Lab 2

Tool rental application

Design the domain model (classes, relationships, attributes, methods) of a Tool Rental application with the following requirements:

- Customers can rent tools for a certain period of time.
- For every customer the system records the following data: name, phone number, email, street, city, zip. Customers also have a customer status: bronze, silver, gold and platinum. The more rentals a customer makes, the higher the status of the customer.
- For every tool the system records the following data: name, quantity available, category and location code. The location code tells where this tool can be found in the warehouse. Every tool has a category name like drilling tools or chainsaws.
- The price for renting a tool is different per tool. Some tools have a day price. Others have a price per hour and some tools have a price per half day. Some tools have even a price per week. Some tools have multiple prices, like both a price per hour and a price per day. For every tool we also keep track of the name, phone and email of the supplier.
- For every rental we record the date and price when the customers starts renting the tool, and the date and time the customer returns the tool. The system then computes the exact time of the rental.
- The price the customer has eventually has to pay depends on a number of factors:
  1. The status of customer
  2. The date of the rental
  3. The category of the tool
- The system will compute this actual price.
- The system will also record every payment made by the customer.
- This tool rental application is used in different countries all over the world and should support different currencies.

Only draw the domain classes.

For each domain class specify clearly if it is a value object, entity, domain service or domain event.

Part 2

Webshop

Design de architecture with all the necessary layers and classes for a webshop with the following requirements:

The webshop contains products that we can add or remove from a shoppingcart
We can also add multiple copies of the same product in the shoppingcart
We can place an order based on our shoppingcart.
Orders can only be paid by creditcard
For every order we need to know
  - The shipping address and the billing address
  - The customer
  - The creditcard information
  - The shipping method
The webshop administrator should be able to add, remove and update products.
For every product we need to know the following information:
  - ProductNumber, name , price, description.
  - Reviews from customers that have purchased this product.
  - Stock information: number in stock, and location code in the warehouse
  - The supplier for this product
Customers can create an account, so they can login when they want to place on order
  - For every customer we want to know the following information:
  - CustomerNumber, first name, last name, email, phone and address information
  - Creditcards from the customer
  - Orders that the customer has placed
When an order is placed, the webshop should send an email to the customer.
The webshop administrator should be able to add, remove and update suppliers.

Draw a class diagram showing the different layers and their corresponding classes and relationships. Also show the attributes and methods of each class.

In the domain classes of the webshop specify clearly for each domain class if it is a value object, entity, domain service or domain event.

Part 3

Draw a sequence diagram showing how we place an order.

What to hand in?

1. A PDF or photo of part 1
2. A PDF or photo of part 2
3. A PDF or photo of part 3