

# Traffic 3.1

## Designing Suitable Examples

### *PROJECT PLAN*

Semester project

Project period: SS 2006

Student name: Sarah Hauser

Status: 7-th semester

Email address: shauser@student.ethz.ch

Supervisor name: Michela Pedroni

## 1. PROJECT DESCRIPTION

### *Overview*

The Chair of Software Engineering at ETH Zurich is developing a programming module to support its first semester students in learning object oriented programming concepts and software engineering issues. The module follows the objects-first teaching approach called the Inverted Curriculum. Working with a large software framework, the students can reuse existing components and gain experience with concepts of programming by studying, reusing or modifying examples. This framework supports the development of multimedia and graphics applications to attract the students interest in programming and let them thereby have fun.

In the first semester course “Introduction to Programming” the students use *Traffic* [4], a software which models the transportation system of a city. Bertrand Meyer writes an associated introductory programming textbook *Touch of Class* [5]. This textbook provides an introduction to programming and software engineering concepts.

### *Scope of the work*

The textbook *Touch of Class* contains illustrative examples. The subject of this semester thesis is to replace existing or find new examples which can be implemented using *Traffic*. The challenge is to collect core concepts and define suitable examples using existing code or develop new parts for *Traffic*.

### *Intended results*

As the students learn by imitation the examples have to be well designed and implemented. They should be simple, clear and documented.

## 2. BACKGROUND MATERIAL

### *Reading list*

Bertrand Meyer: *Object-Oriented Software Construction, 2nd edition*, Prentice Hall, 1997.

Bertrand Meyer: *TOUCH OF CLASS, Learning to program well with Object Technology and Design by Contract, AN INTRODUCTION TO SOFTWARE ENGINEERING*  
<http://se.inf.ethz.ch/touch>

## 3. PROJECT MANAGEMENT

### *Objectives and priorities*

- Study the textbook
- Get familiar with *Traffic*
- Define and implement an example for the concept inheritance
- Define and implement some more examples for core concepts

### *Criteria for success*

The examples should be

- well defined
- easy to work with
- well documented
- easy to implement with the Traffic library

### *Method of work*

The first step is to study the textbook and gain insight into the Traffic framework. Second, an example for the concept inheritance should be defined. Later on at least two more examples have to be implemented. All ideas will be collected because they could help other people to implement examples.

Due to the fact that many people are working in parallel on the Traffic project it is important to share knowledge. We decided to work together in the same room or communicate by comments, email or wiki.

### *Quality management*

#### **Documentation**

Because the students will use the examples as patterns, they need to be documented. The documentation should be easy to understand, not too long but well describing.

#### **Validation steps**

Test meetings with Michela Pedroni are planned.

## 4. PLAN WITH MILESTONES

### *Project steps*

11.4.2006 Project Plan  
9.5.2006 Inheritance Example  
30.5.2006 Example 2  
27.6.2006 Example 3  
7.7.2006 Review  
15.8.2006 Project End

### *Deadline*

15.8.2006

### *Tentative schedule*

Topic	2.4 -11.4	12.4 -9.5	10.5-30.5	31.5-27.6	28.6 -7.7
Start – Installation – Plan	█				
Study textbook/Traffic	█	█	█	█	█
Implementation		█	█	█	
Example 1		█			
Example 2			█		
Example 3				█	
Documentation		█	█	█	█

## REFERENCES

- [1] Chair of Software Engineering: *Semester-/Diplomarbeiten*; Online at: <http://se.inf.ethz.ch/projects/index.html>, consulted in October 2002.
- [2] Bertrand Meyer: *Object-Oriented Software Construction, 2nd edition*, Prentice Hall, 1997.
- [3] Bertrand Meyer with Michela Pedroni: *The Inverted Curriculum in Practice*, in *Proceedings of SIGCSE 2006*, ACM, Houston, Texas, 1-5 March 2006, pages 481-485.
- [4] Traffic library <http://se.inf.ethz.ch/traffic>
- [5] Bertrand Meyer: *TOUCH OF CLASS, Learning to program well with Object Technology and Design by Contract, AN INTRODUCTION TO SOFTWARE ENGINEERING* <http://se.inf.ethz.ch/touch>

