

Exam
ADSA: Model-Driven Engineering
Master INF/BIT

Module/course code: 192652150
Date: 05-11-2015
Time: 8:45-11:45 (+25% voor studenten met recht op extra tijd)
Teacher: L. Ferreira Pires

Type of exam: open book

Attachments: Questions sheet

Allowed resources:

- Book *Marco Brambilla, Jordi Cabot, Manuel Wimmer 2012. Model-Driven Software Engineering in Practice*, or other similar reference
- Copy of the sheets displayed during the lectures (without annotations)
- Paper *Brambilla, M. and Fraternali, P. Large-scale model-driven engineering of web user interaction: the WebML and WebRatio experience* (without annotations)

Instructions:

- Exam contains 9 questions, with a total of 9 points (mark ranging from 1 to 10)
- Answer the questions in separate sheets, and place your name and student number on each sheet
- Points of each question are indicated in the questions sheet

Final exam
192135450
ADSA: Model-Driven Engineering

11 November 2015

During this exam the students are allowed to use the book *Marco Brambilla, Jordi Cabot, Manuel Wimmer 2012. Model-Driven Software Engineering in Practice* or other similar book, and a copy of the lecture sheets (without annotations). The questions are based on the paper *Brambilla, M. and Fraternali, P. Large-scale model-driven engineering of web user interaction: the WebML and WebRatio experience*. You are expected to have a copy of this paper with you (without annotations) and you can use it during the exam.

The questions of this exam have been designed to assess whether you can explain the MDE concepts and technologies, and reflect and critically discuss these concepts and technologies in the context of an application. Therefore, you should answer the question so that these aspects can be assessed, which means that you should answer the questions in your own words and in sufficient detail. Text literally copied from the book, the paper or the sheets or too brief will be ignored for marking.

Question 1 (1.0 points)

Why is MDE potentially suitable for coping with application requirements like pervasiveness, distribution and a multitude of platforms, as well as increase in productivity?

Question 2 (1.0 points)

Why is code generation using models currently still more confined to the cases in which the model is very close to the implementation? What is required to change this situation?

Question 3 (1.0 points)

How are the elements of the vision of the MDE tool WebRatio (application modelling and component-based development) combined in the technology reported in the paper?

Question 4 (1.0 point)

Identify and discuss the models, metamodels and transformations necessary to realise the development process depicted in Fig. 1.

Question 5 (1.0 point)

Explain the lower part of Fig. 4 in a similar way as the upper part of the figure has been explained in Section 2.3 of the paper, i.e., in terms of the WebML concepts.

Question 6 (1.0 points)

Explain why it has been possible to advance the WebML language development more or less in parallel with the technological developments, as depicted in Fig. 5. What has been necessary in each evolution step of Fig. 5 in order to achieve this?

Question 7 (1.0 point)

How is reverse-engineering supported by WebRatio? Why was it necessary?

Question 8 (1.0 point)

Explain why it has been possible to successfully apply WebRatio in projects in different domains, and discussed in Section 5.1, although the WebML language is considered as a DSL, not a GPL. What has made this possible?

Question 9 (1.0 point)

Why is it necessary to support change impact analysis between the models and the generated code in MDE tools like WebRatio?

Good luck!

