

Name \_\_\_\_\_ Student ID \_\_\_\_\_

**MTAT.03.306**  
**Requirements Engineering Examination**  
Test 3

Test starts: **14:30**, test ends: **17:00**

**Multiple choice questionnaire**

1. What are advantages of the goal modelling?
  - ☐ Goal modelling is reasonably intuitive.
  - ☐ Goal modelling captures a static picture but does not consider the change of goals over time.
  - ☐ Explicit declaration of goals provides sound basis for conflict resolution.
  - ☐ Goal modelling can regress forever up (or down) the goal hierarchy.
  - ☐ None from above.
2. How goals are elaborated?
  - ☐ Using “What” questions to define structure.
  - ☐ Using “Why” questions to explore context.
  - ☐ Using “How” questions to explore operations.
  - ☐ Using “How else” questions to explore alternatives.
  - ☐ None from above.
3. How are KAOS goals, which are effectively assigned to software agent, called?
  - ☐ Expectation
  - ☐ Requirement
  - ☐ Software agent goals
  - ☐ Domain properties
  - ☐ None from above
4. What are exploratory scenarios?
  - ☐ Scenarios for understanding the process operations, involved agents, triggering events, and other.
  - ☐ Scenarios for explaining a goal, an alternative solution or a sequence of interactions.
  - ☐ Scenarios for misusing the functions of the considering system.
  - ☐ Scenarios for exploring and evaluating possible, alternative solutions to support the selection of one alternative solution.
  - ☐ None from above.
5. How use case must be documented?
  - ☐ You should prepare a “flow of events”.
  - ☐ You should always break down the function to misuses and malicious use cases.
  - ☐ You should document from an actor’s point of view.
  - ☐ You should describe what the system must provide to the actor when the use case is executed.
  - ☐ None from above.
6. Which statements are correct?
  - ☐ Goals initiate and influence the definition of scenarios.
  - ☐ Goals classify scenarios.
  - ☐ Scenarios explain if and why a new software intensive system is required.
  - ☐ Scenarios illustrate satisfaction of goals.
  - ☐ Scenarios lead to the identification of new goals.

姓名\_\_\_\_\_学生证\_\_\_\_\_

**MTA103.306 需求工程考试**

**测试3**

测试开始: 14:30, 测试结束: 17:00

**多项选择问卷**

**1. 目标建模有什么优点?**

- ☐ 目标建模相当直观。
- ☐ 目标建模捕获静态图片, 但不考虑目标随时间的变化。
- ☐ 明确的目标声明为解决冲突提供了良好的基础。
- ☐ 目标建模可以在目标层次结构中永远向上(或向下)回归。
- ☐ 上面没有。

**2. 目标是如何细化的?**

- ☐ 使用“ 什么” 问题来定义结构。
- ☐ 使用“ 为什么” 问题来探索背景。
- ☐ 使用“ 如何” 问题来探索操作。
- ☐ 使用“ Howelse ” 问题来探索替代方案。
- ☐ 上面没有。

**3. 有效分配给软件代理的 KAOS 目标是如何调用的?**

- ☐ 期望
- ☐ 要求
- ☐ 软件代理目标
- ☐ 域属性
- ☐ 上面没有

**4. 什么是探索性场景?**

- ☐ 用于了解流程操作、涉及的代理、触发事件等的场景。
- ☐ 用于解释目标、替代解决方案或一系列交互的场景。
- ☐ 滥用所考虑系统的功能的场景。
- ☐ 探索和评估可能的替代解决方案的场景, 以支持选择一种替代解决方案。
- ☐ 上面没有。

**5. 必须如何记录用例?**

- ☐ 您应该准备“ 事件流程” 。
- ☐ 您应该始终将功能分解为误用和恶意用例。
- ☐ 您应该从演员的角度进行记录。
- ☐ 您应该描述执行用例时系统必须向参与者提供什么。
- ☐ 上面没有。

**6. 哪些说法是正确的?**

- ☐ 目标启动并影响场景的定义。
- ☐ 目标对场景进行分类。
- ☐ 场景解释是否以及为何需要新的软件密集型系统。
- ☐ 情景说明了目标的满足程度。
- ☐ 情景导致新目标的确定。

**Read the following case description and complete Tasks 1-4.**

**IMPORTANT! Task evaluation criteria:**

- Semantic correctness, i.e., solution correspondence to the given case;
- Syntactic correctness, i.e., correct use of modelling languages;
- Consistence, i.e., no conflicting Task 1-4 solutions;
- Traceability, i.e., logical traceable links among Task 1-4 solutions.

**Case description** (*based on scenario used in the BLISS project*):

You should base the discussion on the parking decentralized App (also called: *Parking dApp*).

The idea is to use the parking spots that are free but not available for renting. For instance, supermarkets have a large parking lots, that after closing hours are unused. Likewise, during opening hours, there are times of the day when customers are not visiting supermarkets that frequently. So the parking lot stands empty. This is a resource that supermarkets have but are not use but they may wish to capitalize on and get a bit more revenue.

Likewise, many parking spots that belong to apartments or houses stand empty during the day because the owners are away with the car on his work. So, there is a parking spot being unused that could be rented and generate additional revenues for the owner of the parking spot.

At the same time there are people who need a parking spot. Somebody might have come to visit a friend in the housing area close to the supermarket. But the price of parking in that area is quite high or it might be difficult to find the spot. The supermarket parking spot might be an option, but they cannot park because it is prohibited. So, they would like to rent this parking spot. Or if people are visiting somebody, and going to some part of the city where there are houses with empty parking spots during the day, they could rent those spots for the certain number of hours.

So, the case is that we have supermarkets, and we have households that own a parking spot, but they are not using those to generate revenues. At the same time, we have individuals who need parking spots. So, the supermarkets can offer their parking spots, so can households. And that can match by the people who need a parking spot for the certain number of hours. So this is basically connecting those that have a parking spot with those who need a parking spot for the benefit of both.

In short:

- Owner – owner of the parking spot
  - She registers parking spot and specify its availability;
  - She received payment;
- Renter – user of the parking spot
  - She uses the parking spot;
  - She searches and reserves the parking spot;
  - She starts / ends parking session;
  - She extends parking session;

阅读以下案例描述并完成任务 1-4。

重要的！任务评价标准：

- 语义正确性，即解决方案与给定案例的对应关系；
- 句法正确性，即建模语言的正确使用；
- 一致性，即任务 1-4 的解决方案没有冲突；
- 可追溯性，即任务 1-4 解决方案之间的逻辑可追溯链接。

案例描述（基于 BLISS 项目中使用的场景）：

您应该基于停车去中心化应用程序（也称为：停车 dApp）进行讨论。

这个想法是使用免费但不可出租的停车位。例如，超市有一个大型停车场，在关门时间之后就不再使用。同样，在营业时间内，一天中有时顾客不会经常光顾超市。所以停车场空着。这是超市拥有但没有使用的资源，但他们可能希望利用并获得更多收入。

同样，许多属于公寓或房屋的停车位在白天也空着，因为车主开车去上班了。因此，有一个未使用的停车位可以出租，并为停车位所有者产生额外收入。

与此同时，也有人需要停车位。有人可能来超市附近的住宅区拜访朋友。但该地区的停车费相当高，或者可能很难找到停车位。超市停车位可能是一个选择，但他们不能停车，因为这是禁止的。因此，他们想租用这个停车位。或者，如果人们正在拜访某人，并前往城市的某个地方，那里的房屋在白天有空停车位，他们可以在一定的时间内租用这些停车位。

所以，情况是我们有超市，我们有拥有停车位的家庭，但他们并没有利用这些来创收。同时，我们也有需要停车位的人。因此，超市可以提供停车位，家庭也可以。这可以满足需要特定小时停车位的人们的需求。因此，这基本上是将拥有停车位的人和需要停车位的人联系起来，以实现双方的利益。

简而言之：

- 所有者 - 停车位的所有者
  - 她登记停车位并指定其可用性；
  - 她收到了付款；
- 承租人 - 停车位的使用者
  - 她使用停车位；
  - 她搜索并预订停车位；
  - 她开始/结束停车时段；
  - 她延长了停车时间；

**Task 1:**

Diagram 1: What are the social relationships between the stakeholders? To support your answer, create a **strategic dependency model** (using the *i\** modelling language), where the social viewpoint of the given case is illustrated.

Diagram 2: Create **strategic rationale model** to illustrate what Owner and Renter should do to fulfil the social relationships.

**Task 2:** Use **KAOS modelling languages** and refine one goal to the goal hierarchy (containing at least 3 hierarchy levels and including at least 1 alternative refinement). Your model should separate between requirements and expectations.

**Task 3:** Create a **use case diagram** to illustrate functions of the Parking dApp. Diagram must include at least 5 use cases. One of these use cases should be named “Handle payment”.

**Task 4:** Refine “Handle payment” use case in the use case template.

<b>Use case ID: name:</b>	
<b>Date created:</b>	
<b>Actors:</b>	
<b>Description:</b>	
<b>Trigger:</b>	
<b>Precondition:</b>	
<b>Postcondition:</b>	
<b>Main flow:</b>	
<b>Alternative flow:</b>	
<b>Assumptions:</b>	

任务1：  
图1：利益相关者之间的社会关系是什么？为了支持您的答案，请创建一个战略依赖模型（使用 i\* 建模语言），其中说明了给定案例的社会观点。  
图 2：创建战略原理模型来说明业主和承租人应该做什么来履行社会关系。  
任务2：使用KAOS建模语言，将一个目标细化为目标层次结构（包含至少3个层次结构级别，并包括至少1个替代细化）。您的模型应该区分需求和期望。  
任务 3：创建用例图来说明 Parking dApp 的功能。图表必须包含至少 5 个用例。这些用例之一应命名为“处理付款”。

任务 4：在用例模板中细化“处理付款”用例。

用例 ID: 名称:	
创建日期:	
演员:	
描述:	
扳机:	
前提:	
后置条件:	
主要流程:	
替代流程:	
假设:	