

HONR 219J, Spring 2011: Homework 1, due on February 17th (Thursday) at the start of class.

**Notes:** Please work on this with your group-mate(s): each group needs to submit only one solution. Consulting other sources (including the Web) is not allowed. Write your solutions **neatly**; if you are able to make partial progress by making some additional assumptions, then state these assumptions clearly and submit your partial solution.

1. Read *As We May Think* by Vannevar Bush. How would you update his ideas to include the “Web 2.0” world that we live in, which heavily involves collaboration and social media? Crisply state your main points, and keep your answer to within a page. **(5 points)**
2. Do problem 2 from the exercises at the end of Chapter 2 in Easley-Kleinberg. **(10 points)**
3. Do problem 3 from the exercises at the end of Chapter 2 in Easley-Kleinberg. **(10 points)**
4. Pick any one person  $p$  of the two in your group, and consider a social network in which this person  $p$  is a member; this can be an online social network or the social network in your physical world. It is preferable that  $p$  has at least a reasonable degree (at least six, say; hopefully more) in this network. Say what this network is. What are the degree of  $p$ , the clustering coefficient of  $p$ , and how many of  $p$ ’s ties can be classified as “strong” or “weak”? **(10 points)**