

High-level Design Document

Project name:
Twitter

Version: 1.0
Date: 04.02.2023

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1. Introduction

1.1 Project Overview

Twitter is a web application that helps users post short updates with images or videos. Twitter users can share their thoughts, news, and timely information in text format. Besides the microblogging features, Twitter provides social networking services. Users can interact with others, such as liking and disliking other users' tweets and commenting on other tweets. While broadcasting messages, people can exchange their opinions, have discussions, and gather useful information. Tweets are delivered to followers in real-time, so Twitter can be used to share information quickly between users.

With microblogging and social networking features, Twitter is a powerful platform for individual users to connect with others and for big businesses or companies to reach a wide audience quickly.

1.2 System Features

The system feature can be split into two groups: core features, which are an essential part of the product and advanced functionality features to improve the quality and captivity.

The core features include:

- Search for users - Users can search for other users based on their usernames
- Follow other users - Users can follow other users and see their tweets on their news page
- Like/ dislike, comment on tweets - Users can interact with other users by commenting or liking, disliking other people's tweets
- Retweet - Users can retweet other people's tweets as a way of sharing tweets with original user's information
- Post a tweet - Users can post their own tweet

Additional Features:

- Video tweets - Besides tweeting with text or images, users can post video tweets
- Private chat - Users can send private messages to one another

Twitter requires users to log in to interact with other users or post their own tweets. To comment, like or retweet other users' tweets, one has to sign up first and log in to their accounts. The like/dislike count and the comment section will be available to see for everyone reading the tweet, and they can also engage in it. The like/dislike button will increase or decrease the number of likes, and only one count will be shown overall. Twitter also allows users to post video or image tweets instead of only using text for tweets. This would make the platform more interactive and share interesting messages with others. For maintenance and supervision of the application, an admin user is also available, and the admin users can add or remove users if necessary.

2. System Architecture

2.1 Technologies

Figure 1 explains the tools that will be used in the implementation process.

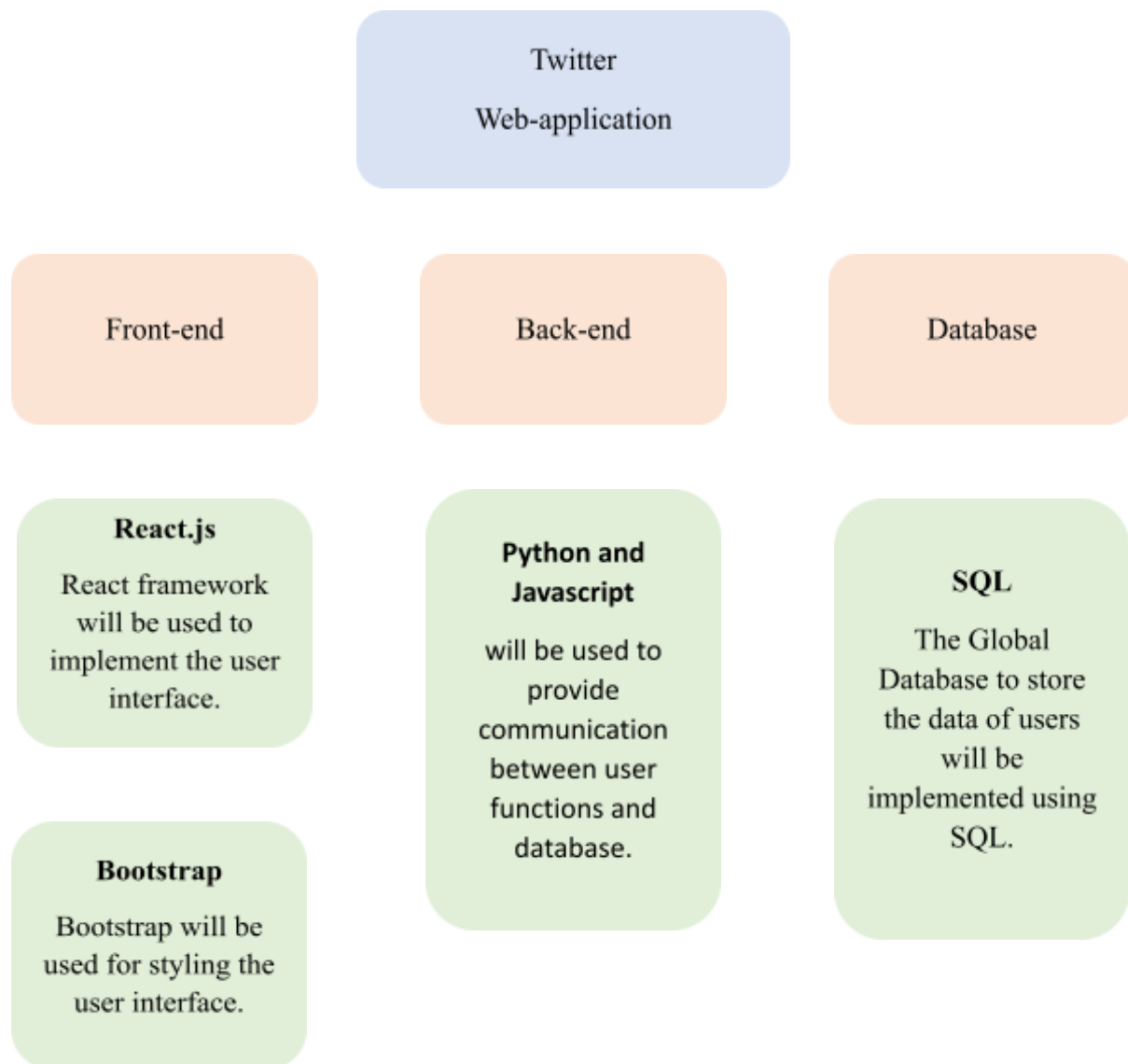


Figure 1. Technologies required for implementation of the project

2.2 Architecture Diagram

Spring 2023

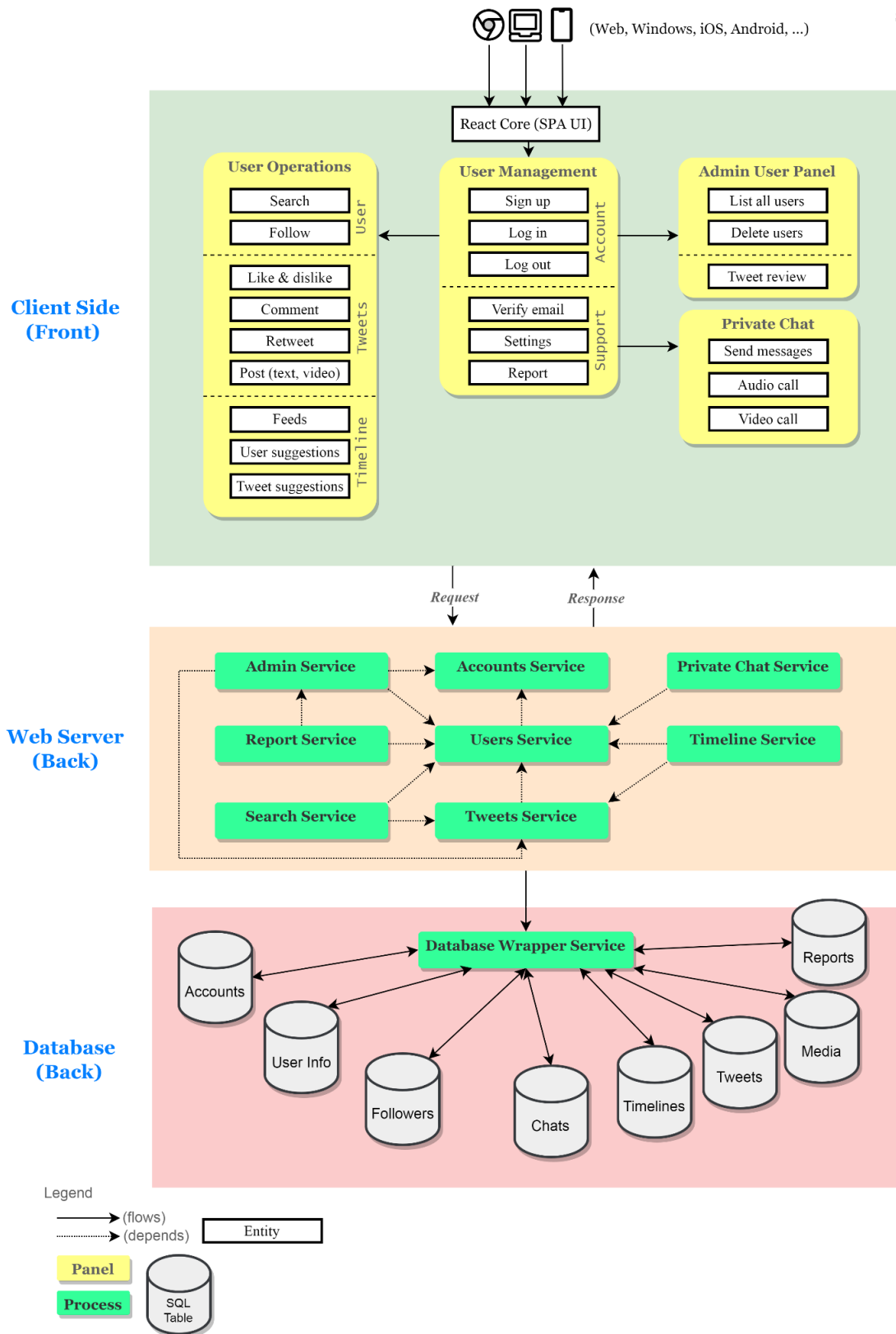


Figure 2. System Architecture Diagram.

2.3 System Components

The given Twitter application's architecture diagram (*figure 2*) consists mainly of 3 components: Database, Client Side and Web Server. Each of the components is represented as a rectangle figure. All relations and flows in the diagram (*figure 2*) are characterized via arrow lines, and dependencies are defined via dotted arrows. All relationships between these 3 components operated using APIs.

In the web application's architecture, Client Side is responsible for providing interactions between users and the web application using the user interface. In particular, the user interface is provided by React Core which is represented as a white rectangle. In the architecture diagram (*figure 2*), all white rectangles represent entities in a web application, while panels on the client side are illustrated via a yellow squircle figure. Each panel consists of features of the Twitter web application, like comments, authorisation, etc. In addition, the client Side interacts with Web Server via request, and response APIs, as shown in the diagram above (*figure 2*).

The Web Server diagram (*figure 2*) consists only of processes, represented as a green squircle figure. After getting requests from Client Side, Web Server operates with Database starts operations like admin service, user service, etc., which are altogether interconnected as in the diagram of architecture (*figure 2*).

In the Database, the web application stores all the application's data in 7 database tables: Accounts, User Info, Followers, Chats, Timelines, Tweets, Media, and Reports. Tables are represented as cylinder figures. All these tables are managed by a database wrapper service which is operated by an SQL database system which is defined as a green squircle figure. The Data Base interacts only with Web Server receiving or sending data via SQL APIs.