Sri Lanka Institute of Information Technology

Programming Applications and Frameworks (IT3030)

Continuous Assignment – 2024, Semester 1

Initial Document

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1 Project Description

FitConnect emerges as a lighthouse for fitness enthusiasts looking for a dedicated space to connect, share, and grow in their fitness journeys in an era where health and wellness are becoming more and more important. FitConnect is a dynamic, community-driven environment that goes beyond social media to encourage users to adopt healthier lifestyles, monitor their progress, and motivate others in the process. FitConnect's main goal is to give fitness fans a smooth and enjoyable experience by offering a feature-rich platform with functions for user management, post management, user engagement, and comprehensive workout and meal tracking. Our goal is to foster a dynamic and supportive community where users can share their fitness achievements, workout routines, healthy meal ideas, and engage in meaningful interactions to stay motivated and inspired.

- **User Management**

User Management is a key feature of our fitness social media platform, enabling users to communicate, maintain profiles, and connect with others. Users can follow each other, utilize search functions, and stay updated on fitness experiences. Through secure and scalable implementation, our platform aims to foster community engagement and support users on their fitness journey.

- **Post Management**

Post Management allows the users to share their experiences with the post creation feature. Users can upload photos or videos showcasing their fitness activities, workouts, healthy meals and progress. Although, the users can create and share updates on their current workout status. Users can use the predefined templates to input their workout metrics and track and share their progress. The system provides a user-friendly interface to upload their posts.

- **User Interaction Management**

User Interaction Management covers the processes of facilitating user engagement and communication across the online platform. Features include following, commenting, liking, and notifications that make it easier for people to connect with each other and build communities. These elements facilitate user connectivity, content sharing, and interaction.

- **Workout and Meal Tracking**

The Workout & Meal Tracking Platform is a comprehensive software designed to empower users in efficiently managing their meals and exercise routines. With robust features for planning, tracking, and sharing workouts and nutrition plans, users can create personalized regimens tailored to their goals. The platform fosters community engagement, progress tracking, and offers personalized recommendations, ensuring a seamless and effective fitness and nutrition experience.This provides convenience and flexibility for users to stay on track with their health and wellness journey.

2 The functional requirements for the REST API and the client web application.

2.1 Rest API

- Authorization and Authentication
  - The API should allow users to approve and authenticate themselves, supporting many authentication methods such as OAuth.

- HATEOAS
  - The API must work with Hypermedia as the Engine of Application State (HATEOAS), which requires that responses include links to relevant websites to make it easier for clients to locate and utilize the API.

- Resource Manipulation
  - According to the HTTP verbs POST, GET, PUT, and delete, respectively, the API should be able to create, read, update, and delete resources.

- Rate limiting
  - To preventing abuse and guaranteeing equitable usage, the API ought to have a system in place that caps the quantity of requests that can be made in a given amount of time.

- Cacheable
  - Caching should be supported by the API in order to enhance performance and lower network traffic.

2.2 Client Web Application

- User Registration and Authentication
  - Permit users to create accounts and manage them with their phone, social network, or email credentials. There should be authentication protocols in place to guarantee security.

- Follow and Unfollow
  - To receive updates and recommendations, let users follow or unfollow users.

- Commenting
  - In addition to leaving input on comments, users ought also be allowed to like or dislike remarks.

- Social Sharing
  - Allow users to post their photos and updates on the platform.
- Notification System
  - Inform users when there are new likes, comments, and follows. It should be possible for users to control their notification settings.

- Profile Management
  - Editing profiles, adding photos, and controlling privacy settings should be possible for users.

3 The non-functional requirements for the REST API and the client web application

3.1 Rest API

- Performance
  - The API should be designed to be very performant, with fast response times and low latency, even under high demand.

- Scalability
  - In order to accommodate a high volume of users and queries without sacrificing dependability or performance, the API should be scalable.

- Maintainability
  - The API should be readily maintained with a clear division of duties, modularity, and high-quality code to facilitate updates, bug fixes, and feature additions.
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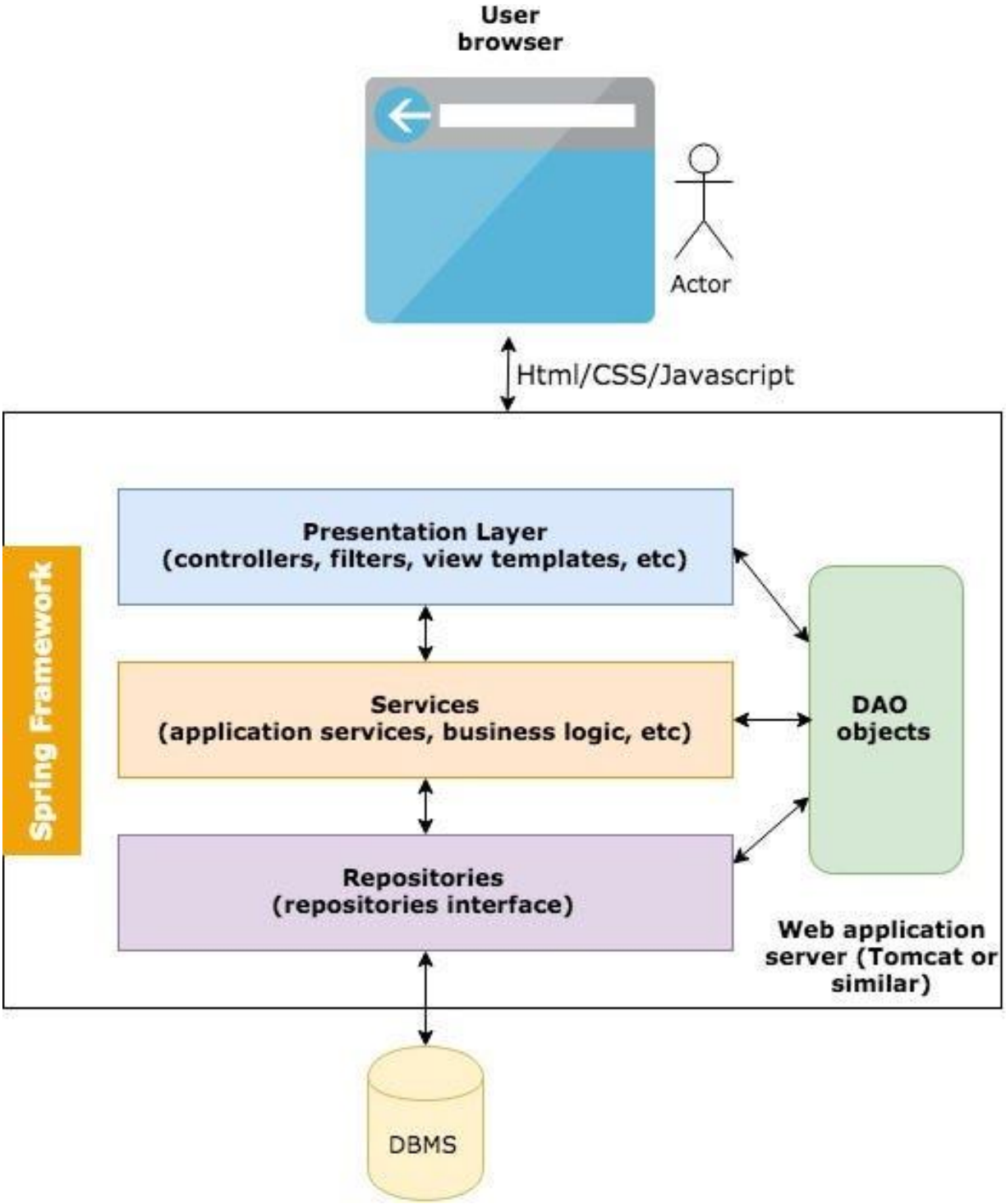
- Security
  - Security must be considered when designing the API, and measures must be taken to preserve sensitive data, stop unwanted access, and ensure the API's confidentiality, integrity, and accessibility.

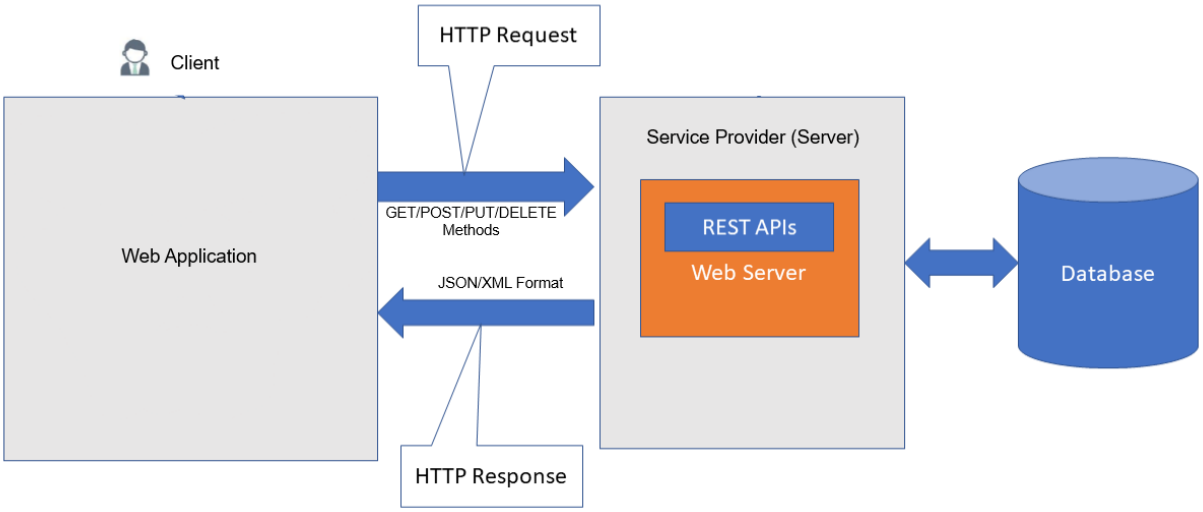
3.2 Client Web Application

- Usability
  - The website should be simple to use and navigate even for non-technical users.
- Privacy
  - In order to protect their privacy, users should be able to control who can access their personal information and reviews on the website.
- Reliability
  - The platform ought to be consistently available with minimal to no downtime.
- Performance
  - The platform should respond rapidly and load pages promptly, even during periods of high demand.
- Compatibility
  - In order for consumers to access the platform from anywhere, it must work with a range of devices and web browsers.

4 Overall architecture diagram for the entire system



5 Architecture diagram for the REST API



6 Architecture diagram for the Client Web Application