

SCI 199Y Tutorial

Jan. 4, 2010

Today

- Review:
 - Service learning project options
- Social Networks

Service Learning:

- Definition: *course-based, credit-bearing educational experience that allows students to:*
 - Participate in an organized service activity that meets identified community needs
 - Reflect on the service activity in such a way as to gain further understanding of course content, a broader appreciation of the discipline, and an enhanced sense of civic responsibility.
 - (Bringle and Hatcher, 1995)

Option 1: Yonge St. Mission

- **Location:** 270 Gerrard St. E or 310 Gerrard St. E
- **Description of Organization:** The Yonge St. Mission serves and supports those who live with poverty in Toronto.
- **Description of Opportunity:** Assist the organization as they offer courses for adults that lack computer skills. Classes are offered various times throughout weekdays. Usually classes are 1-2 hours in length.
- **# of Students:** up to 4
- **Requirements:** application form, interview, references, police check.

Option 2: reBOOT Canada

- **Location:** 136 Geary Ave.
- **Description of Organization:** reBOOT Canada is the leading green-tech charity in Canada. Provides computer hardware, training and technical services to other charities. (www.rebootcanada.ca)
- **Description of Opportunity:** rebuilding/refurbishing donated equipment, especially with regard to data safety and integrity. Interact with both donors and charity clients.
- **# of Students:** 4 students.
- **Requirements:** strong community spirit, eagerness to learn, ability to lift 40 lbs.

Option 3: DavenportPerth Neighbourhood Centre

- **Location:** 1900 Davenport Rd.
- **Description of Organization:** Committed to addressing the cycles of poverty, violence and isolation, the center has created a wide range of services and programs for those who are most vulnerable. (e.g., low income children, teens, families, single mothers, refugees and immigrants)
- **Description of Opportunity:** Develop a curriculum plan that can bring community members from absolute beginners to basic understanding of computers and the Internet. Times: Wed 5:30-7:00 (intermediate), Thu. 4-5 (beginners)
- **# of Students:** 2-4
- **Requirements:** current copy of police record.

Option 4: South St. James Town CAP Site

- **Location:** 504B Parliament St.
- **Description of Organization:** Community access program computer site.
- **Description of Opportunity:** Tenants of Toronto Community Housing will join in learning Open Office (4 modules, Writer, Impress and Draw, Calc and Base, Project Manager). Courses given 1x per week for 4 weeks.
- **# of Students:** 4-6 depending on demand
- **Requirements:** some knowledge of Windows or Linux Open Office would be helpful.

Option 5: Kensington Gardens

- **Location:** 45 Brunswick Ave.
- **Description of Organization:** 350 bed long term care home in downtown Toronto. Provides high quality, resident centered care in home-like environment.
- **Description of Opportunity:** One on one opportunity to help a resident learn how to access Internet, Skype, how to communicate online, play games etc. Initially could be set day and time in computer lab, but shifts can be flexible between you and the resident.
- **# of Students:** 4-6
- **Requirements:** 2 step TB test

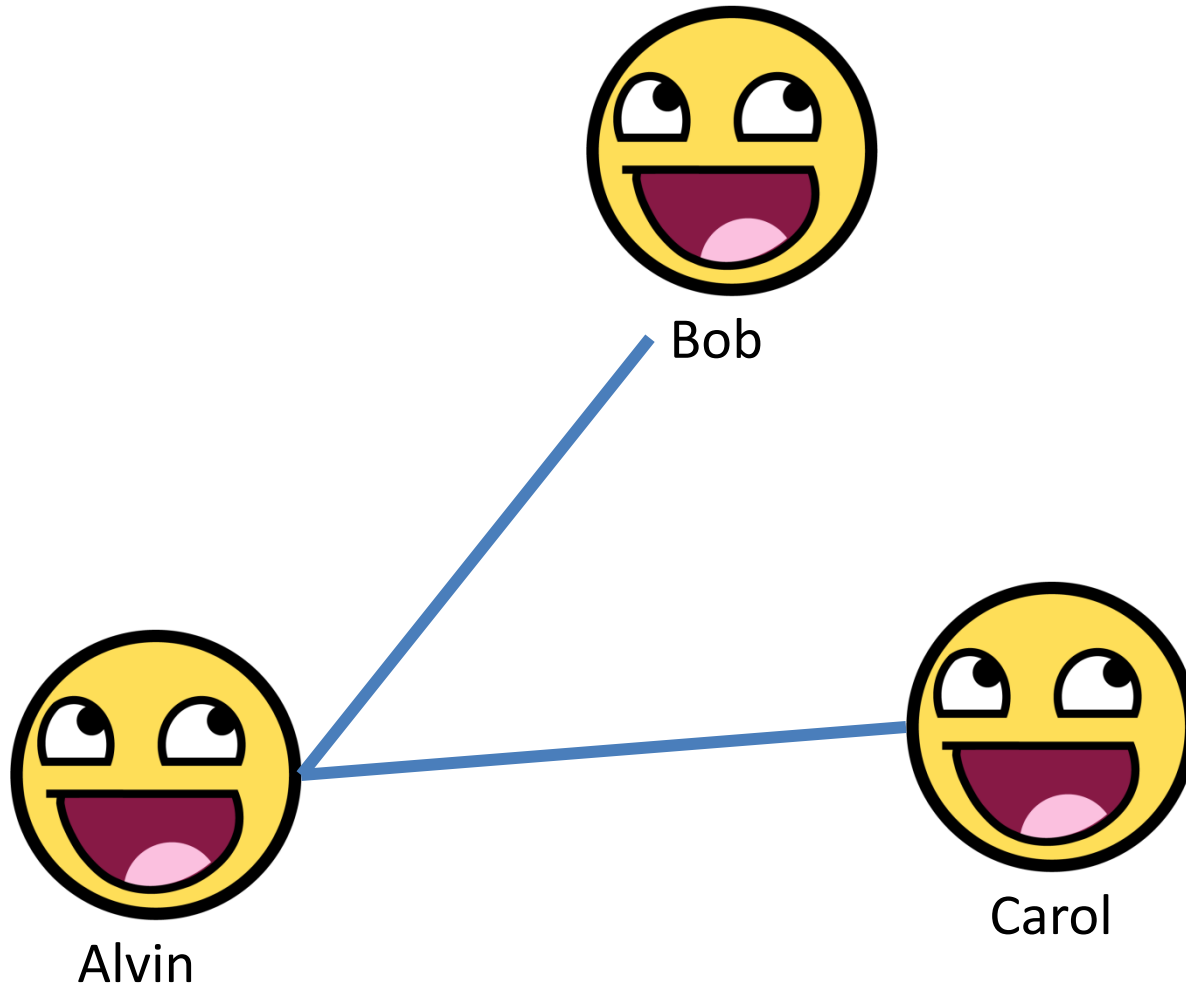
Action Items

- Rank these options in terms of preference
 - By next Monday I need to have your ranking or you will be randomly assigned an option
 - Assignment to projects are FCFS (first come first served)
- Get the 2 step TB test if you want to volunteer at Kensington Gardens
 - test takes > 1 week to complete, book in ASAP to start your test

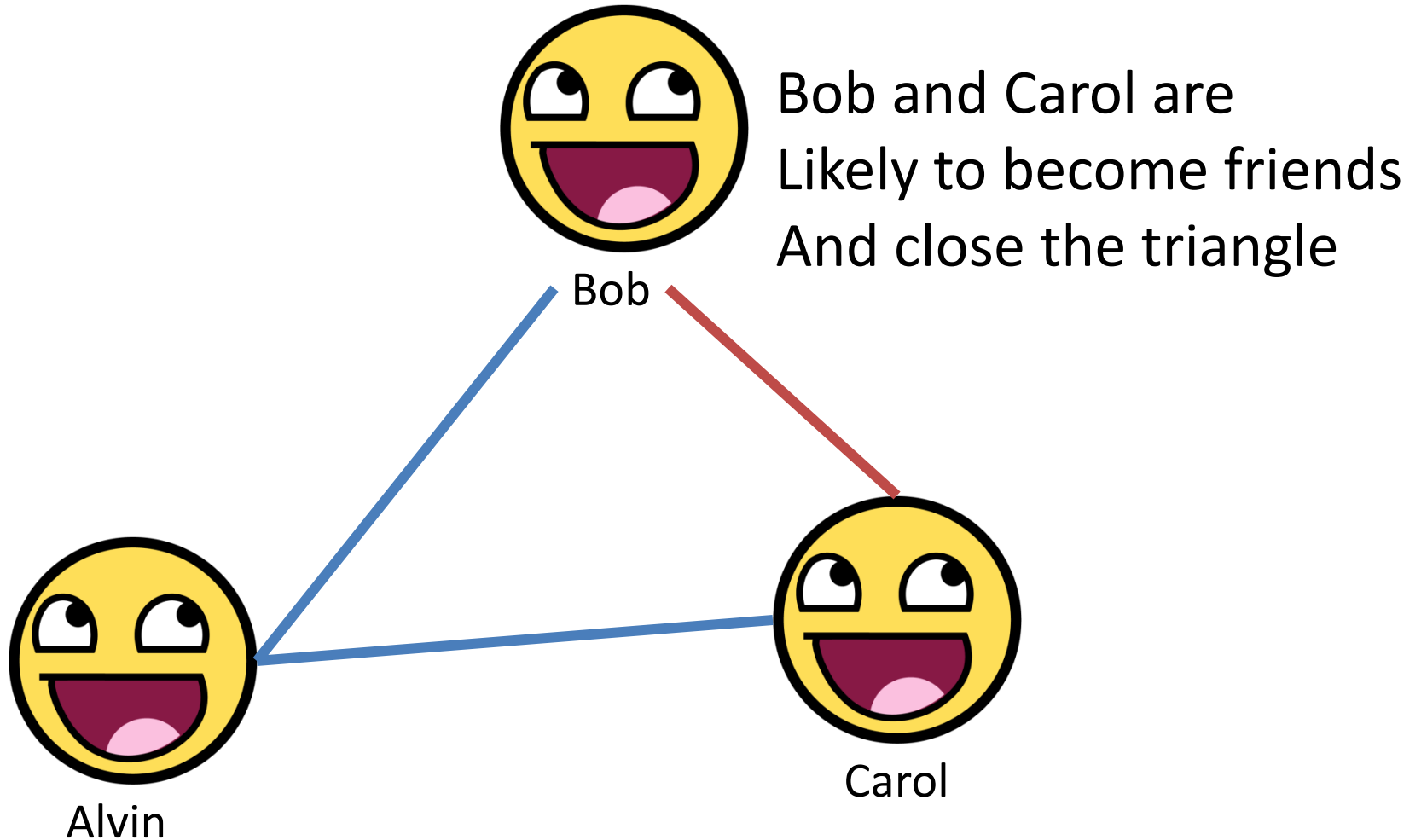
Social Networks – Strong and Weak Ties

- Chapter 3 of Easley and Kleinberg book (online, link on course Web page)
- Basic principle of social network formation:
 - *If two people in a social network have a friend in common, then there is an increased likelihood that they will become friends themselves at some point in the future [342]*
 - Facebook uses this principle to recommend you friends (usually looks for people with whom you have ~4 friends in common with)

Triadic Closure



Triadic Closure

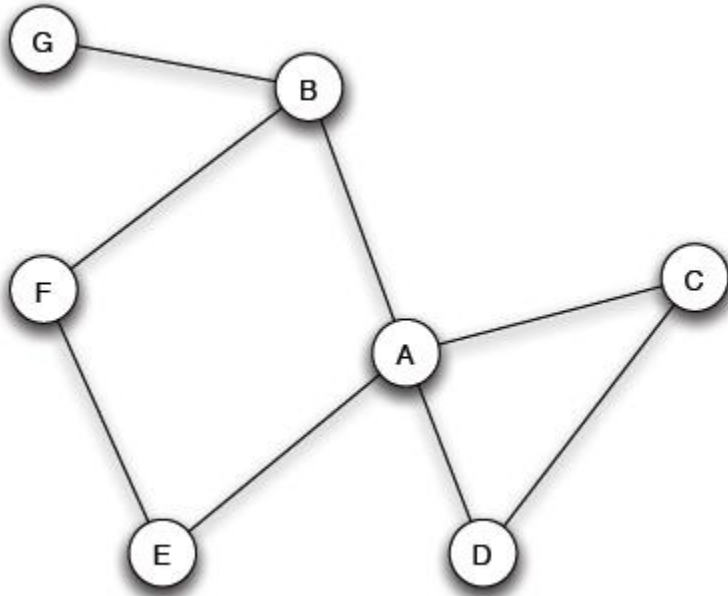


Triadic Closure (2)

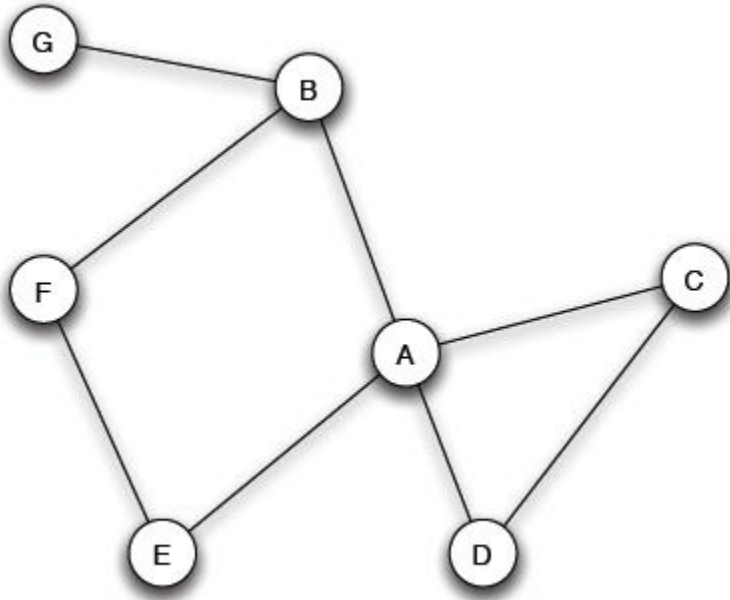
- If we have 2 snapshots of the social network the later one will have many edges that come from this triangle closing operation.
- *Clustering Coefficient*: Probability that 2 randomly selected friends of A are friends with each other. Fraction of pairs of A's friends that are connected to each other.

Clustering Coefficient Example 1:

- What is clustering coefficient of A?

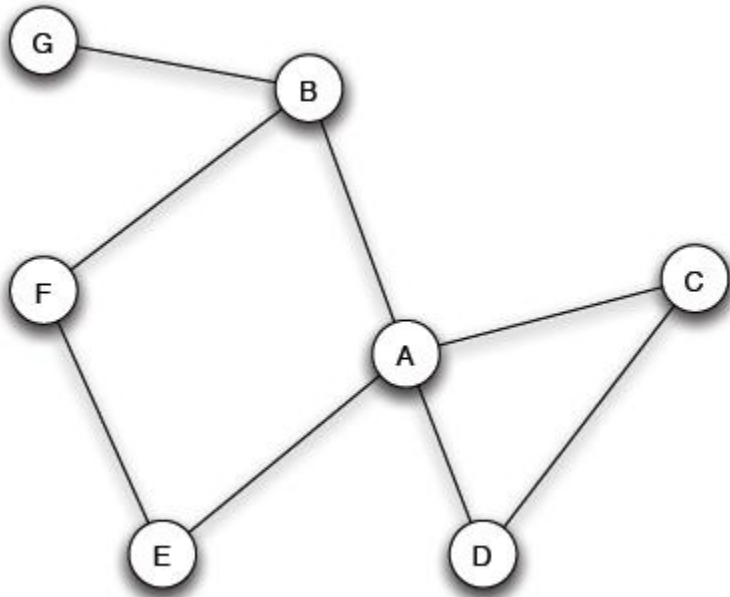


Clustering Coefficient Example 1:



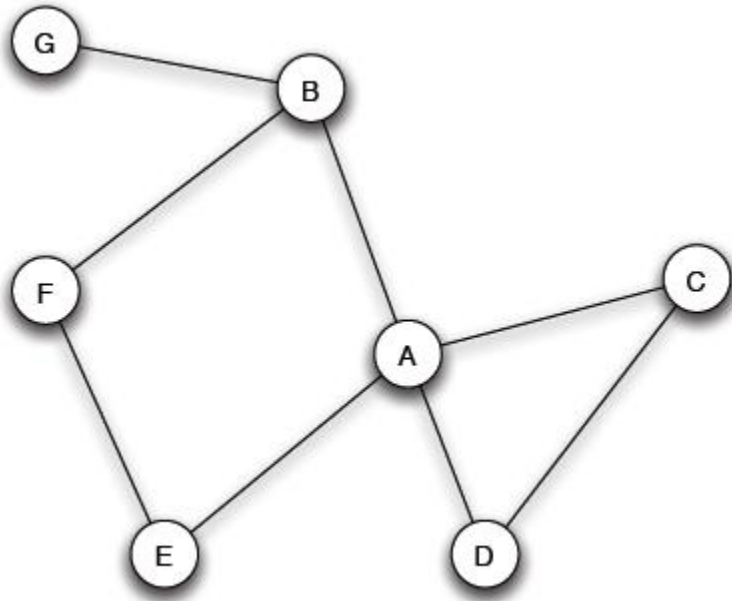
- **What is clustering coefficient of A?**
- **How many edges may there be between A's friends?**

Clustering Coefficient Example 1:



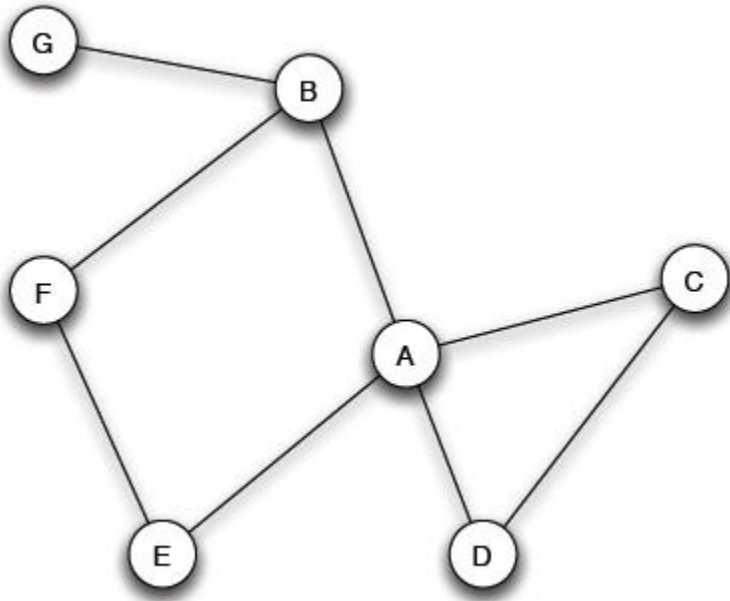
- **What is clustering coefficient of A?**
- How many edges may there be between A's friends? 6
- B-C; B-D; B-E;
- C-D; C-E; D-E
- 4 choose 2

Clustering Coefficient Example 1:



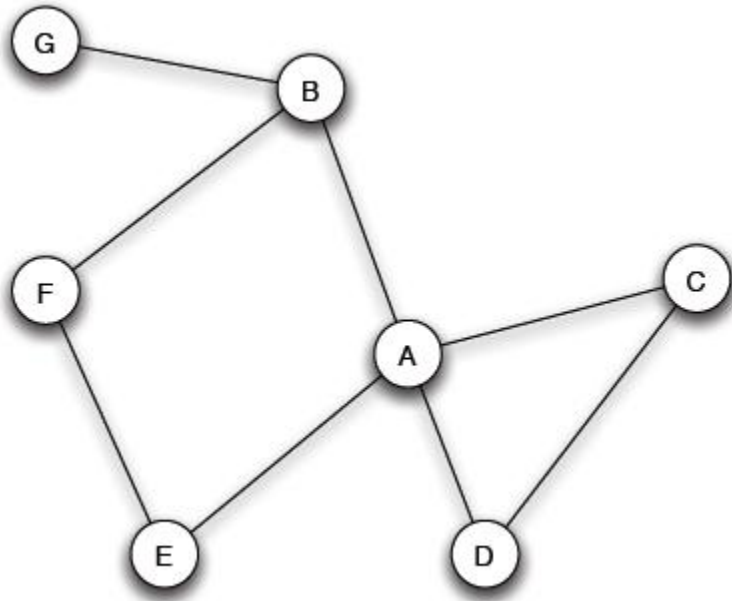
- **What is clustering coefficient of A?**
- How many edges may there be between A's friends? 6
- How many edges are there between A's friends?

Clustering Coefficient Example 1:



- **What is clustering coefficient of A?**
- How many edges may there be between A's friends? 6
- How many edges are there between A's friends? 1 (C-D)

Clustering Coefficient Example 1:



- **What is clustering coefficient of A?**
- How many edges may there be between A's friends? 6
- How many edges are there between A's friends? 1 (C-D)
- **Clustering coefficient: 1/6**

Local Bridges

- *Local Bridge*: an edge joining two nodes A and B in a graph is a *local bridge* if its endpoints A and B have no friends in common.
- *Span* of a local bridge is the distance between A and B when the local bridge is removed
- Relation to *Triadic Closure*: an edge is a local bridge precisely when it does not form a side of any triangle in the graph.

Example network

