

Rigorous Software Engineering 2019

Project 1 (Part 1: UML Modeling Task)

Published: March 1, 2019

Firm submission deadline: March 15 (23:59 CET)

Your task is to design a point of sale (POS) system for a pizza restaurant. The goal of the task is to infer a data model from a system description and to express it in UML.

Just like a real software project, the system description is not complete and may be ambiguous or vague. It is your responsibility to clarify any ambiguities with the TAs (the “restaurant owners”) and to discern between relevant and irrelevant information. To contact the TAs, you can pose questions on Piazza or during the exercise sessions.

Note that this is the first part of the course project. The second part will be on the same software system.

1 Roberto’s Pizza Place

Roberto’s Pizza Place is a mid-sized restaurant that has surged in popularity over the last several years. To meet the demands of the ever-growing customer base, the owners have decided that the restaurant needs an online software system to handle orders, deliveries, and payments. The system should also keep basic track of customer behaviour and employee performance.

Customers should be able to order customized pizzas that have different sizes and ingredients. The system should keep track of the restaurant inventory and make sure that customers cannot order ingredients that are no longer in stock. Customers should have the option of paying for their order online or directly to their pizza courier.

The restaurant managers should have access to the system in order to update the system’s ingredient stock and to view some customer analytics, such as the number of orders made each day and the popularity of each ingredient. Managers should also be able to view the performance of each employee, such as deliveries made per hour (DPH). This information is considered confidential and should only be accessible to managers.

The restaurant system needs to delegate orders to different pizza chefs. The system should attempt to delegate the workload evenly among the available

chefs. The chefs should not have access to any information about the customers behind each order.

Lastly, the restaurant's pizza couriers need to have access to the system in order to receive information about their next delivery and to notify the restaurant when deliveries have been completed.

2 UML Model (30 points)

Create a UML class diagram of every relevant data structure and relation in the system description. In addition, document any details that cannot be encoded in the UML class diagram. OCL specifications are not required. Use the design practices that you have learned about during the course lectures.

3 Deliverables

Please email your solution as a PDF attachment to **rse-tas@lists.inf.ethz.ch** by the due date:

- including information on all team members (full names and student ID numbers) in the PDF
- using the email subject “[RSE 2019] Solution to project 1, part 1” and CC’ing all team members
- submitting only one solution from each team

Your PDF file should include

- the UML class diagram (the diagram should be no larger than **one page**) and
- a list of requirements from the project description that cannot be expressed in the UML model.

Note that we only accept **digitally-formatted PDF** files (that means **no** photographs of handwritten files). If you choose to use a text editor such as LibreOffice or Microsoft Office, make sure that you export your document to a PDF-file before submission.