Introduction to Collaborative Learning and Programming Practices
Collaborative Learning

- Term given for a variety of approaches in teaching that involves joint intellectual effort by students and teachers.

- A shift from the ordinary lecture centered environment in college classrooms.
Collaborative Learning

- The ability to work effectively and efficiently with others as well as the ability to develop interpersonal skills requires a special knowledge. (Davis, Bryant, Liu, Tedrow, & Say, 2003)

- The information technology environment requires its professionals to have the ability to work successfully with people from different cultural backgrounds.
Collaborative Learning

- Collaborative learning classrooms place more emphasis on student discussion and interaction and less emphasis on listening and note taking.

- The focus is on “soft skills,” such as communication, interpersonal relationships, teamwork, and working with diverse coworkers.
Pair Programming

- A style of programming where two programmers are working together on one workstation.

- One person serves as the driver and the other as the navigator.
Pair Partners

- **Driver**
  In control of the mouse and the keyboard or in charge of writing down the design.

- **Navigator**
  Observes the driver; looks for errors in the program; the strategic, long range thinker in the pair.
Role Swapping

- Swapping roles allows students to share the work load given in the laboratory session.

- The professor or lab assistant in charge of your lab will facilitate the swaps.
Pair Selection

- On odd lab weeks, professors will assign pairs for the lab sessions.
- Students will be given the opportunity, on even weeks, to self select their partners.
- No one student will be allowed to pair with another student more than once.
Myths of Pair Programming

- “The navigator finds only syntax mistakes. How boring is that!”
- “It will only be effective with the right partner.”
- “I’ll never get credit for doing anything. I’ll have to share all the recognition with my partner.”
- “If I get a bad partner, I’ll get a bad grade.”
- “If I get a good partner, I don’t have to do any work.”
Partner Evaluation

- Each of you will be evaluated by your partner
- This evaluation will be factored into your grade
Benefits of Pair Programming

- Increased discipline
- Increased team cohesion
- Opportunities for mentoring
- Better code
- Improved communication skills
- More enjoyment from programming
- Greater confidence