 2-3 Slides about your implementation of the main query, your measurements, and ideas for improvement or even distribution
- The reference implementation might give you some ideas

Output

- The exact form is not important, as the workload driver does not check correctness
- We just want to measure semi-realistic query answers
- The reference implementation returns the 40 newest tweets with their timestamp and username of the “friend” that tweeted it (this is also the reason for the third join in the reference implementation, it needs to join friend ids to their respective usernames)

Example Output Format


```
{
 "tweets": [
  [
   "Tue, 17 Dec 2013 15:59:48 GMT",
   "user_2584",
   "ysQOHn_mAE-RjR6YOfYOf21XWPkMa2iPGj3IHHAvmLZiCZogq5Lxq3I_HI9i"
  ],
  [
   "Tue, 17 Dec 2013 11:21:33 GMT",
   "user_2584",
   "AbCErqTUWqC1RMqnzPGYjc3ZTXz9YstFilm0__LX"
  ],
  [
   "Tue, 17 Dec 2013 09:09:30 GMT",
   "user_8766",
   "pE3x0B6_ykfiBwTXCLw6k1ZG0tRfCB0WYwg84Ygmb7yqfCT5pLIFiHeTirs1rsXg2QRA1bnpzwSqTqZ_"
  ],
```