Bike portal

Analysis and Design Document

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Revision History

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| --- | --- | --- | --- |
| **Date** | **Version** | **Description** | **Author** |
| 18/Mar/18 | 0.1 | Housekeeping | Ács Dávid |
| 04/Apr/18 | 0.2 | Architecture and views | Ács Dávid |
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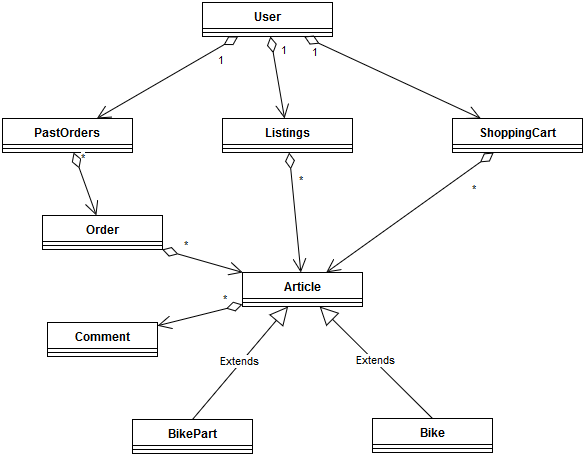
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# Project Specification

Bike portal is an online Bike and bike parts store. User can buy/sell bikes and related parts online. To buy products, the user must be registered and logged in, and should add the products to the shopping cart. To check out the user can pay by credit card. Users may rent bikes, and the admin may approve these requests. The admin of the portal can delete, modify announcements/listing if they are inappropriate.

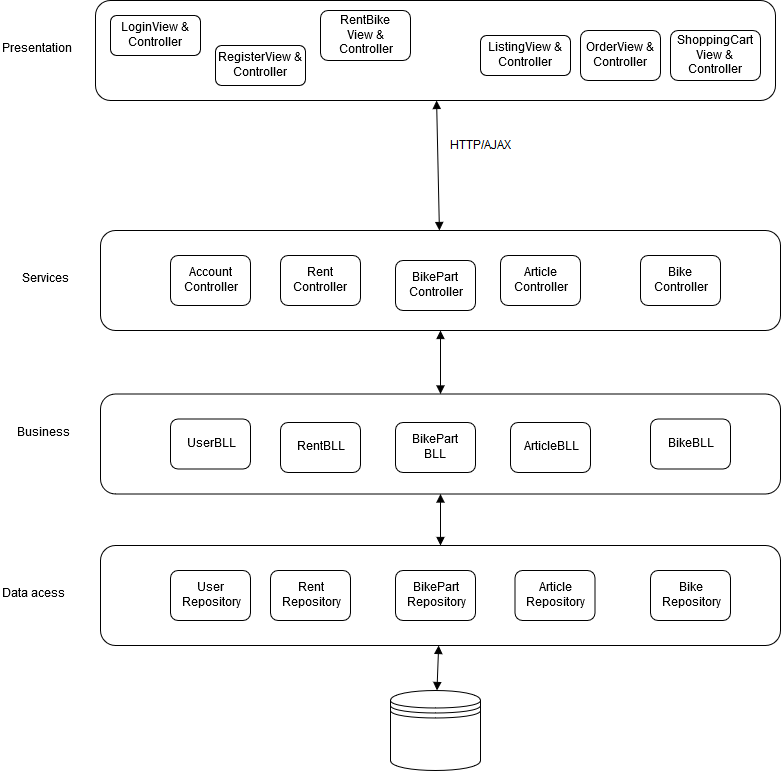
# Elaboration – Iteration 1.1

# Domain Model



# Architectural Design

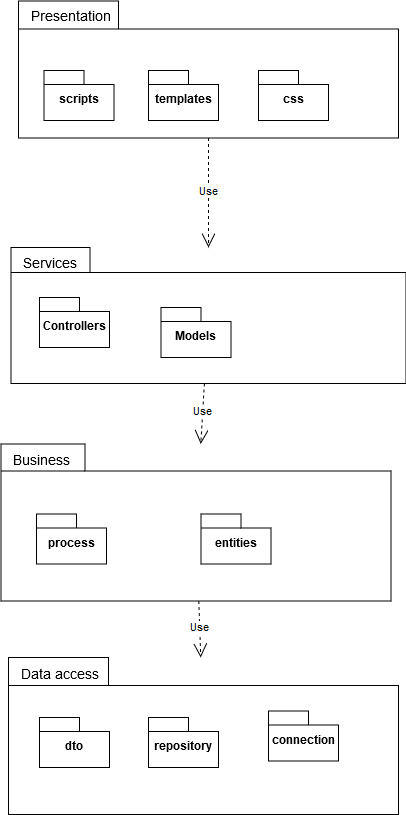
## Conceptual Architecture

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Client server architecture is used in this architecture, to separate the server-side application (data and logic) from the client-side (UI). This way the client-side and the server side may evolve independently of each other.

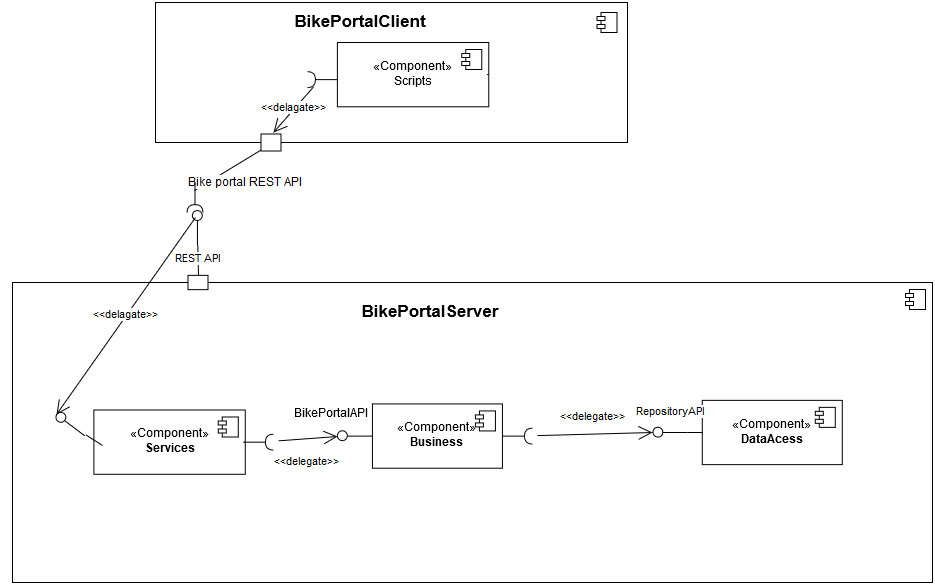
The separation can be observed, where the HTTP/AJAX calls are made over the network.

## Package Design

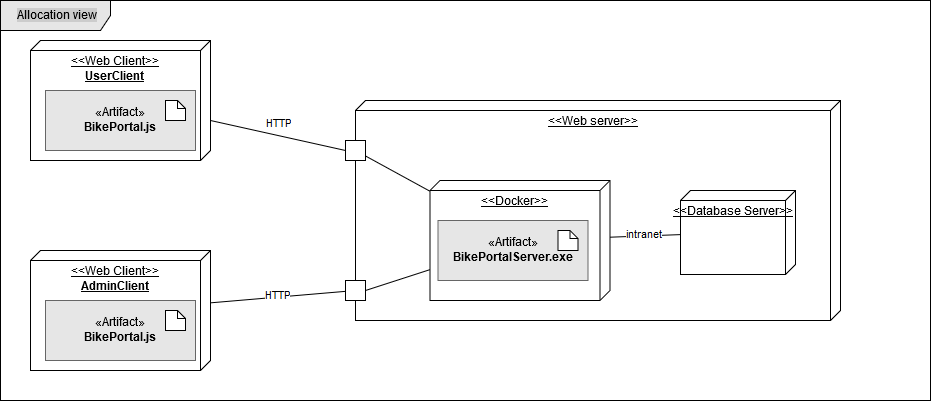


The package diagram of the system represents the layered structure of the application.

## Component and Deployment Diagrams



The component diagram shows the clear delimitation between the server and the client. They can only communicate through HTTP, or as it is shown in the diagram, through the REST API.



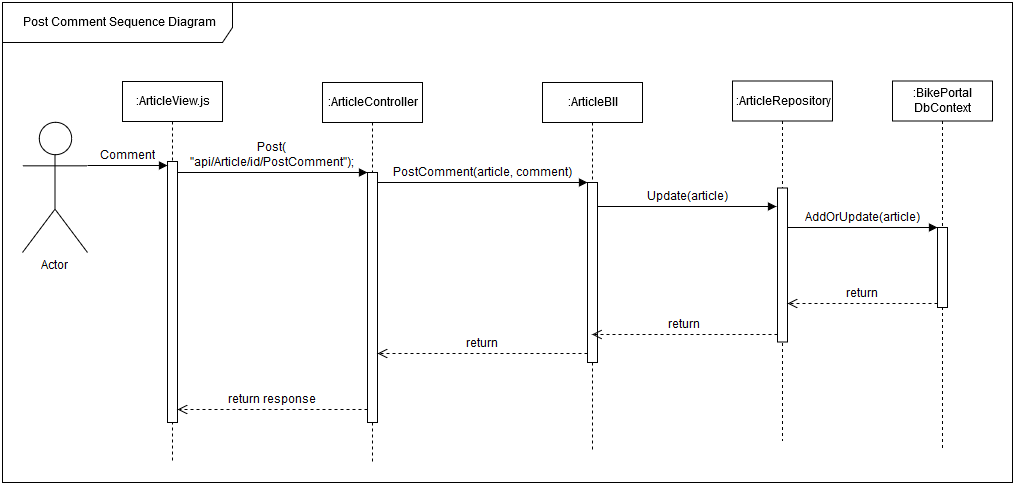
In the allocation view we may notice that there may be more than one client, and they role may differ depending on who is logged in.

# Elaboration – Iteration 1.2

# Design Model

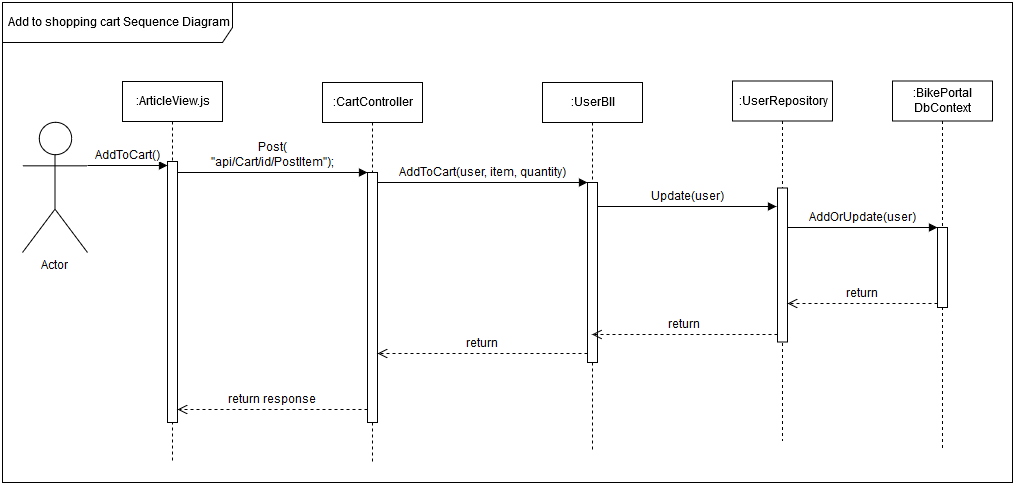
## Dynamic Behavior

**Post a comment to an article.**

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****

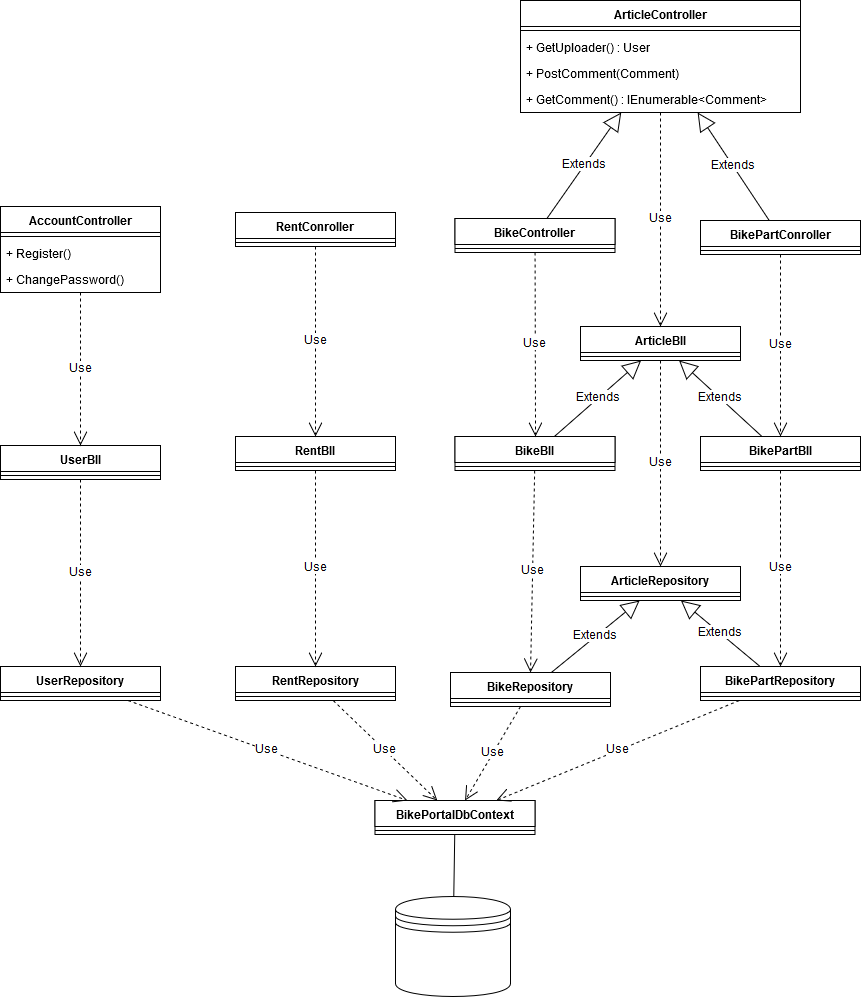
**Add an item to the user’s shopping cart.**

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## Class Design

I used the repository pattern to separate the Data access from the business logic.



# Data Model

The data model closely resembles the domain model. In order to create the data model, first I designed domain classes and let the framework create the necessary tables. Bellow you can see the resulting tables of this process:

**

# Unit Testing

For unit testing mocking will be used to separate dependencies from the tested component.

**Unit Test scenarios**

1. Check that the user can login.
2. Check that users can view articles regardless if they are logged in or not.
3. Check that users can compare two items.
4. Check that users can post comments on articles if they are logged in.
5. Check that users can add articles to their shopping carts.
6. Check that users can buy the items already in their shopping carts.
7. Check that users can put a bike as a listing (sell their bike).
8. Check that users can create a request to rest a bike.
9. Check that administrators can delete inappropriate listings from the website.
10. Check that administrators can approve requests to rent a bike.

Integration testing will be performed as well to ensure that the individual components fit together in an orderly manner.

System testing will be performed last, to ensure that the system will satisfy all functions and non-functional requirements of the project.

# Elaboration – Iteration 2

# Architectural Design Refinement

*[Refine the architectural design: conceptual architecture, package design (consider package design principles), component and deployment diagrams. Motivate the changes that have been made.]*

# Design Model Refinement

## *[Refine the UML class diagram by applying class design principles and GRASP; motivate your choices. Deliver the updated class diagrams.]*

# Construction and Transition

# System Testing

*[Describe how you applied integration testing and present the associated test case scenarios.]*

# Future improvements

*[Present future improvements for the system]*

# Bibliography