2DV604 Exercise 0 – Decompositions

System description

A software company is developing an online food delivery system called "FoodExpress." The system includes various components such as user registration, food ordering, restaurant management, delivery tracking, and payment processing. The system should allow users to register and log in, browse restaurant menus, place orders, make payments, and track their orders in real time. Restaurants should be able to manage their menus and track orders, while delivery personnel can update the status of deliveries.

Exercises

1. *Abstractions and responsibilities*
   Identify the key high-level components of the FoodExpress system. Describe these components in terms of their responsibilities and relationships.
   Task: Create a UML Component Diagram to represent the abstract structure of the FoodExpress system, showing the main components and their dependencies. You may use CRC – cards for basic component documentation.

2. *Hierarchy*
   Analyze the hierarchy of the FoodExpress system. Break down the components into subcomponents to define their roles in more detail.
   Task: Refine the initial UML Component Diagram and CRC – cards by adding subcomponents for the "User Management" and "Restaurant Management" components.

3. *Deployment Diagram Basics*
   Identify the hardware and software environment for the FoodExpress system. Include components like user devices, servers, and databases. What FoodExpress artefacts should be deployed and where?
   Task: Create a UML Deployment Diagram showing the deployment of artefacts on the FoodExpress system.

4. *Detailed Deployment Exercise*
   Add more detail to the deployment environment. Specify communication protocols (e.g., HTTPS) and relationships between devices.
   Task: Extend the UML Deployment Diagram to include details like communication links and network connections.

5. *System-wide Deployment Diagram*
   Map the complete FoodExpress system architecture, including user devices (mobile apps, web browsers), application servers, database servers, and third-party services (e.g., payment gateways).
   Task: Create a detailed UML Deployment Diagram showing the entire system's deployment.

6. ***Extra:*** *Integrative Modeling Exercise*
   Combine the "User Management," "Order Management," and "Delivery Tracking" components into a comprehensive view. Show how they interact and are deployed.
   Task: Create a combined UML Component Diagram and Deployment Diagram to represent the integration of these components within the FoodExpress system.