**The requirement should be good enough succinct enough to be a requirement**

**(well define) for every requirement what Data Points and the logic breakdown for the requirements**

**How do I validate and verify it?**

**Registration System Functionalities:**

1. Allow users to create an account from the start page
2. Implement a user-friendly registration form with necessary fields such as first/last name, username, email, and password
3. Validate user inputs for error handling
4. Add domain-specific email verification to confirm user identity
5. Utilize an encryption algorithm for storing and protecting user credentials
6. Generate unique user identifiers
7. Provide users with a confirmation message upon successful registration

*User Story*: As a new user, I want to be able to create an account from the start page. This means using a simple registration form with my first and last name, username, email, and password, ensuring my details are validated for accuracy and completeness. I also expect to receive a unique user identifier for seamless interaction within the system.

**Login System Functionalities:**

1. Allow users to log into their account if already registered
2. Develop a secure login page with fields for username or email and password
3. Clearly communicate reasons for login failure, such as incorrect username/email, password
4. Utilize HTTPS secure authentication to ensure data encryption
5. Implement a "Remember Me" option by generating a session or web token to match the user identifier
6. Provide users with a logout option after a successful login

*User Story*: As a registered user, I want to be able to log into my account. This means using a user-friendly login page equipped with fields for entering either my username or email along with my password. In case of any login errors, I anticipate clear communication, specifying reasons such as an incorrect username/email or password. The implementation of a "Remember Me" option, would be helpful for future sessions. After a successful login, I want a visible logout option.

**Password Management System Functionalities:**

1. Store passwords using standard hashing algorithms
2. Guide users with providing with a password complexity and criteria options
3. Allow users to reset their password from the login and their account page
4. Add a secure password reset page with fields for username or email
5. Implement a password reset flow with a reset link sent to the user’s email
6. Suggest users to set up security questions during the registration process for a secondary method of a password reset

*User Story*: As a user who forgot the password, I want to be able to reset it either from the login or my account page. It should allow me to input my username or email and have the reset link sent. Having a prompt during registration to set up security questions for a secondary method of password would be useful. Additionally, it would be helpful to view the suggestions on complexity and criteria in order to create a password.

**Profile Creation System Functionalities:**

1. Enable users to create profiles
2. Ensure a visually appealing and user-friendly interface for a profile page
3. Design a step-by-step profile creation wizard with intuitive navigation and clear instructions
4. Allow users to add a brief interactive bio
5. Provide an option for users to upload a profile picture
6. Integrate tooltips and contextual guidance through helpful suggestions or prompts to assist with a comprehensive and understanding profile creation

*User Story*: As a new user, I want to be able to create a profile page. The step-by-step wizard, with intuitive navigation and clear instructions would guide me through the process. I would appreciate the option to add a brief interactive bio and the ability to upload a profile picture enhancing the visual appeal of my profile. The integration of tooltips and contextual guidance would help me ensure that I can create a comprehensive profile, with helpful suggestions and prompts at every step.

**Profile Editing System Functionalities:**

1. Allow users to easily update and modify their profiles
2. Implement user appropriate editable fields for profile details
3. Ensure synchronization of edited information to the user's profile page
4. Enable users to view and revert to previous versions of their profiles
5. Provide options for setting certain information as public, private, or visible to others

*User Story*: As a user, I want to be able to easily update and modify my profile. The synchronization of edited information to my profile page is likely to be essential for a reflection of changes. Having the ability to view and revert to previous versions of my profile would be very useful. The option to set specific information as public or private to others allows me to tailor my profile's visibility.

**Personal/Academic Information Management System Functionalities:**

1. Allow users to showcase their personal & academic background on their profile
2. Implement customizable fields for users to input personal information such as their interesting facts and contact details
3. Include fields for users to input academic details such as major, graduation year, and academic & extracurricular activities
4. Enable users to link academic projects or publications to their profiles

*User Story*: As a user, I aspire to present a view of my personal and academic information on my profile. It should allow me to input data with customizable fields for interesting facts and contact details. Additionally, I can input key academic details, such as major, graduation year, and my involvement in various academic and extracurricular activities. Having the capability to link academic projects and publications to my profile would be very useful.

User Authentication Module:

*The primary sub-functionalities include:*

*Registration System:*  
Objective: Allow users to create accounts securely within the GCU domain

Technical implementation:

* Utilize a robust encryption algorithm for storing and protecting user credentials
* Implement a user-friendly registration form with necessary fields such as name, email, and password
* Validate user inputs to ensure accuracy and completeness
* Generate unique user identifiers for seamless system interaction

*Login System:*

Objective: Enable registered users to securely access their accounts

Technical implementation:

* Develop a secure login page with fields for username/email and password
* Use session or web tokens for secure and efficient user authentication
* (Implement a multi-factor authentication option for an additional layer of security)
* (Implement account lockout mechanisms after multiple unsuccessful login attempts to prevent unauthorized access)

*GCU Domain Exclusivity:*

Objective: Ensure that only GCU people can access the platform

Technical implementation:

* Utilize domain-specific email verification to confirm user identity
* Utilize GCU's existing authentication system or integrate with GCU's directory services for user verification
* Implement Single Sign-On (SSO), allowing users to use their GCU credentials for seamless access

*The secondary sub-functionalities include:*

*Password Management:*

Objective: Provide a secure mechanism for users to manage and recover their passwords

Technical implementation:

* Enable users to reset passwords through a secure password recovery process
* Implement password complexity requirements to enhance security
* Store passwords securely using industry-standard hashing algorithms
* Utilize password strength meters to guide users in creating robust passwords

*Account Deactivation:*

Objective: Allow users to delete (deactivate) their accounts securely

Technical implementation:

* Provide a user-friendly account deactivation option within the user profile settings
* Implement a secure process for permanently removing user data upon account deactivation

*Biometric Authentication:*

Objective: Offer a convenient and secure method for user identification

Technical implementation:

* Integrate biometric authentication methods such as facial recognition
* Allow users to enable or disable biometric authentication based on their preference
* Implement a secure storage mechanism for biometric data, following industry standards

Profile Management Module:

*The primary sub-functionalities include:*

*Profile Creation:*

Objective: Enable users to create detailed and personalized profiles

Technical implementation:

* Design an intuitive profile creation wizard for users to input personal and academic information
* Implement validation checks to ensure the accuracy and completeness of profile information
* (Allow users to upload a profile picture and customize other visual elements)
* (Incorporate tooltips and guidance to assist users in creating comprehensive profiles)

*Personal Information:*

Objective: Provide a space for users to share personal details

Technical implementation:

* Implement customizable fields for users to input personal information such as bio, interests, and contact details
* Allow users to control the visibility of personal information based on privacy preferences
* Provide options for users to link to external personal websites or social media profiles

*Academic Information:*

Objective: Allow users to showcase their academic background

Technical implementation:

* Include fields for users to input academic details such as major, graduation year, and academic achievements
* Implement integrations with GCU's academic databases for seamless retrieval of academic information
* Enable users to manage and update academic information as their status evolves
* Allow users to link academic projects or publications to their profiles

*The secondary sub-functionalities include:*

*Profile Editing:*

Objective: Allow users to easily update and modify their profiles

Technical implementation:

* Implement a user-friendly interface for editing profile information
* (Integrate with notification systems to inform users of successful profile updates)
* (Implement real-time updates to reflect changes in profile information across the platform)

*Interactivity Features:*

Objective: Enhance user engagement through interactive profile features

Technical implementation:

* Allow users to like, comment, or share content on other users' profiles
* Integrate a section where users can highlight collaborative projects, group memberships, or shared accomplishments
* Implement a notification system for profile interactions, including endorsements, comments, and collaborative project engagements

*Profile Search and Discovery:*

Objective: Facilitate the user profile discovery within the application

Technical implementation:

* Implement a search functionality for users to discover profiles based on criteria such as interests or academic background
* Optimize search algorithms for efficient and accurate profile discovery
* Integrate with the group interaction system to identify users with similar interests

**SYSTEM REQUEST**

**Project Name:** GCU Connect - Enhancing the GCU Community

**Project Sponsor:**

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**Business Need:**

To establish a comprehensive social media application exclusively for Grand Canyon University's (GCU) community, fostering improved communication, collaboration, and engagement among students and staff. The aim is to create a versatile platform that seamlessly integrates academic, social, and extracurricular features, enhancing the overall quality of life for the school’s community members.

**Functionality:**

*The primary functionalities include:*

Cross-Platform Accessibility:

Develop the application for both iOS and Android platforms, ensuring broad coverage of the user base and accessibility on various devices.

User Authentication:

Implement a secure login and registration system within the GCU domain, ensuring the exclusivity of the platform to GCU students and staff.

Profile Management:

Allow users to create and manage profiles with personal and academic information, fostering a sense of community and personalization.

Messaging (Public & Private):

Implement a chat system for private and group messaging with real-time functionality, facilitating direct communication and collaboration.

News & Events Feed:

Display recent news, announcements, and an events calendar for academic, social, and extracurricular activities, promoting awareness and participation.

*The secondary functionalities include:*

Group Interactions:

Create a system for users to join or create interest-based groups and communities (e.g., study groups, clubs, or event committees).

Notifications:

Set up notifications to alert users about messages, events, and important updates, ensuring timely and relevant engagement.

Event Registration:

Allow users to register for events or activities directly through the platform, streamlining the participation process.

Search and Explore:

Enable users to search through a list of academic, social, and extracurricular activities, fostering exploration and participation.

Feedback & Reporting:

Allow users to report inappropriate content or issues and provide a system for user feedback and feature requests, promoting a safe and user-driven environment.

**Expected Value:**

Tangible:

* Anticipate a significant increase in user engagement, leading to a positive impact on the GCU community.
* Potential collaboration opportunities with GCU departments and external partners.

Intangible:

* Enhanced sense of community and connection among GCU students and staff.
* Potential for increased enrollment and positive brand recognition for GCU.

**Special Issues or Constraints:**

* The project is deemed strategic for GCU, aligning with industry trends indicating the growing importance of social platforms in educational settings.
* Without the implementation of the GCU Connect platform, GCU risks falling behind in providing a competitive and engaging environment for its community members.
* The system should be ready for deployment before the start of the upcoming academic year to maximize its impact on student engagement and community building.

**RDP**

**Project Title**:

GCU Connect - Enhancing the GCU Community

**Project Overview:**

GCU Connect is an innovative social media application designed exclusively for the Grand Canyon University’s (GCU) community. This comprehensive platform aims to foster better communication, engagement, and collaboration among GCU students and staff. By seamlessly integrating academic, social, and extracurricular features, GCU Connect will provide a versatile and user-friendly space for connecting, sharing, and collaborating, ultimately strengthening the bonds within the GCU community.

**Technical Specifications:**

Front-End Development: The application will be developed using Flutter, a powerful software development kit, and Dart programming language. This choice ensures a consistent and visually appealing user interface, while facilitating cross-platform accessibility on both iOS and Android devices.

Back-End Development: To support the application's functionality, a robust back-end infrastructure will be established using Java with the Spring Boot application framework. This approach ensures scalability, security, and optimal performance.

Database Management: User data will be securely managed using a MySQL database system, facilitating seamless interaction within the application.

GCU Connect (A social media application for GCU's people). GCU Connect will be an innovative social media application which will provide a versatile and user-friendly platform for connecting, sharing, and collaborating, and ultimately strengthening the bonds within the GCU’s community. This project will seamlessly integrate academic, social, and extracurricular features to enhance communication, collaboration, and engagement within the school community. This comprehensive platform will combine technologies, using Flutter software development kit and Dart programming language for the front-end development, Java with Spring Boot application framework for the back-end development, and MySQL database management system for the database connections. Objectives are to create a feature-rich, cross-platform mobile application using Flutter that will be accessible to both iOS and Android users, establish a robust back-end infrastructure using Java with Spring Boot to support the application's functionality, ensuring scalability, security, and optimal performance, and finally implement a MySQL database to securely manage user data and facilitate seamless interaction within the application.

Project Objectives:

Exclusive GCU Platform: GCU Connect is tailored exclusively for the GCU community, enhancing the school's unique environment, and serving its students and staff.

Long-Term Commitment: The project is designed for long-term success, with ongoing development and feature enhancements to meet the evolving needs of the GCU community.

Community Enhancement: GCU Connect aims to improve the quality of life for GCU's students and staff by promoting communication, collaboration, and engagement.

Project Phases:

Year 1 - First Semester:

Planning and Research: Define project objectives, conduct in-depth user research, and outline the app's features based on user needs.

Design Phase: Create wireframes and design mockups in alignment with user research findings.

Initial Development: Begin building the core functionality of the application using Flutter and Dart.

Year 1 - Second Semester:

Continued Development: Implement planned features with a focus on academic, social, and extracurricular aspects.

Beta Testing: Invite a select group of users to participate in beta testing, gathering valuable feedback for refinement.

Iterative Improvement: Make necessary adjustments based on user feedback for an improved user experience.

Year 2 - First Semester:

Completion and Testing: Finish implementing features, conduct extensive testing to identify and resolve any issues.

Launch Preparation: Develop a comprehensive launch plan and provide user training and support.

Year 2 - Second Semester:

Official Launch: Launch GCU Connect within the GCU community, generating awareness and excitement.

User Feedback and Documentation: Continue gathering user feedback and document the development process and its impact on the GCU community.

NOTES

1. Specifically limited for GCU’s people only

2. A project that will go long and keep going

3. Very useful and for the betterment of GCU’s community growth

4. Something that interests me (not that of a social guy I am)

5. Valuable for school’s environment

6. Platform aims to focus on a COMBINATION of academic, social, or extracurricular activities

7. Both on iOS and Android

8. Could be beneficial for online students to connect them (large population of them)

9. Flutter/Dart < ease of development

10. Partnership with school (might be funding, too)

11. Solve a real-world problem

12. Only way that may help me come out of my shell and connect with my peers

13. Keep adding on functionality features

14. Year 1 (First Semester): Project Planning and Research: Define objectives, conduct user research, and outline the app's features and functionality. Design Phase: Create wireframes and design mockups. Begin Development: Start building the app's core functionality.

15. Year 1 (Second Semester): Continue Development: Work on implementing the app's features. Beta Testing: Invite a small group of users to test the app and gather feedback. Iterate and Improve: Make necessary improvements based on user feedback.

16. Year 2 (First Semester): Complete Development: Finish implementing all planned features. Extensive Testing: Conduct thorough testing to identify and fix bugs. Prepare for Launch: Develop a launch plan

17. Year 2 (Second Semester): App Launch: Officially launch the app within my school community. Gather User Feedback: Continue gathering feedback and making refinements. Document and Present: Document the development process and results for my capstone project presentation.

18. Flutter provides a rich set of widgets and tools for creating a consistent and visually appealing user interface. This ensures that the application will have a cohesive look and feel.

19. High-performance characteristics. Flutter can achieve native-like performance by compiling to native code, resulting in smooth animations and responsiveness.

20. Plenty of resources, tutorials, and libraries to help during the development journey.

21. Excellent support for integrating with native features and third-party libraries, ensuring I can incorporate essential functionality into the application

22. The app will enhance communication, engagement, or other aspects of student life

23. Backend: Firebase (with server-less functions)

24. DB Management: Firebase Realtime Database

25. Authentication: Firebase Authentication

26. Push Notifications: Firebase Cloud Messaging & Apple's Push Notification Service

28. Or Professor Sparks’

29. Gave me access to the pre-course padlet

30. Need to start learning Flutter/Dart

**Functional Requirements:**

1. User Authentication:

* Implement a secure login and registration system
* Only accessible within the GCU’s domain

1. Profile Management:

* Allow users to create and manage their profiles with personal and academic information
* Enable customization for profile pictures, bios, and other details

1. News & Events Feed (modest)

* Each of the GCU’s colleges’ recent news, announcements, updates and etc.
* Build an events calendar for social, academic, and extracurricular actives on campus (career fairs, games, concerts and etc.)

1. Group Interactions

* Create a system to join or create interest-based groups and communities (study groups, bible study sessions, and etc.)

1. Messaging (Public & Private)

* Implement a chat system for private and group messaging
* Ensure the real-time chat functionality and notifications

1. Notifications

* Set up notifications to alert the users about messages, events, and important updates

1. Feedback & Reporting

* Allow users to report inappropriate content or issues
* Create a system for user feedback and feature requests

**Technical Requirements:**

1. Cross-Platform Development:

* Develop the app for both iOS and Android platforms using Flutter and Dart

1. Backend and Database:

* Use Firebase as the backend, incorporating serverless functions and the Firebase Realtime Database for real-time data storage

1. Push Notifications:

* Implement Cloud Messaging for Android and Apple's Push Notification Service for iOS

1. Security & Privacy:

* Ensure strong data security and user privacy through secure user authentication and data encryption

1. User Testing and Feedback Loop:

* Plan for beta testing with a small group of users to gather feedback and iteratively improve the app.
* Plan to keep adding new functionality and features as the app matures.

**Detailed version**

**Project Overview:**

The project is aimed at developing a social media application exclusively for the students and faculty of Grand Canyon University (GCU). The application is intended to serve as a multifaceted platform that combines academic, social, and extracurricular functionalities. The project will span multiple years, with a focus on creating a useful and impactful tool for the GCU community.

**Project Objectives:**

1. **Target Audience:** The application is specifically limited to GCU's students and staff environment for the GCU community.
2. **Longevity:** The project is intended to be a long-term venture, continuously evolving, and growing to meet the changing needs of the GCU community.
3. **Community Enhancement:** The primary goal is to enhance the quality of life for GCU's community members by providing a platform that fosters engagement and communication.
4. **School Environment:** The application should bring huge benefits to the school environment, such as improved communication, engagement, and collaboration among students.
5. **Academic, Social, and Extracurricular Focus:** The platform will combine features that cater to academic, social, and extracurricular activities to create a well-rounded experience for users.
6. **Cross-Platform:** The application should be accessible on both iOS and Android devices to ensure broad coverage of the user base.
7. **Real-World Problem Solving:** The application should address real-world challenges faced by the GCU community, such as communication gaps, information distribution, and community building.
8. **Personal Growth:** Beyond its benefits to the community, the project should offer personal growth opportunities by helping you break out of your shell and connect with your peers.

**Project Phases:**

**Year 1 - First Semester:**

* **Project Planning and Research:** Define project objectives, conduct in-depth user research, and outline the app's features and functionality based on user needs and challenges.
* **Design Phase:** Create wireframes and design mockups that align with the user research findings and project objectives.
* **Begin Development:** Start building the core functionality of the application, utilizing Flutter's widgets and tools for a consistent and appealing user interface.

**Year 1 - Second Semester:**

* **Continue Development:** Work on implementing the planned features, with a focus on the academic, social, and extracurricular aspects.
* **Beta Testing:** Invite a small group of users to participate in beta testing, gathering valuable feedback for refinement.
* **Iterate and Improve:** Based on user feedback, make necessary improvements to the application's functionality and user experience.

**Year 2 - First Semester:**

* **Complete Development:** Finish implementing all planned features and functionalities, ensuring a clean and well-rounded application.
* **Extensive Testing:** Conduct thorough testing to identify and rectify any bugs or performance issues, ensuring a high-quality user experience.
* **Prepare for Launch:** Develop a comprehensive launch plan that includes user training and support strategies.

**Year 2 - Second Semester:**

* **App Launch:** Officially launch the application within the GCU community, creating awareness and excitement.
* **Gather User Feedback:** Continue gathering feedback from users and the GCU community, making further refinements as needed.
* **Document and Present:** Document the development process and results for your capstone project presentation, highlighting the impact on the GCU community.