

# Supporting Small Student Software Teams

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# Context

- User interface and software design course ...
  - mostly 3rd year CS and ECE students
  - now ~70 students per 14-week term
  - students form teams of four
  - Java, Swing, JUnit, UML

# Project Topic

- Defined by the instructor ...
  - instructor is the “user”
  - usual email, newsgroup, FAQ channels
- All teams do the same project ...
  - visual appeal, domain knowledge
  - e.g., note & date book, house designer, chess game, GPS data manager

# Deliverables

Stage	Common	Agile	Unified
<b>Requirements</b> (week 7)	problem statement project plan task assignment glossary information sources	user stories	use cases CRC cards
<b>Design</b> (week 9)	storyboards	system metaphor test cases	UML class diagram UML sequence diagrams
<b>Prototype</b> (week 11)	code base file annotations reuse summary demo	user story progress updated test cases	component progress updated UML diagrams
<b>Final Release</b> (week 13)	updated code base updated file annotations Javadoc comments updated reuse summary UML class diagram UML sequence diagrams test cases user manual demo	user story progress	component progress

# Support

- Student teams ...
  - ~~to~~ ~~provide~~ ~~collaboration~~ among members
  - ~~to~~ ~~provide~~ ~~collaboration~~ among members
- Instructional team ...
  - ~~collaborate~~ ~~with~~ ~~team~~ ~~members~~
  - ~~provide~~ ~~feedback~~
  - ~~provide~~ ~~individualized~~ ~~questionnaire~~

# Also Support

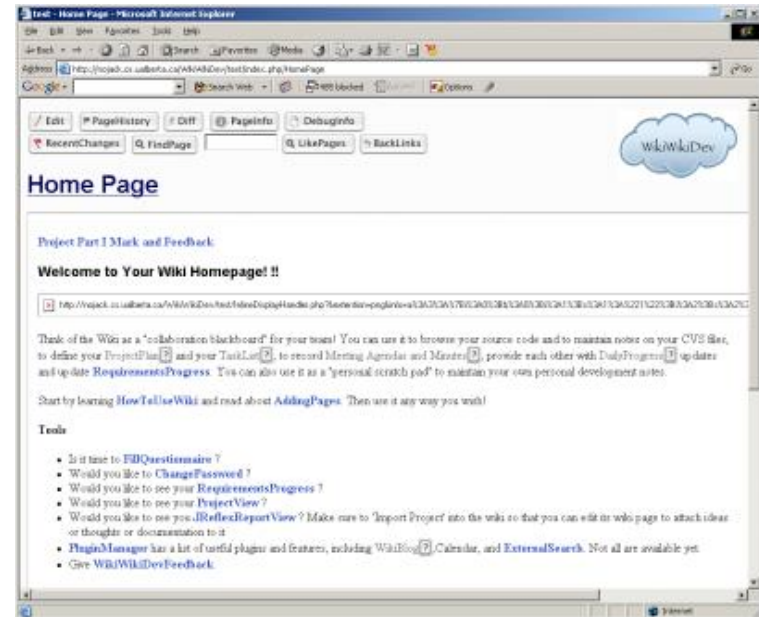
- Researchers ...
  - study patterns of teamwork and evolution
  - relate process and product quality
  - useful in conducting (ethically approved) experiments

# CVS

- Concurrent Versions System ...
  - each team gets their own CVS repository
  - used to store source code
  - usual teamwork benefits
  - unobtrusively gathers data for monitoring teams
  - snapshots made at due dates
  - not a “submission” system

# Wiki

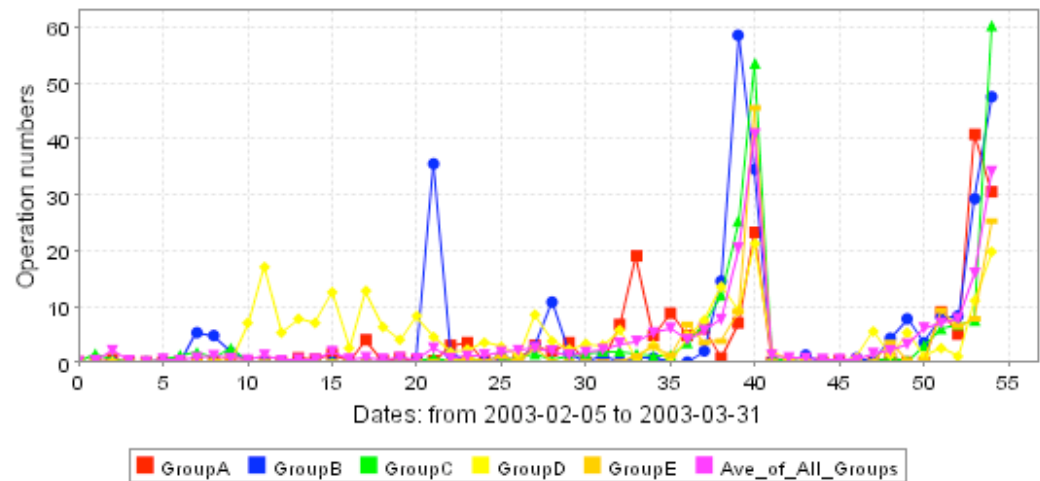
- Editable Web pages ...
  - each team gets their own Wiki area
  - used to store project documents
  - also store informal info (e.g., to do lists)
  - instructors can insert feedback
  - simpler markup than HTML
  - edits are tracked
  - plugins for special content





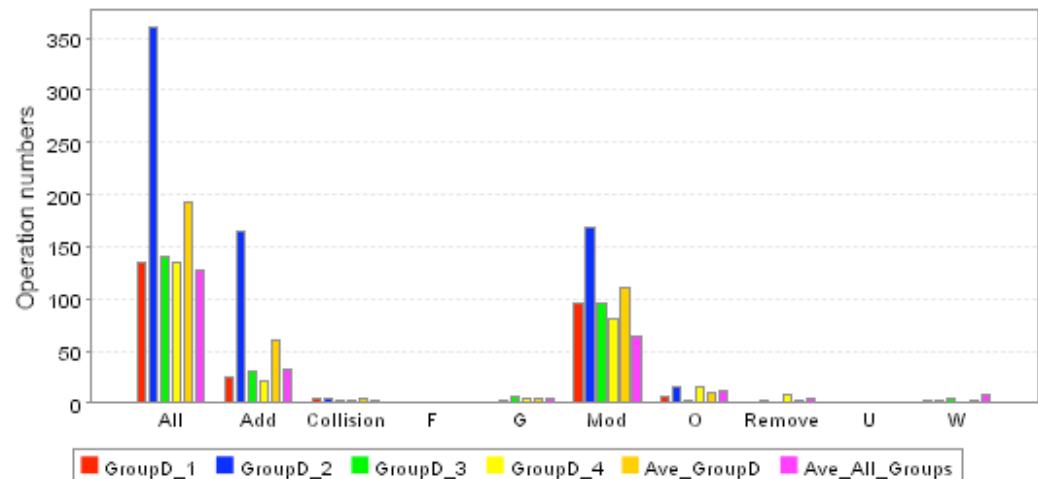
# Collaboration Views

- Charts of CVS activity ...
  - compare by **team**
  - when do they start?
  - how idle are they?
  - how long did they take?



# Collaboration Views

- Charts of CVS activity ...
  - compare by **member**
  - who contributes and how?
  - what apparent roles?
  - collisions?





# Peer Review

- Questionnaire ...
  - team members critique each other
  - used to “validate” collaboration views
  - helps to assess contribution by member
  - answered using a Wiki plugin

# Peer Review

- Sample compliments ...
  - “each member was more than willing, if not enthusiastic, to contribute and participate”
  - “very impressed with the effort that student 2 and student 1 put into the GUI”

# Peer Review

- Sample complaints ...
  - “some confusion as to who was doing what”
  - “concentrated on the front end and the back end was poorly formed and probably will have to be redone”
  - “reverted to the old ways of the computer geek”

# Thoughts

- A few more things ...
  - relative versus absolute marking
  - competitive factors
  - reflective teams