

SMVDU Club App

Introduction

This document describes the design and development of SMVDU Club App, an Android application that aims to provide a unified platform for all the student clubs in Shri Mata Vaishno Devi University (SMVDU). The document covers the following aspects of the project:

- The problem statement and the objectives of the app
- The target users and their needs
- The features and functionalities of the app
- The architecture and components of the app
- The user interface and user experience design of the app
- The testing and evaluation methods of the app

Problem Statement and Objectives

The problem statement for this project is as follows:

In the vast expanse of Shri Mata Vaishno Devi University (SMVDU), numerous student clubs actively operate, each with its unique purpose, events, and activities. While these clubs are the lifeblood of campus culture, keeping track of their multifaceted activities can be a daunting task for students. Our challenge is to design and develop a unified application that brings all these clubs under a single digital umbrella.

The objectives of this project are to create an app that:

- Allows users to view a directory of all clubs within SMVDU with descriptions, key contacts, and associated events.
- Provides a detailed calendar or timeline showcasing upcoming events, workshops, and seminars from all clubs.
- Sends real-time notifications for club activities, event updates, and announcements.
- Enables users to join or register for specific clubs or events seamlessly within the app.
- Facilitates collaboration, communication, and interaction among club members through dedicated forums or chat rooms.
- Offers access to resources, reading materials, or other content shared by clubs.
- Provides a dashboard for club administrators to manage events, send notifications, and update their club's information.

The overarching goal is to create a one-stop digital platform that strengthens the connection between the student body and clubs, fostering increased participation, collaboration, and a vibrant campus culture. The solution should prioritize user experience, scalability, and real-time data management.

Target Users and Needs

The target users of this app are:

- Students of SMVDU who are interested in joining or participating in various club activities.
- Club members who want to stay updated with their club's events, announcements, and resources.
- Club administrators who want to manage their club's information, events, and notifications.

The needs of these users are:

- To have an easy and convenient way to discover and explore different clubs and their activities.
- To have a personalized and interactive experience with the clubs they are interested in or belong to.
- To have a reliable and secure platform to communicate and collaborate with other club members or administrators.
- To have a consistent and updated source of information about the club's activities, events, and resources.

Features and Functionalities

The app provides the following features and functionalities to meet the needs of the target users:

Club Directory

The app allows users to view a list of all the clubs within SMVDU with their names, logos, descriptions, key contacts, and associated events. Users can filter or search for clubs based on their categories, keywords, or preferences. Users can also view the details of each club by tapping on its name or logo. The details include:

- The club's mission statement, vision statement, objectives, history, achievements, etc.
- The club's current members, alumni, advisors, sponsors, etc.
- The club's upcoming or past events, workshops, seminars, etc.
- The club's contact information such as email address, phone number, social media links, etc.

Club Calendar

The app provides a detailed calendar or timeline that showcases all the upcoming or past events from all the clubs. Users can view the events by day, week, month, or year. Users can also filter or search for events based on their categories, keywords, or preferences. Users can also view the details of each event by tapping on its name or icon. The details include:

- The event's name, description, date, time, location, etc.
- The event's organizer(s), speaker(s), guest(s), etc.
- The event's agenda, objectives, outcomes, etc.
- The event's registration link, requirements, etc.

Club Notifications

The app sends real-time notifications to users for various club activities, event updates, and announcements. Users can customize their notification settings based on their preferences, such as frequency, sound, vibration, etc. Users can also view their notification history by tapping on the notification icon on the app's home screen. The notifications include:

- Reminders for upcoming events, workshops etc.
- Updates on event changes, cancellations, reschedules, etc.
- Announcements on new club members, achievements, awards, etc.
- Invitations to join or register for specific clubs or events.

Club Registration

The app enables users to join or register for specific clubs or events seamlessly within the app. Users can view the registration requirements and instructions for each club or event by tapping on the join or register button on the club or event details screen. Users can also fill out and submit the registration form within the app. The registration process includes:

- Providing personal information such as name, email address, phone number, etc.
- Selecting preferred club or event to join or register for.
- Answering optional questions or surveys related to the club or event.
- Agreeing to the terms and conditions of the club or event.
- Receiving a confirmation email or message after successful registration.

Club Forum

The app facilitates collaboration, communication, and interaction among club members through dedicated forums or chat rooms. Users can access the forum of each club by tapping on the forum icon on the club details screen. Users can also create new topics, reply to existing topics, or vote on topics within the forum. The forum features include:

- A list of all the topics created by club members, sorted by date, popularity, or relevance.
- A search bar to find topics based on keywords or phrases.
- A create topic button to start a new discussion or question related to the club.
- A reply button to comment on an existing topic or answer a question.
- A vote button to express agreement or disagreement with a topic or a reply.
- A report button to flag inappropriate or offensive topics or replies.

Club Resources

The app offers access to resources, reading materials, or other content shared by clubs. Users can access the resources of each club by tapping on the resource's icon on the club details screen. Users can also view, download, share, or bookmark the resources within the app. The resources include:

- Documents such as reports, presentations, papers, etc.
- Images such as photos, posters, flyers, etc.
- Videos such as recordings, tutorials, demos, etc.
- Audio files such as podcasts, interviews, speeches, etc.

- Links such as websites, blogs, articles, etc.

Club Dashboard

The app provides a dashboard for club administrators to manage their club's information, events, and notifications. Users can access the dashboard of their club by tapping on the dashboard icon on the app's home screen. Users can also edit, add, delete, or update their club's information, events, and notifications within the dashboard. The dashboard features include:

- A summary of the club's statistics such as number of members, events, notifications, etc.
- A list of all the club's information such as name, logo, description, key contacts, etc.
- A list of all the club's events such as name, date, time, location, etc.
- A list of all the club's notifications such as title, message, recipients, etc.
- An edit button to modify any of the club's information, events, or notifications.
- An add button to create new information, events, or notifications for the club.
- A delete button to remove any of the club's information, events, or notifications.
- An update button to save any changes made to the club's information, events, or notifications.

Architecture and Components

The application will use the Model-View-ViewModel (MVVM) architecture, which includes a Firebase backend and an Android frontend. Here's how the components align with the MVVM pattern:

Model: The model layer is represented by Firebase, a cloud-based platform that offers various services for mobile application development. This includes:

- **Firebase Authentication:** For user authentication through different methods like email/password, Google account, Facebook account, etc.
- **Firebase Fire store:** NoSQL database service for storing and syncing data accessible in real-time from any device.
- **Firebase Storage:** For storing and retrieving files such as images, videos, audio files in a cloud storage bucket.
- **Firebase Cloud Messaging:** For sending and receiving real-time messages and notifications between devices and servers.

View: The view layer is handled by Android.

- **Android Material Design:** Provides guidelines and components for creating consistent and interacting UI.

ViewModel: The ViewModel layer is managed by Android Studio and Android SDK, which include:

- **Android Studio:** An Integrated Development Environment (IDE) offering tools for developing and testing Android applications.
- **Android SDK:** A Software Development Kit (SDK) providing libraries and APIs for accessing various Android device features.
- **Android Jetpack:** A set of libraries and components that assist developers in following best practices, reducing boilerplate code, and writing high-quality Android applications.

This architecture ensures a clear separation of concerns, making the application easier to maintain and test.

User Interface and User Experience Design

The app follows the principles and components of Android Material Design and Jetpack Compose to create a user interface that is consistent and interacting. We will also follow the best practices of user experience.