

Spartan Cove

- by team: RAYR

Members:

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Abstract

We are excited to announce the following proposed project — "Spartan Cove," a real-time decentralized chat application, customized for all the students, faculty, & staff of SJSU. The goal of this application is to deliver a secure, reliable, and feature-rich communication platform that integrates with the Universities existing infrastructure and increases campus-wide collaboration.

Real-time Communication

The core of this project is built on a robust database architecture, ensuring data redundancy, resilience, and privacy. The application supports real-time messaging, allowing users to send and receive messages instantaneously.

SJSU-Specific Features and Google SSO Integration

Spartan Cove is currently specific to SJSU, so you have to sign up and log in with your Google Single Sign-On (SSO) via your SJSU email. Besides the SSO benefits, this integration also guarantees that only users in the SJSU community identity provider can log in. Teachers need to communicate with students more privately, which is why a directory of all SJSU students and faculty is accessible after logging in letting them search for any student or faculty member for conversation-starting purposes.

End-to-End Encryption and Security

Understandably, security is a key concern for all the communication platforms. Spartan Cove uses a technique called end-to-end encryption (E2EE), which means that only the parties involved in sending and receiving messages and contents can be able to read or listen to these messages. This even includes the app administrators as no one can read your messages, ensuring that this process is completely confidential.

Advanced Communication Features

Tied for the best features are one-on-one messaging and Groups on Spartan Cove. Users can create group chats, join other groups of interest to them, and follow all the members in a particular group! The users can share the multimedia (images, videos, and documents) events simultaneously in the conversation which is another major feature. One convenient and productive part of the application is the ability to schedule: draft messages and have them sent at a later time.

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Notifications and Informative Bot

Spartan Cove will send email notifications when a user signs up and for other significant activities to keep users engaged and informed.

Project Challenges and Risks

While Spartan Cove offers numerous benefits, it also presents several challenges and risks:

- **Data Security and Privacy:** Ensuring robust end-to-end encryption and safeguarding user data across a database to have real-time communication poses significant technical challenges. Any vulnerabilities could lead to data breaches and privacy issues.
- **Integration with Google SSO:** Seamlessly integrating Google SSO while maintaining high-security standards requires careful planning and execution to prevent unauthorized access.
- **Scalability:** The application must handle a potentially large number of users and high volumes of messages, necessitating a scalable infrastructure to ensure consistent performance.
- **User Adoption and Engagement:** Encouraging the SJSU community to adopt a new communication platform involves extensive user training and continuous engagement strategies.
- **Maintenance and Support:** Ongoing maintenance, updates, and support are crucial to addressing bugs, introducing new features, and adapting to evolving user needs and technological advancements.

Project Milestones

Aug 23, 2024 - Team Formation

Sep 18, 2024 - Idea & Abstract Submission

Sep 29, 2024 - Requirements Freeze

Oct 6, 2024 - Architecture & Design Implementation

Nov 17, 2024 - Development Complete

Nov 24, 2024 - System Testing

Dec 1, 2024 - Deployment to Production

Dec 5, 2024 - Project Presentation

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Project Requirements

To align with the professor's requirements for the Enterprise Software Platform course, Spartan Cove will also incorporate the following features and deliverables:

1. **Single Sign-On (SSO) / AD Authentication with SSL/TLS Encryption:** Implement secure authentication to ensure only verified SJSU users can access the application.
2. **Application/Web Portal for Viewing/Browsing Enterprise Employee Data with SSO Roles:** Enable users to view and browse sample enterprise employee data, incorporating role-based access controls.
3. **GitHub Integration (Optional):** Integrate the GitHub repository with SSO for streamlined code management and version control.
4. **Jenkins Integration:** Integrate Jenkins with SSO and GitHub for continuous integration and continuous deployment (CI/CD) processes.
5. **Additional Integrations/Features for Higher Grade:** Consider integrating additional features such as layered security, social media integration, document repository, and Salesforce integration.

Project Deliverables

1. **Project Plan:** A detailed project plan in .docx format, outlining the scope, objectives, timeline, and resources required for the project.
2. **Project Presentation:** A comprehensive project presentation in .pptx format, highlighting key aspects of the project.
3. **Project Report:** A detailed project report in .docx format, including design patterns, diagrams, use/test cases, screenshots, and references.
4. **Live Project Presentation:** A 15-minute live presentation where each team member presents a portion of the project.
5. **Code Repository:** [RAYR_Spartan_Cove: CMPE-272 Project \(github.com\)](https://github.com/RAYR_Spartan_Cove/CMPE-272_Project)

By addressing these requirements and deliverables, Spartan Cove will not only meet the academic criteria but also provide a robust, secure, and user-friendly communication platform for the SJSU community.

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Conclusion

One initiative on campus is the new Spartan Cove, aimed to create a more connected and safe campus space. With features like real-time messaging, end-to-end encryption, audio and video calls, and user directory search to discover new features; the goal of integrating essential components for a community-wide communication system might be achieved. Adding to its utility are innovative features such as message scheduling and an intelligent bot thereby making it a must-have in the university's digital ecosystem. However due consideration to the challenges and risks involved needs to be given to ensure that the initiative becomes a success and is also sustainable over time.
