

# T-76.4602 Software Development Methods Examination, 27th October, 2011

Write the following information in each paper you return: name, student number, course code and name, date, signature.

**Important: Answer 3 out of the 4 questions only. Each question is worth 10 points.**

## 1. Requirements engineering. Answer both a) and b).

- What does a cultural change related to requirements engineering mean and how do use cases support this cultural change?
- You are a software engineer and are supposed to review the use case diagram presented in Figure 1. Your tasks are to
  - identify strengths of the diagram,
  - record what mistakes and omissions there are in the diagram,
  - and draw an improved version of the diagram where these mistakes and omissions have been fixed

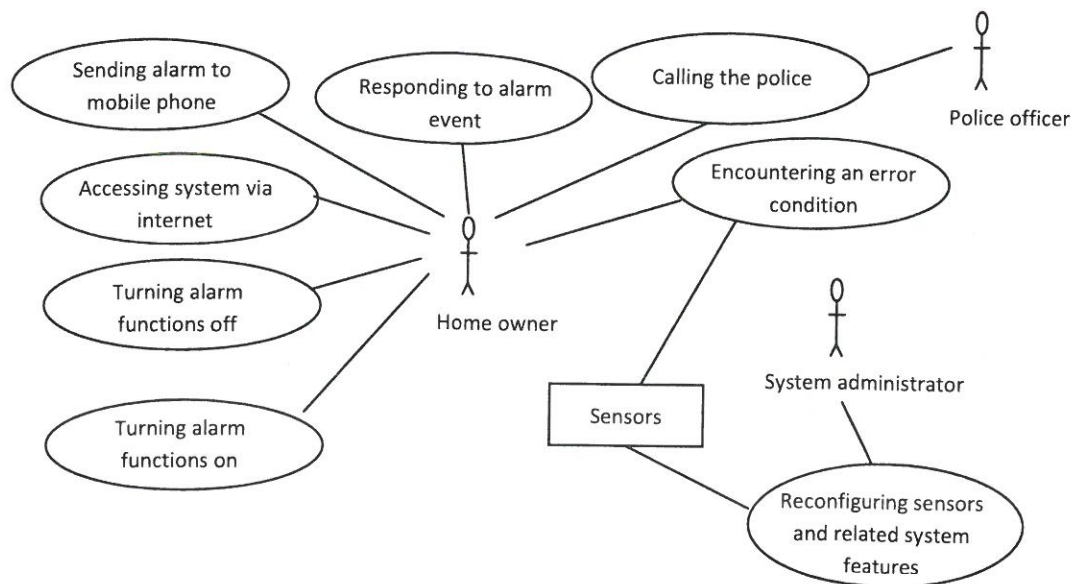


Figure 1. Use case diagram for SafeHome system.

## 2. QUPER model. Answer a), b) and c).

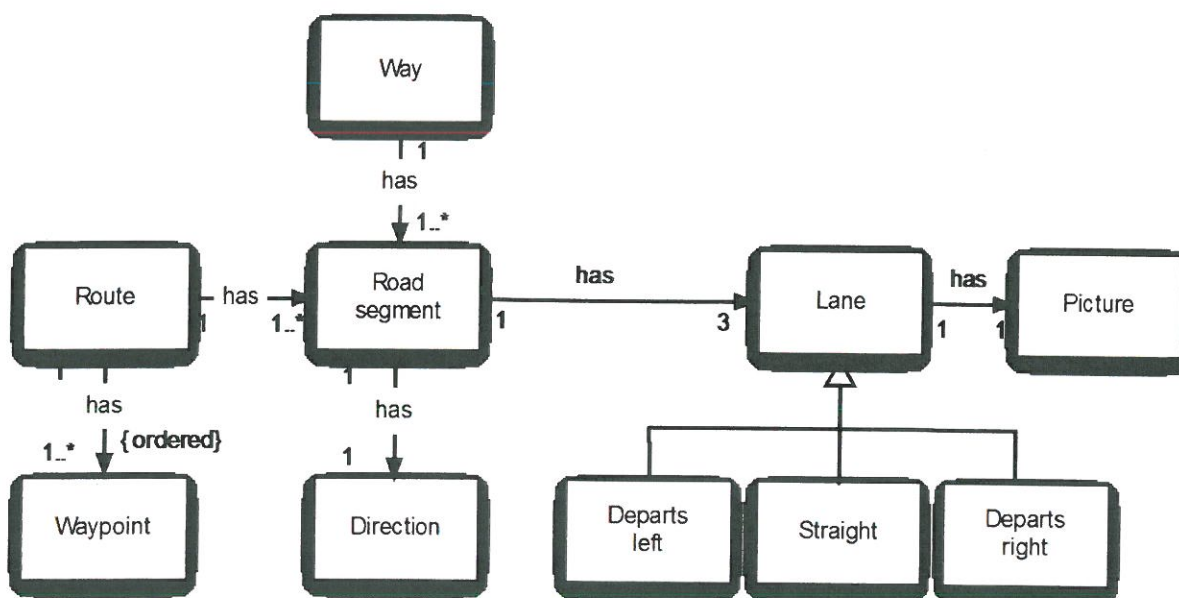
- Describe the quality performance (QUPER) model. Explain what it's used for and how the model works.
- Describe how the QUPER model supports software architecture design.
- Describe how the QUPER model supports software testing.

## 3. Domain modeling. Answer both a) and b).

- Review the Preliminary domain model below using the glossary as the basis. Identify errors and list the modifications to the domain model.
- What parts of the domain model are static or dynamic and how exactly? Justify your answers.

**Table 1.** Glossary

Concept	Description
Direction	Direction of a road segment is defined by from intersection and to intersection. A road segment must have exactly one direction.
Intersection	An intersection represents a place where route selection must take place. From each intersection a number of roads can enter and leave.
Lane	Each intersection has one or more lanes entering from one direction. The user must be guided to a correct lane by the picture shown to the user and by voice commands that differ based on the subtype of the lane in question. The complete set of subtypes are departs right, departs left and straight.
Road segment	A road segment is a directed path from one intersection to another.
Route	A route represents a navigation concept that shows a path to navigate.
Way	An ordered set of road segments is a way. Way has a user understandable name, e.g., "Abbey Road".
Waypoint	A waypoint is point on the route the user want to travel, including the start and end.



**Figure 2.** Preliminary domain model

#### 4. Teamwork. Answer a), b) and c).

Eisenhardt, Kahwajy and Bourgeois (1997)<sup>i</sup> have discovered six tactics that successful management teams apply for managing conflicts. Based on this article, answer the following questions:

- a) List and briefly explain the six tactics for managing conflict.
- b) What role do conflicts have in software projects?
- c) How do each of the six tactics help in managing conflict?

---

<sup>i</sup> Eisenhardt K. M., Kahwajy J. L., and Bourgeois III L.J. (1997) "How Management Teams Can Have a Good Fight", *Harvard Business Review*, Vol 4, pp. 77-85.