Final Lecture of CS220

Debugging
Software maintenance
Others
Agenda for Today

- Quiz
- Technical content
  - Debugging
  - Software maintenance
- Non-technical content
  - Project & Exams
  - Evaluation
  - Beyond this class
- A video
Debugging
Software bugs

- Semantic bugs
- Memory bugs
- Concurrency bugs
Debugging

- Logging
- Interactive debugging
- Slicing
- Delta-debugging
Software maintenance
Definition

• Software maintenance
  – The process of changing a software system after it has been delivered
Reasons behind maintenance

• Why delivered software needs change?
Reasons behind maintenance

• Why delivered software needs change?
  – Fault repair
  – Platform adaptation
  – System enhancement
Maintenance is important

• 60%--80% of overall IT cost
  – Software is too expensive to discard after one version
A big picture

- Initial development
- Software evolution
- Software servicing
- Phase-out phase
A smaller picture --- evolution process
A smaller picture

• What happened during “software update”?
  – Non-agile way
  – Agile way
Software reengineering

• Redocumenting
• Structure/architecture refactoring
• Programming language translation
• Data reengineering
When to stop supporting a software

- Business value
- Maintenance expense
Project, Exam
Project milestone 5 & 6

• Milestone 5
  – Due **tonight**!
  – Example readme
  – Don’t forget the installation guide!

• Milestone 6
  – Your task will be assigned on Wednesday
  – Due on Sunday
  – What to submit
    • An assessment document
    • List of bugs found
    • Grade
Exam

• Include all lectures we covered!

• 3 reference text books are all reserved in Math Library

• Style similar w/ quizzes & mid-term
Other things

Courses
Evaluation
Fun Time

https://www.youtube.com/watch?v=wYzvVjRtn5Y

22:17 – 30:00