**Problem Set # 5**

**Monday:**

1. Starbucks wants to evaluate whether their mobile pay solutions are having a positive impact on customer service. Outline how they might collect data to answer this question using:

A. An Observational Study: This data collection method would give Starbucks an immediate, direct line of information that is not influenced by anything. Observing customers in their natural setting will provide the rawest data, but could give us a unique insight other collections may not.

B. Focus Groups: Focus groups typically consist of a small amount of demographically diverse people who are studied based on reactional responses, opinions, beliefs, and perceptions. This small group could provide Starbucks with a good amount of honest data concerning their mobile pay solutions.

C. An Online Survey: This online survey will be cost effective way of gauging the interest and effectiveness of the current mobile pay solutions. They could ask both qualitative and quantitative questions in this survey.

Be sure to identify what the procedure would look like, what data you would obtain, and what questions you could answer using this data.

2. In 2014, Facebook conducted their infamous Emotional Contagion study where they manipulated users' newsfeeds to contain differing amounts of positive and negative content. Name the (a) research question, (b) independent variables, and (c) dependent variables that Facebook used in this study.

a) Research Question: Can we manipulate a user’s mood on Facebook based on previously perceived content on their feed?

b) Independent Variable: News feed content

c) Dependent Variable: User moods

3. What kind of data collection strategies would you use to:

A. Determine user perceptions of a social media campaign: An online survey would be ideal for this situation given the broad scope of targeted audience. A social media campaign could stretch across large demographics, and to reach a large amount of this demographic we administer a survey.

B. Assess the effectiveness of a web redesign: A focus group would be best for this situation because we are wanting opinions, perceptions, and personal experiences using the new web redesign. A small focus group allows us to gain in depth information on a diverse demographic.

C. Decide whether the next iPhone will live up to its hype (and turn a profit) For this, I feel like documents and records of previous iPhone sales would best determine if the new one will live up to its hype. Because of brand loyalty and the inherent interest in these products, the previous iPhone sales would help us understand how the new one will sell.

Be certain to provide a sufficient justification for why you feel this method is correct.

4. For the three scenarios above, describe how you would conduct each investigation (i.e., not only the type of method, but what question would you answer, what procedure would you use, what kind of data would you collect, and how would you analyze that data to answer your question).

A. Question: Based on survey results, how do users perceive the new social media campaign? We would collect both qualitative and qualitative data based on these results and gain a rough idea of how users feel towards our campaign.

B. Question: How does a small demographically diverse group use our new web redesign, and how do they like it? This data would give us mostly personal experiences and opinions, and would useful for user interface tweaks and understanding how costumers use the new features.

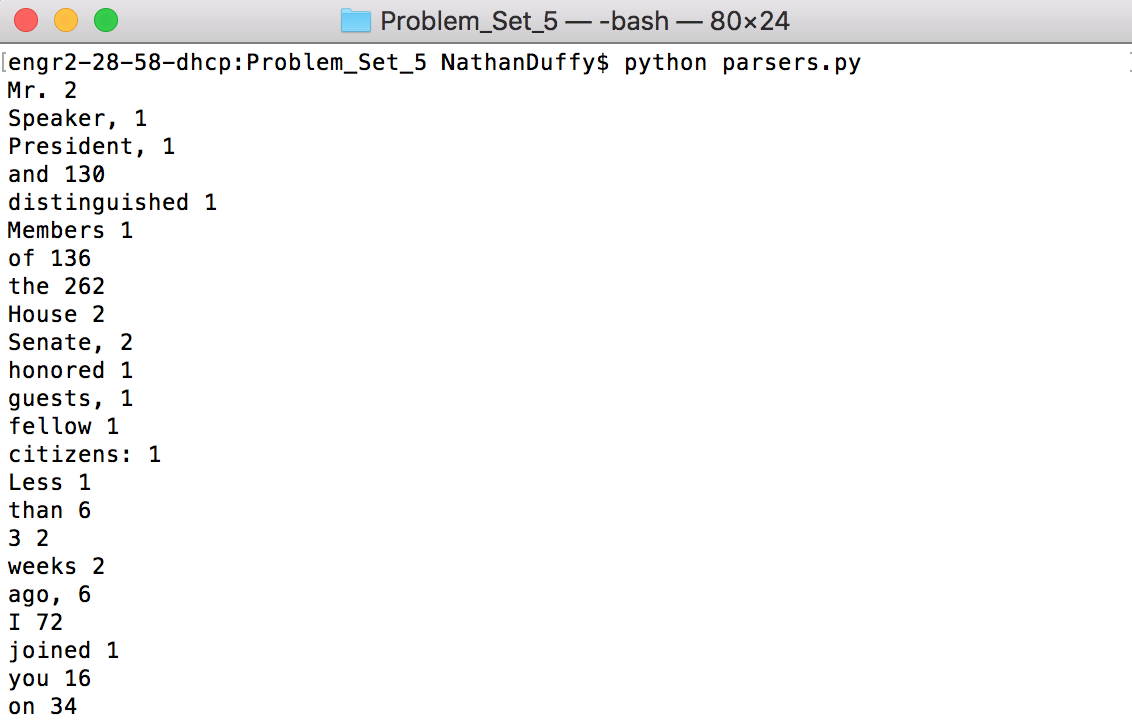
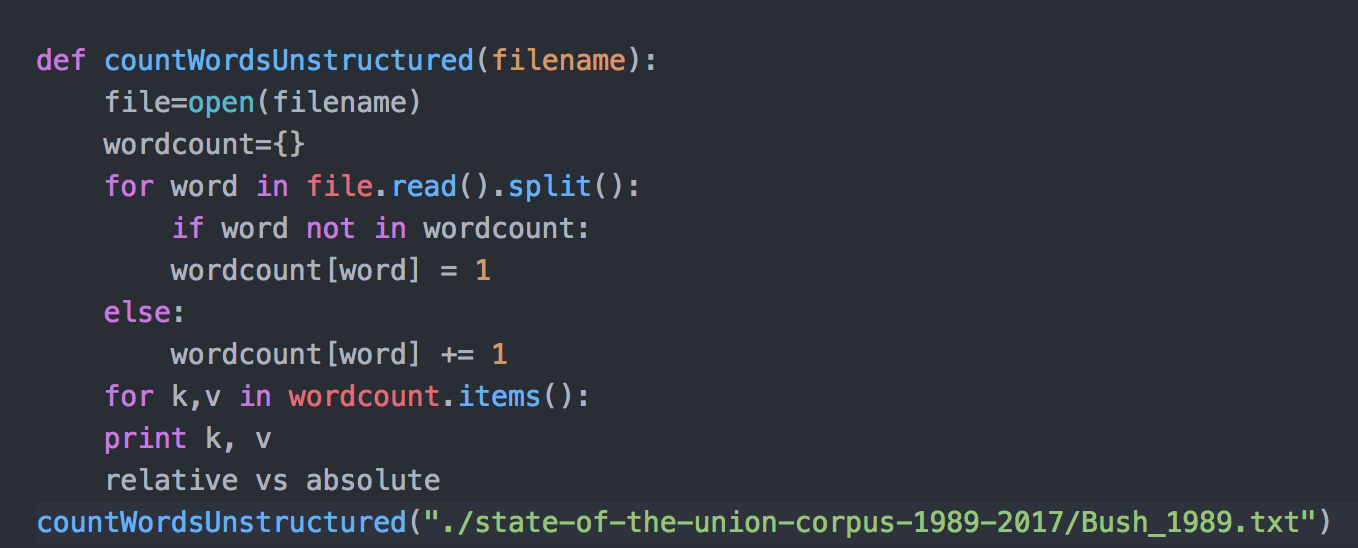
C. Question: How will the new iPhone sell based off of previous iPhone sales? Through this study we would gain quantitative sales data on past iPhone and use this to infer or predict the new iPhone sales.

5. Describe how you might use data fusion to determine how the location people are in influences the ways they communicate with others. Assume you have full access to data from all technologies that a person may be carrying with them or that may be embedded in the environment.

In this scenario, it would be ideal to gain phone records, and do a focus group. The phone records would provide us with the quantitative data to understand where people are when they are communicating with each other. Then, the focus group would give us personal accounts into how a demographically diverse group of people communication based on location. Combining these data would give us a convincing demographic visual and personal experiences to answer our question.

**Friday:**

6. Format Parsing: Use the skeleton code in Problem\_Set\_5.zip to construct parsers to work with Unstructured, List, and Hierarchical data formats to analyze a text dataset. Directions are within the file.

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