CSC5021 : Advanced Software Engineering

Exam

Lecturer : J Paul Gibson

C106, Wed 15th January 2014, 14H – 17H

Instructions:

Please answer <u>one</u> question.

You will be limited to submitting no more than 4 pages of text (handwritten or electronic)
Electronic submissions, by email, to paul.gibson@it-sudparis.eu (as a .pdf)

Rules:

You have access to the web, books and any other material. If you re-use secondary material you must provide a complete reference (and use quotation marks, where appropriate). Any plagiarism (secondary material not correctly referenced) will be punished, and may result in a 0 mark.

Advice: Try not to make unjustified statements. Remember that there are different points of view. Make references to your own experience. Cite publications that you have read in preference to those that you think may be relevant but that you have not read.

QUESTION 1: Aspects

Aspects are used to model cross cutting concerns in software design. Design patterns provide a reusable solution to common design problems.

   a) Can Aspects help to implement Design patterns?   [6]
   b) Can Aspects eliminate the need for Design patterns?   [6]
   c) Which concept (aspects or design patterns) provides the best support for validation and
      verification of a software system?   [8]

QUESTION 2: Parallelism

You designed and implemented a parallel solution to a complex search and pattern matching problem.

   a) What did you learn about software engineering, in general, as a consequence of examining
      parallelism, in particular?   [6]
   b) Which resources (web sites/books/case studies…) did you find the most useful for completing
      your project, and why?   [6]
   c) Some researchers are working on automated parallelization of sequential code (by a future
      generation of languages and compilers). Do you think this is a realistic goal? Base your
      answer on your own experience of parallel programming.   [8]

QUESTION 3: Service oriented development

   a) Summarize the main research challenges in service oriented development   [6]
   b) In the history of service engineering, who (people or groups or companies) are the major
      contributors/leaders   [6]
   c) Give a short description of a web service with which you are familiar, and suggest 3 ways in
      which the service could be improved.   [8]