

This assignment gives you a chance to reflect on the places you've been and the routes you've taken. It's also your first opportunity to explore your personal informatics data in this class.

1 Instructions

1.1 Collect location data over two weeks

You will be collecting two weeks of location data over two weeks to do this assignment. Since this assignment is also two weeks long, you should do this as soon as possible once the assignment is released. If you have location data from before, you can use that to supplement the data you are collecting to help you answer the questions.

- If you have an Android, check that your location is being saved to Google Location History, and also set up GPSLogger [<https://play.google.com/store/apps/details?id=com.mendhak.gpslogger>] which is an open source tool that does more fine-grained location capture.
- If you have iOS, install Moves, and separately also follow the instructions from Google (google them!) for setting up location tracking to Google Location History—it requires a couple more steps compared to Android, so double check that your data is appearing online.

You're double-tracking your location because 1) you get things in different formats, each of which is easier to work with in different situations 2) Google Location History partially uses passive tracking which benefits when another app is tracking location. If your phone does not last a full day while doing location tracking, ask Jeff to borrow a portable charger.

During class, we'll talk about the different types of geolocation methods (GPS vs wifi/cell networks), and accuracy of the data.

1.2 Data-driven thinking

Once you start having even a bit of data, we'll start thinking more precisely about location data and what it can be used for. By this I mean defining concepts like places and trips from a data perspective, in a clear enough way that someone should be able to write code to replace the definition (but you don't have to write any code).

Question 1: You might want to ask yourself, “What places do I visit most frequently?” To answer that, you'd first have to define **what is a place?** Look at your location data. Can you tell from the raw text data what a “place” is? How would you define it? One definition of a place that does not work is 'points with the same latitude and longitude', and you should see why from the data.

Question 2: **What is a trip?** Again, look at your location data. Try the visualizer and conversion tools at <http://www.gpsvisualizer.com/>. Basically, how would a computer program know what is a trip just from the timestamped longitude/latitude points? Is there a definition for “trip” you could use that would let you compare trips? What would taking the “same” trip look like in the data? For example, how would you find your regular commutes from the data?

Question 3: **How fast were you going at different times?** Knowing this could tell you how many miles you walked, drove, biked, or flew. This is where the simple physics equation of distance over time doesn’t work quite right. Location data is not perfect, and you’ll need to come up with a smarter, more tolerant definition for computing speed.

After answering these questions yourself, try finding flaws in your definitions. Can you come up with a counterexample that fits your definition, but doesn’t mean what it should? For example, is your definition of a trip still valid if someone goes on vacation in another country, or is doing a bus tour? If so, then you’ll want to tweak your definition of a place, trip, or speed.

1.3 Location data as a digital memory

We’re going to explore some questions about familiarity and location as digital memories. You should do this part near the end of the data collection, once you have most of your location data. Take a sample of longitude/latitude coordinates from near the beginning of the two weeks. Enter the coordinates into Google Street View or Bing Streetside to get a first-person perspective of those places. Do those places look familiar? What do you remember differently if anything?

Use a location exploration tool to examine your location data from a new perspective. Try <http://v.isits.in>, Rewind (contact April [phuc.anh.tran@brown.edu] and Eda [edabingol@gmail.com] for a Rewind session), and <https://theopolis.me/location-history-visualizer/>.

Based on your definitions in the previous part of this assignment, explore places and trips/routes that you visited frequently—are you more likely to remember those places? Is anything surprising about those places, like did you notice something that you don’t when walking the same route every day? Finally, think about what you’d want to keep as digital artifacts: the maps of routes, street photos of places, or just the raw data; are any of those worth preserving to you? Would you ever want to go back and revisit that data?

2 Show & Tell and Grading

Feb 25 and Mar 1 are the show & tell days. Bring your notes to class answering these questions and any other useful materials you may want to share. We’ll randomly pick 9 students to share (3–4 minutes each) each day (so finish this assignment before the Feb 25 class).

Hand in your notes (in paper) afterwards. The show & tell will be graded, but if you left something out, Jeff will use your notes to fill the gaps. This assignment is worth 10 points.