Linnéuniversitetet
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Report

Assignment 1

2DV604

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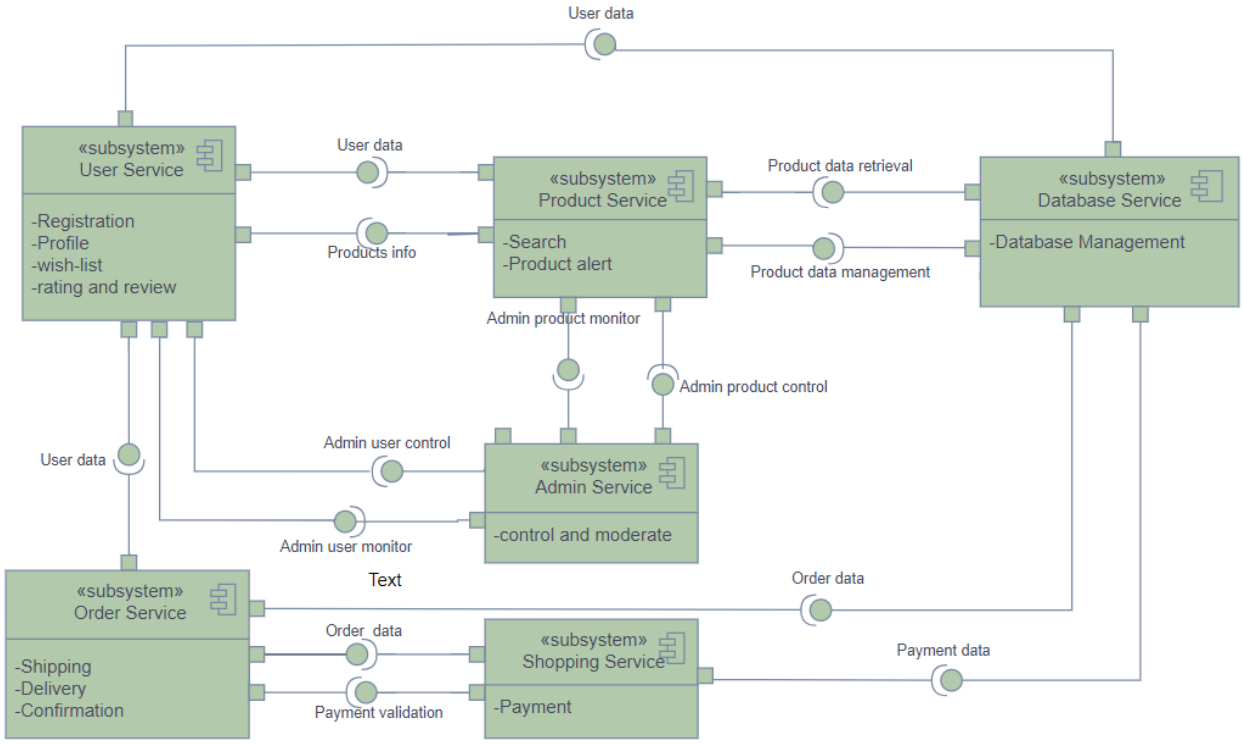


1. Interfaces

User Service:

Responsibilities: Handles user registration, profile management, authentication, and authorization.

Provides interfaces:

Order Service: provides user information for shipping and delivery and order confirmation.

Product Service: provides users information, preferences, history for personalized searches.

Admin Service: provides user activity information to be controlled and monitored.

Requires interfaces:

Product Service: requires product data to do searching and wish list, get products alert information and do the rating and review on the product.

Database Service: requires access to user information (account, preferences, history).

Admin Service: requires Admin service to monitor user activities.

Product Service:

Responsibilities: manages product information including product categorization, status, and condition (new or second hand). Provides search and filtering functionalities. Provides products alert information.

Provides interfaces:

User Service: provides personalized searches for a user.

Admin Service: provides data to let the admin service do monitoring.

Database Service: provides to do products data management.

Requires interfaces:

User Service: requires user information for tailored searching and informs with product alert information.

Admin Service: requires admin service to do product monitoring.

Database Service: requires access for retrieving and updating product listings to keep them current.

Order Service:

Responsibilities: handles the shipping and delivery status of orders, informs users of the order confirmations.

Provides interfaces:

Shopping Service: provides order data to do payment.

Requires interfaces:

User Service: requires user information for order processing.

Shopping Service: requires payment validation to confirm the order.

Database Service: requires order data to manage shipping, delivery status, confirm order completion.

Admin service:

Responsibilities: manages product ratings, reviews, and user interactions, provides administrative tools for system control and moderation.

Provides interfaces:

User service: provides to manage users accounts and monitor user activities.

Product service: provides to manage product controlling and monitoring.

Requires interfaces:

Product Service: requires product data to do controlling and moderating.

User Service: requires user activity data to do controlling and moderating.

Shopping Service:

Responsibility: handles the transactions using various payment methods.

Provides interfaces:

Order Service: provides payment validation to confirm the order.

Requires interfaces:

Order service: requires order data to do payment processing.

Database service: requires information to make correct payment status, record transactions.

Database Service:

Responsibilities: Storing product data, user data, order data, providing administrative capabilities to manage the product database.

Provides interfaces:

Product Service: provides product information via retrieving its data from the database.

User Service: provides user data, facilitating user access and profile management.

Order Service: provides product shipping and delivery status.

Shopping Service: provides product payment data.

Requires interfaces:

Product Service: requires information for updating and keeping the product listings and validation checks to ensure data integrity.

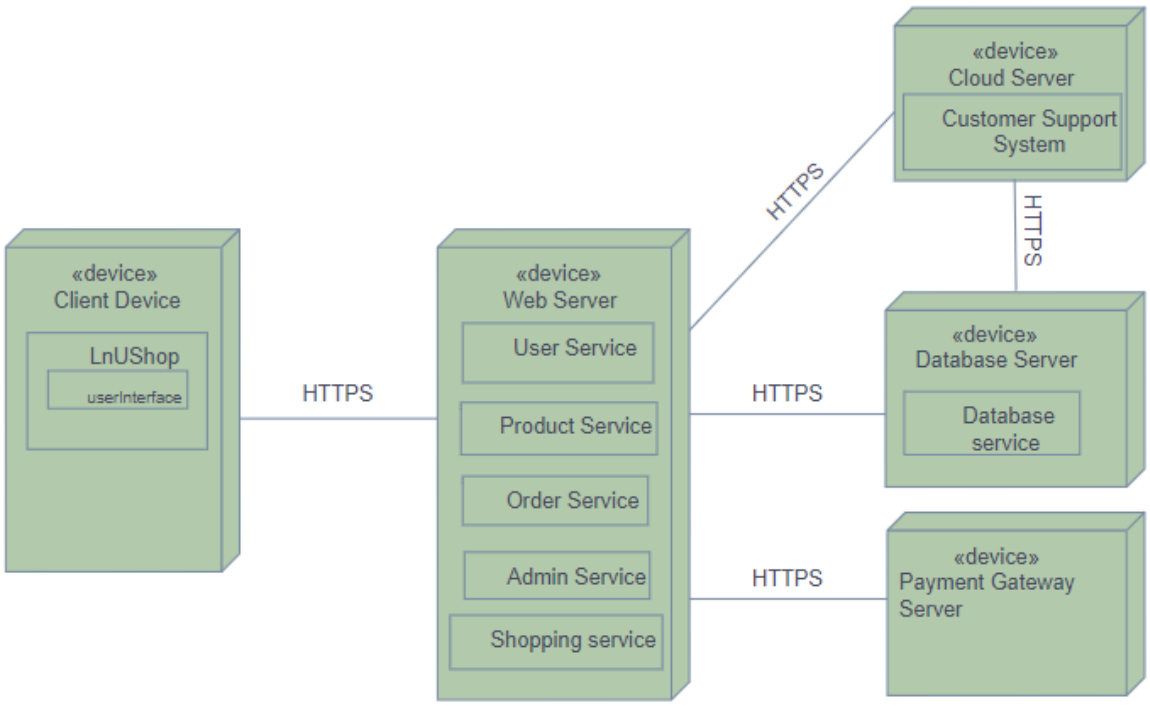
2.Assumptions:

- Users have varying needs and preferences, requiring personalized experiences.
- The system assumes that users will have access to reliable internet connectivity, as it's a digital system heavily dependent on online access.
- users are expected to be digitally savvy, justifying a sophisticated interface with extensive features.

3.Alternatives and Decisions:

There is an alternative for Database Service to separate databases for different data types, for example, user data might be stored in one database, while product and transaction data could be in separate databases. However, the disadvantage includes increased complexity in database management and potentially higher costs due to the need for multiple database systems. It also introduces challenges in data integration and consistency across different databases. Decision: after careful consideration, a unified database subsystem was chosen for its simplicity and lower overhead, integrated data management and the ease of development and maintenance.

Task 2



1. Decomposition of the physical system

Web Server
Hosts the application with core services, handles the business logic and management.
Executable Subsystems:
- User Service
- Product Service
- Order Service
- Admin Service
- Shopping Service

Communication:
- Connects with the Database Server for data management.
- Connects with the Payment Gateway Server to do payment using various payment methods.
- Connects with the Cloud server for the customer support system.
- Connects with the Client device to process user interaction.

Database Server
Central repository for all data including user profiles, products data, transactions, reviews, and administrative data.
Executable Subsystem:
Database Subsystem
Communication:
Interaction with Web Server for user, product, and order data storage and management.
Connects with the Cloud Server for data storage and management for the customer support system.

Cloud Server
Digital support channels (chat) are managed through the customer support system on the server.
Executable Subsystem:
Customer Support Subsystem
Communication:
Communicates with the Web Server to interact with the client customer.
Communicates with the Database Server to manage customer support system data.

Client Device
Provide the appropriate interface for users especially for those with vision disorder to do operations on this system.
Communication:
Communicates with the Web Server to interact with the system to do requests.

Payment Gateway server
Communicates with the Web Server to do payment via transaction service in it.

2.Assumptions:

- It assumes the availability and reliability of cloud services for hosting the customer support subsystem.
- It's assumed that the system needs to integrate with external services like payment gateways.
- It's assumed that there's high-speed and reliable network connectivity to ensure seamless communication between different physical subsystems, such as servers and databases.
- Third-party services (e.g. payment gateways) are reliable and integrate seamlessly.
- Cloud server providers use renewable energy to satisfy the sustainability quality requirement.

3.Alternatives and Decisions:

We could have a single server that handles all these functions. It’s easier to develop, deploy, and manage as everything is in one place. But in order to satisfy the quality requirements such as performance, it should be abandoned as high traffic can affect performance, affecting the entire system. Decision: Separating the subsystems into different servers, for example putting the customer support system into the cloud server.