Today

• Impacts of Technology

Homework

• Exercise Set 3 due
• Case study due next Wed
Societal Impacts of Software Technology

We'll focus on analyzing the impacts of technology ...

- That is, instead of telling you what the impacts are
- We'll look at techniques to help you think about / analyze impacts

Exercise 1: What’s meant by “technology” in CS & SE?

- ultimately new software “tools” (software applications)
- sometimes algorithms & techniques (e.g., RSA, neural nets, link analysis)
- general approaches (e.g., P2P/decentralization, cloud computing)
- physical devices (e.g., mobile, wearable, AR/VR)

Recall: Values ... what you believe to be “good”

Exercise 2: Do software tools impart “values”? 
Two Extreme Views ...

1. Technological **Neutrality**
   - A technology is just a tool
     - e.g., for greater efficiency
   - Technology is indifferent / neutral to values
     - e.g., values arise from how it is used

2. Technological **Determinism**
   - Technology progress has its own “life” (plays itself out)
     - Corollary: Humans powerless in the face of technology
   - Technology development is external to and controlling of societies

**Exercise 3**: What are problems with these two extremes?

- Both allow an alibi for separating technology and values
  - either unrelated to values (**neutrality**) ...
  - or can’t control where it goes anyway (**determinism**)  
- Provide an excuse for not doing anything
An Alternative View

**Big Idea:** Technology only makes sense within a (human) context

**The Technical Code:** “... the values and (cultural) assumptions that become manifest in a technology or technology design”

- 1. Explicit values and assumptions
  - E.g., based directly on the design features
- 2. Implicit values and assumptions (may be unintentional)

**Technology has social ramifications ...**

**Lock-in:** As technology becomes used ...

- The design (technical code) becomes “locked in”
- Influencing future thought and behavior