0. Course Presentation

Sistemes Distribuïts en Xarxa (SDX)
Facultat d'Informàtica de Barcelona (FIB)
Universitat Politècnica de Catalunya (UPC)
2018/2019 Q2

FIB

Instructor

- Instructor: Jordi Guitart
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- Office: C6-205
- Office Hours: Monday 15:00pm — 18:00pm
  Thursday 15:00pm — 18:00pm
- Arrange an appointment by mail

Technical competences

- Understand the *fundamental concepts* for building a distributed system
  - Communication between processes & naming
  - Time & coordination
  - Replication & consistency
- Know typical distributed systems
  - Distributed file systems
  - Distributed web-based systems
  - Large-scale distributed systems
  - Mobile and ubiquitous systems

Transversal competences

- G3.1. To understand and use effectively handbooks, products specifications and other technical information written in English
  - Reading comprehension strategies and discourse and genre features
    - Recognizing text structure and organization
    - Applying reading strategies effectively
    - Recognizing genre
    - Identifying the purpose and audience of a text as related to genre

Contents

Course organization

- Lecture classes (2 h/week)
  - Objective: Acquisition of theoretical knowledge
- Seminar sessions (2 h/week)
  - Objective: Apply in practice theoretical concepts
- Autonomous learning (6 h/week)

$\Rightarrow$ Student's work: 10 h/week !!!

Course organization

- Lecture classes
  - Slide-based lectures
  - Exercises (from previous exams)
    - Available in the Exam documentation area in the 'Racó'
  - Online quizzes: **Quizizz**
    - http://quizizz.com/
    - Register if you want to keep your history of quizzes
  - Preparation/Follow-up: Reading of papers
    - Elaborate a **reading report** ⇒ deadline: 1 week
    - Papers content WILL be requested in the exams
    - Use Practicals area in the 'Racó' to submit

Course organization

- Seminar sessions
  - We will use **Erlang** programming language
    - http://www.erlang.org
  - Preparation: Read assignment and additional docs
  - Lab work in teams of three students
    - Respond the post in the SDX forum in the 'Racó' to indicate the team members before February, 19th
      - http://raco.fib.upc.edu/forum/posts/list/915606.page
  - Follow-up work after the seminar
    - Elaborate a **seminar report** (deadline: 1 week)
    - Seminars content WILL be requested in the exams
    - Use Practicals area in the 'Racó' to submit

Course material

- http://wiki.fib.upc.es/grau-sdx/
  - Lecture slides
  - Reading assignments
  - Reading report LaTeX template
  - Seminar assignments
  - Seminar report LaTeX template
  - Erlang supporting documentation and references
  - Questionnaire for self- and peer-assessment

Grading

A. Written mid-term exam
   - Tentative date: 08/04

B. Written final exam
   - Confirmed date: 26/06, 11.30h-14.30h
   1. Evaluation of contents included in the mid-term exam, for the students that failed
   2. Evaluation of contents not included in the mid-term exam, for all the students

C. Evaluation of readings

D. Evaluation of seminars

Grading

- Final Grade for SDX =

$$0{,}3 * A + 0{,}3 * B2 + 0{,}15 * C + 0{,}25 * D$$

For the students that have passed the mid-term exam (A>=5) and do not perform the B1 part of the final exam

$$0{,}3 * B1 + 0{,}3 * B2 + 0{,}15 * C + 0{,}25 * D$$

For the rest of students

Grading

A. Mid-term exam B. Final exam

1. Multiple-choice test about the lectures
   ⇒ Closed-book: you are not allowed notes, books or any other reference material, including electronic devices
2. Exercises about the lectures
   ⇒ Restricted open-book: you are allowed a **single legible double-sided cheat sheet**
3. Questions/exercises about the seminars
   ⇒ Closed-book
4. Questions about the readings
   ⇒ Restricted open-book: you are allowed **your own reading reports**

Grading

C. Readings grade:

$$0{,}5 * \overline{R_i} + 0{,}5 * \overline{EQ_i}$$

- $\overline{R_i}$: average grade of readings reports
  - Delivered on time and correct layout/pages: A (=10)
  - Late delivery or wrong layout or too many pages: B (=5)
  - Not delivered: 0
- $\overline{EQ_i}$: average grade of questions about the readings in the exams

- Used also for transversal competence grading

Grading

D. Seminars grade:

$$(0{,}6 * \overline{R_i} + 0{,}2 * \overline{GEQ_i} + 0{,}2 * \overline{IEQ_i}) * IW$$

- $\overline{R_i}$: average grade of seminar reports
- $\overline{GEQ_i}$: average grade of questions about the seminars in the exams that will be evaluated as the average grade of all the group members
- $\overline{IEQ_i}$: average grade of questions about the seminars in the exams that will be evaluated individually
- IW: individual weighting resulting from self- and peer-evaluation: [0,75 … 1]

Bibliography

- Basic textbooks
  - A. S. Tanenbaum, M. van Steen. *Distributed Systems: Principles and Paradigms*, 2nd edition, Prentice Hall, 2007
  - G. Coulouris, J. Dollimore, T. Kindberg, G. Blair. *Distributed Systems: Concepts and Design*, 5th edition, Addison-Wesley, 2011
- Additional books
  - S. Ghost. *Distributed Systems: An Algorithmic Approach*, Second Edition, Chapman and Hall/CRC, 2014
  - F. Cesarini, S. Thompson. *Erlang Programming: A Concurrent Approach to Software Development*, O'Reilly, 2009
  - J. Armstrong. *Programming Erlang: Software for a Concurrent World*, 2nd edition, Pragmatic Programmers, 2013
  - F. Hebert. *Learn You Some Erlang for Great Good!*, No Starch Press, 2013

Requirements

- OS concepts (SO)
- Networks concepts (XC)