Instituto de computação

Version Control
Course Outline

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Introductions

- Who am I?
  - Leonardo Murta
  - http://www.ic.uff.br/~leomurta
- Who are you?
  - Name? Level (BSc, MSc, DSc)?
  - Job? Internship?
  - Research Area? Thesis topic? Advisor?
  - Previous experience with Configuration Management?
  - What you expect for this course?

What is Configuration Management and Version Control?

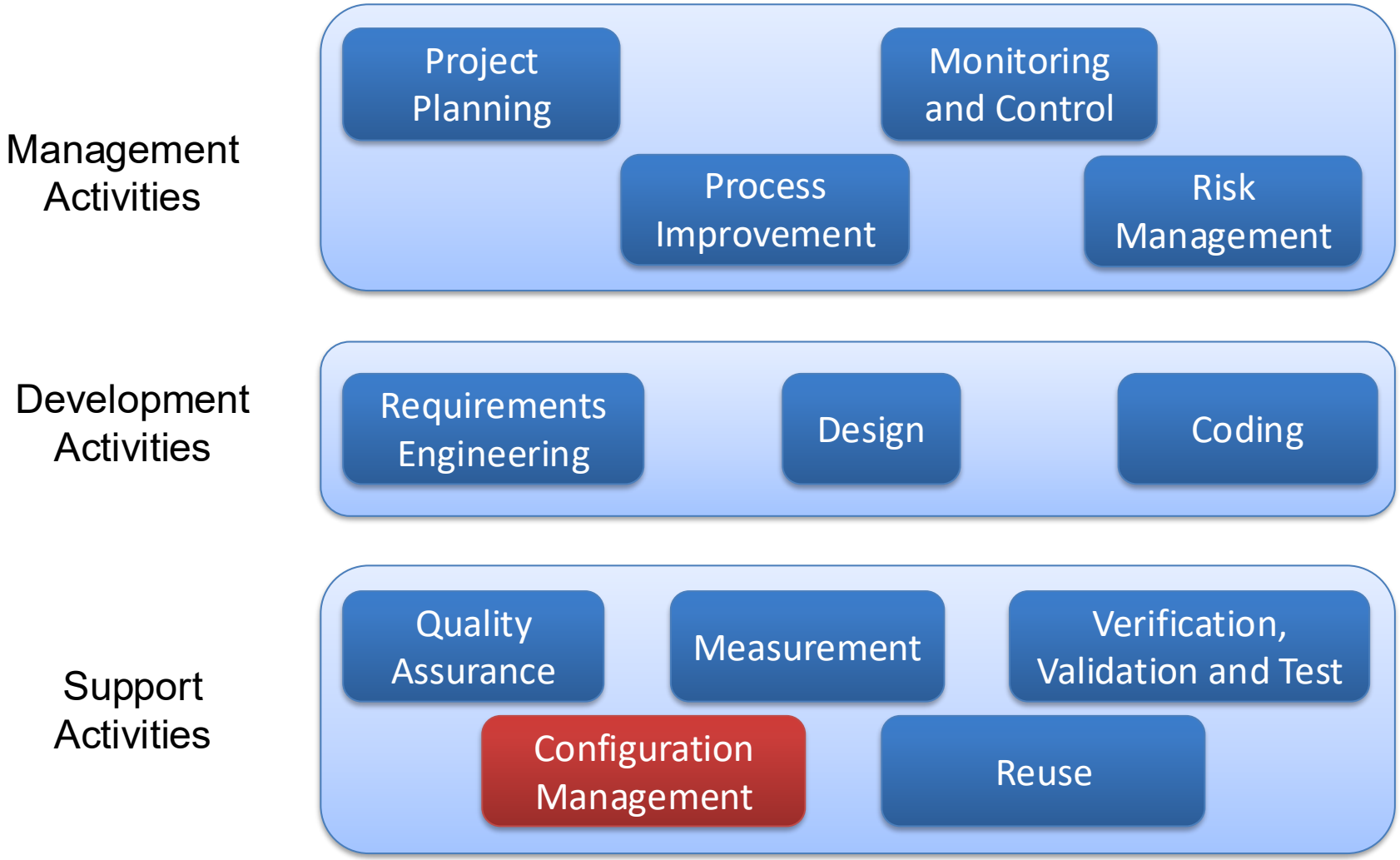
"**Configuration Management** is a discipline for **controlling the evolution** of software systems"

Susan Dart (1991)

"**Version control** is a system that **records changes** to a file or set of files **over time** so that you can recall specific versions later"

Scott Chacon and Ben Straub (2014)

Software Engineering vs Configuration Management



Configuration Management vs Version Control

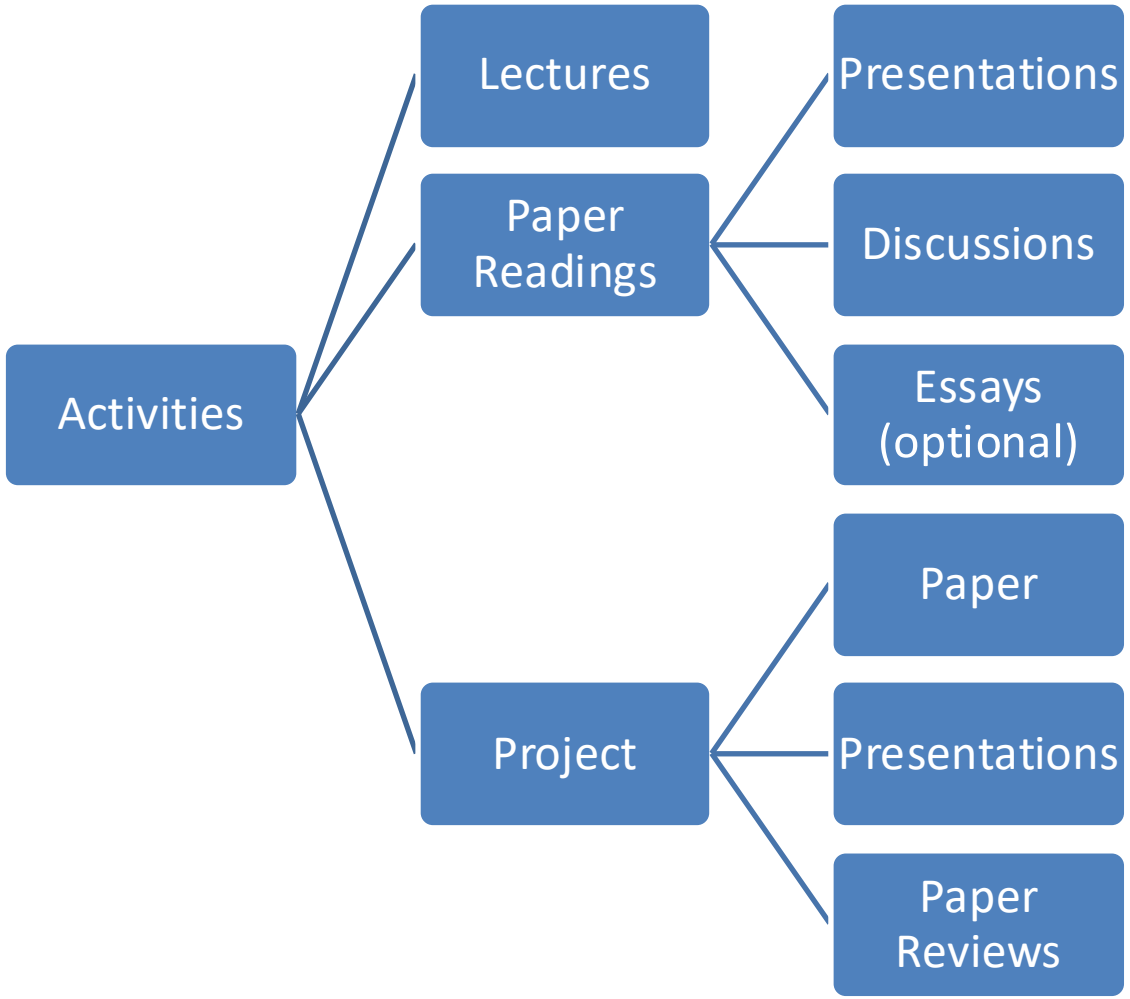
Processes (management perspective):

- Identification
- Control
- Status accounting
- Auditing
- Release

Systems (development perspective):

- Issue tracking
- Version control
- Build management

Course Dynamics



Course Dynamics

- Usual week
  - Mondays: paper presentation (you) and discussions (us, but led by one of you)
  - Wednesdays: lecture (me)
- Project presentations week (x3)
  - Presentations about the ongoing work of the project
  - Three presentations during the course

Reading topics

1. Git (getting started)
2. Git (basics)
3. Git (branching)
4. Git (distributed)
5. Git (tools)
6. Git (internals)
7. Merge (SBSE)
8. Merge (GenIA)
9. Branching
10. Repository Mining (GitHub promises and perils)
11. Repository Mining (Git promises and perils)

Paper Presentation / Discussions

- All students should read all papers and bring questions/opinions

- Each group will be in charge of presenting some papers (around two or three)
  - Send me ASAP five papers from the list (see site) sorted by preference
  - 30 minutes maximum
  - Using slides
  - Going beyond the paper and bringing demos are welcome!

- Other groups will be in charge of promoting discussions (ask questions, provide opinions, and answer questions about the paper being presented)
  - Deepness of the questions
  - Quality of the discussion
  - Intensity of the interaction

Project

- Goal:
  - Apply Version Control over some other area
  - Apply some technique to support Version Control
  - Mine/Visualize Version Control repositories
  - Study some advanced Version Control technique or tool
  - Implement some Version Control algorithm
- Try to align the course project with your thesis theme
- It is important to define the project theme in the first weeks
  - The first seminar will occur in about a month!

Project Paper

- Types of projects
  - Theoretical: focus on the literature and formal definitions
  - Implementation: focus on a tool and its evaluation
  - Analytical: study some phenomena usually by mining repositories
- Format:
  - 4 pages
  - ACM Style
- Content
  - Introduction: motivation and goal
  - Related work
  - Approach
  - Evaluation
  - Conclusion: contribution, limitation, and future work

Project Presentations

- 1st round
  - Context
  - Methodology
- 2nd round
  - Work progress
  - Partial results
- Final round
  - Final results
  - Experience report

Paper Reviews

- Papers will be submitted through a real conference management system, simulating a conference
- Each student will be a member of the program committee in this simulated conference, and will receive **two to three papers to review**
- All authors will receive three anonymous reviews of their papers by the end of the course
- The reviews will not influence the score of the papers

Grading

$$Score = \frac{2 \times Paper\ Presentations + Discussions + 2 \times Project\ Paper + Project\ Presentations + Reviews}{7}$$

Approved if *Score* ≥ 6

Essays

- Students who are not in charge of paper presentations in the week **may** individually write essays about the papers of the week
- Format: one A4 page, font 12, margin of 2 cm, single spacing
- Content: paper title, student name, and the essay
- Students with final grade between 5.5 and 6.0 will have their essays graded, summing up to 0.5 points, eventually rounding the grade to 6.0

Course homepage

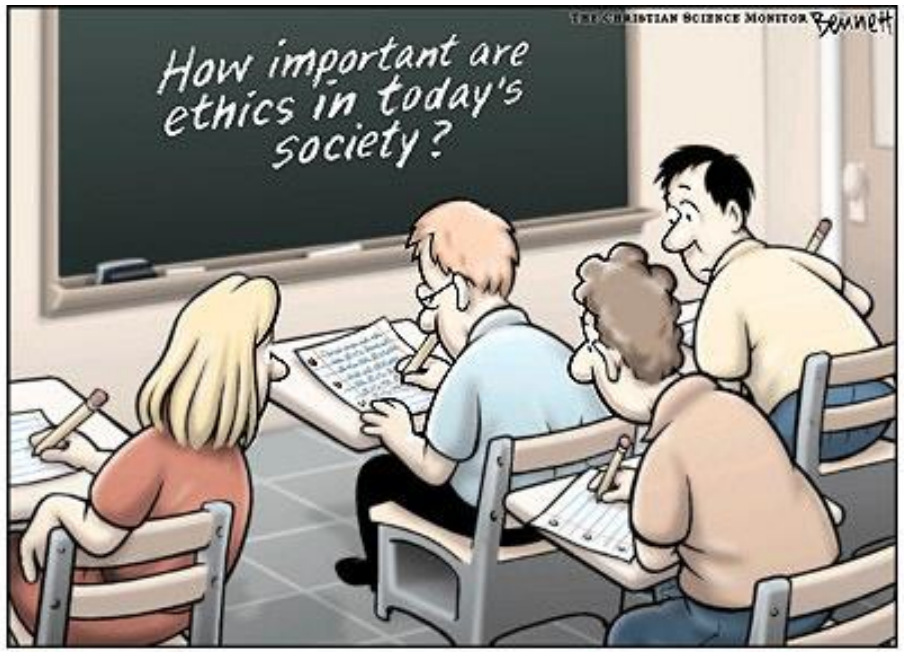
- http://www.ic.uff.br/~leomurta
  - Course rules
  - Presentation/Discussion assignments
  - Tentative schedule
  - Slides
- All papers are available in our Google Classroom

Important research tools...

- http://scholar.google.com.br
- https://dblp.org
- http://www.scopus.com
- http://ieeexplore.ieee.org
- http://portal.acm.org
- https://www.periodicos.capes.gov.br

- LaTeX editor: http://www.overleaf.com
- Reference management: http://www.zotero.org

Fair Play!



http://www.claybennett.com/pages/ethics.html

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