

Streamlined Application for Managing College Events

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Abstract—Colleges and universities perform as vibrant hubs for a wide range of activities in today's educational scene, such as sporting tournaments, art exhibits, and cultural festivals. Nonetheless, effectively planning and running these kinds of events is a complex task. Presented in this paper is the creation and deployment of a state-of-the-art web application called "Streamlined Web Application for Managing College Arts and Sports Events." With features for administrators, participants, attendees, and organizers alike, this all-inclusive platform is made to streamline the entire event management process. It includes planning, scheduling, data analysis, registration, and event creation. With capabilities specifically designed for each sector, it also fills the gap between arts and sports event administration. By utilizing contemporary web technologies, the application makes sure that stakeholders are in constant connection by providing timely updates and debates. By encouraging diversity and thoughtful decision-making and embracing the changing relationship between technology and education, the following paper seeks to cultivate a dynamic event culture in college settings.

Index Terms—Web-based Platform, Colleges Management, Event Registration, Event Management System, User-Friendly Interface, Flutter (Front-end), Python (Back-end), Database Structure, Event Evaluation, Audience Polls, Real-time Updates, Notification System

I. INTRODUCTION

The function of colleges and universities in the modern educational environment goes beyond purely academic endeavours. These establishments provide an atmosphere that encourages all-around growth and community involvement. They are thriving hubs for cultural and sporting events. The wide range of activities that occur on campus is a crucial component of this complex experience. These events have a broad range, from sports championships that represent the

pinnacle of physical prowess and teamwork to cultural festivals and art exhibits that honour creativity. Although these activities add a great deal to the diversity of college life, organising and running them can be difficult. The people who plan events, who are frequently teachers or students, have to coordinate scheduling, registration, logistics, and communication; they frequently rely on manual procedures or disjointed systems. Convenient access to event details, registration procedures, and real-time updates is what participants and attendees desire, though. The burden of supervising several activities at once falls to college administrators, who need to find effective ways to coordinate and analyse data in order to allocate resources and plan ahead. To tackle these issues, we propose the "Streamlined Web Application for Managing College Arts and Sports Events."

The development and implementation of this cutting-edge online application are examined in detail in the subsections that follow, along with an examination of its main functions, underlying technology, and revolutionary effects on the educational event environment. We showcase the application's adaptability and versatility as we explain how it works in the context of both sporting and artistic activities. We also investigate the possibility of data-driven decision-making that the software offers educational establishments.

This Automated System for Organising Academic Events highlights an important nexus between learning and modern technology, providing an achievable way of improving college event quality, encouraging inclusion and involvement, and assisting administrators in making well-informed decisions. As colleges continue to evolve in response to changing student needs and technological advancements, this web application represents a crucial step towards fostering a more vibrant and efficient event culture within these academic institutions.

II. LITERATURE SURVEY

In [1], for the front-end system of the application, technologies like HTML, CSS, and JavaScript, along with popular frameworks/libraries such as React, Angular, or Vue.js, might be used to create the user interface. The back-end system may use server-side technologies like Node.js, Ruby on Rails, Django, or ASP.NET for handling server-side logic and database interaction. The system may use NoSQL databases to store user data, event information, and project details. QR code generation and verification may be implemented using libraries or APIs specifically designed for creating and reading QR codes.

In [2], The Web-Based College Event Management System and Notification Sender use modern web technologies for efficient event management and notifications. The technology stack includes HTML, CSS, JavaScript, PHP or Python for backend, and MySQL for data storage. Security measures, such as encryption and user authentication. The Notification Sender employs SMTP for email and SMS gateways for text messaging. Advantages of these systems include streamlined event processes, elimination of paperwork, improved accessibility, and automation of critical tasks. However, potential drawbacks include technical issues like server downtime, security concerns with online data storage, and a learning curve for users.

In [3], the methodology for developing a dynamic website and system encompasses several key phases. Technology selection follows, choosing server-side languages, client-side scripting languages, and database management systems based on design requirements. Development entails coding and building components like event management. Comprehensive documentation is crucial, covering architecture, design, codebase, and user/administrator instructions. Finally, an evaluation phase assesses user satisfaction, system performance, and security to gauge how well the system meets its objectives.

In [4], the proposed application employs a range of technologies for both front-end and back-end development, including HTML, CSS, JavaScript, and frameworks like React for the user interface. Server-side logic and database interactions are handled by back-end technologies such as Node.js, Ruby on Rails, Django. The advantages encompass convenience, efficiency through QR code authentication, real-time information updates, and improved security with proper authentication. However, potential disadvantages include technical challenges in development and maintenance, reliance on user adoption for success, concerns about data security, possible technical issues affecting user access.

In paper [5], Python is a versatile and scalable language for web applications, suitable for a wide range of projects with an extensive community and ecosystem. The readability of Python's syntax contributes to code maintainability, and its cross-platform compatibility allows for development across various operating systems. Security considerations for information systems involve encryption, strong authentication, input validation, secure session management, data validation,

regular updates, access control, audits, monitoring, user education, and robust backup and disaster recovery plans to ensure data availability during incidents.

The study in [6] proposes a distinctive scheduling application that merges digital functionality with analog-like tactile experiences, replicating features of traditional analog clocks. By incorporating hand movements, 24h/12h time displays, and characteristic mechanical sounds through digital methods, the application seeks to provide users with a unique and enhanced scheduling experience. While offering the advantages of enhanced usability and a tactile interface, potential challenges may arise in terms of user adaptation to this hybrid approach and the added complexity introduced by replicating analog features in a digital context.

In [7], The "VNR CONNECT" project introduces a mobile application aimed at revolutionizing event organization and communication within a college or university setting. Leveraging Flutter and Firebase technologies, the project addresses the limitations of manual event management systems. The use of Firebase ensures real-time data updates, emphasizing the project's commitment to leveraging cutting-edge technology for a more connected and engaged college community. Access to the complete paper is essential for a thorough evaluation of methodology, results, and overall project relevance.

In [8], The paper employs Firebase as a key method for the development of an Android application aimed at enhancing communication within educational institutions. Firebase, serving as a Backend as a Service (BaaS), streamlines the backend management, enabling developers to prioritize interface and feature development. The integration of Firebase eliminates the need for developers to create separate server-side programs, enhancing efficiency. Firebase is widely recognised for its interoperability across the web, iOS, and Android apps, thereby delivering a reasonable choice for creating a version of the mentioned communication application.

This paper [9] recommends using an Android application similar to that for college training and placement. This program arranges its placement events, student information in the form of a list, and event details are displayed on a new page. One drawback of this design is that users' smartphones aren't updated with the most recent occurrences. Users must periodically check the program to ensure it is updated. In [10] The event management software "Hikester," which aims to let users host and invite others to different events, is presented in the paper. It describes the architecture of the project and how important aspects like the spam identification service and recommender system are being developed. The backend runs on Firebase and uses the VIPER design pattern for the mobile app and JSON API for front-end communication.

The paper [11] points out problems with laboratory management education and suggests a programme to fix them. It uses a cross-platform approach to analyse user demands, design the architecture with UML, and implement the application with Java. Testing, release, and debugging come next. The goal is to provide a mobile platform for the digitalization of computer laboratories. In [12], it looks at how student club

administration may be revolutionised by big data technology, moving from static to dynamic procedures. It highlights how big data may improve club administration, assessment, recognising student requirements, and boosting interclub contact. It also reports on low resource sharing efficiency.

The [13] addresses a platform that aims to help students and instructors communicate, with a particular emphasis on its alert system. The mobile application connects the tool to a website, enabling it to function on a mobile operating system. The usage of SMS enhances academic achievement and has a good effect on students' perspectives, according to the authors. In [14], the explained system allows registered users to access its features, while new users can sign up. It offers essential event management capabilities and forwards information to administrators for client sharing. Users can register online, aiding in efficient resource scheduling and college enrollment. The interface is user-friendly, and events are restricted to students from the same college. In paper [15], the project uses a hybrid mobile app (made with Flutter and Firebase) to handle school registration. With the use of databases and student management modules, it makes course scheduling based on schedules easier and has benefits for managing student registrations.

III. PROPOSED SYSTEM

The four interrelated modules that constitute the structure of our system's basis are the Judges, Admin/College, Coordinator, and Participant modules. Collectively, these modules constitute an impressive web-based infrastructure that fits into the demands of learning institutions, administrators, teachers, and students. It offers a customizable and comprehensive strategy that boosts productivity and simplifies mundane duties. The intricacies of the aforementioned structure are examined in the following paper, which offers a comprehensive grasp of the roles, interactions, and overall capabilities of every module to substantially change the administration and oversight of higher educational institutions in the modern era of technology.

A. Participant/Student's Module

The Participant Module of this institution's tracking and administration system comes with a straightforward user interface. Pupils have to initially create a user account on the sign-up page, where their login information and password are confidentially saved in a database. After confirming it, users can take full advantage of several impressive features. The "Register for an Event" function makes it uncomplicated for pupils to sign up for activities and stores participation and event information in the database to guarantee their involvement is clearly documented. The "View Registered Events" functionality optimizes the manner in which participants handle events permitting them to easily peruse an extensive catalog of the events they have submitted registrations for. Finally, the "Download Certificates" feature enables students to retrieve certificates by simply inputting their admission number and name, granting quick and efficient access to their achievements. This holistic approach not only enhances

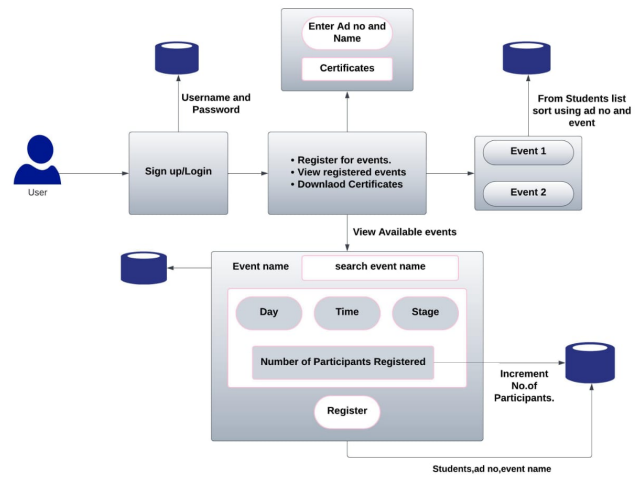


Fig. 1. Participant's Modular Architecture

the participant's experience but also simplifies administrative processes, promoting a more organized and engaged college community.

B. Judges's Module

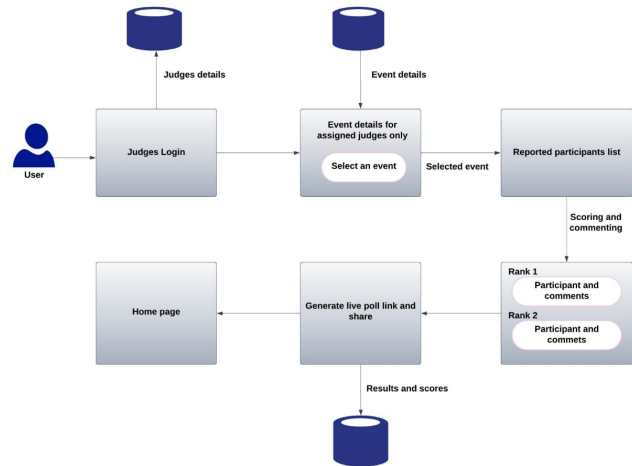


Fig. 2. Architecture of judge's module

The Judges Module, an integral part of our event management application, offers secure user authentication for judges and seamlessly integrates with our three core databases: "Participant Data," "Event Evaluation Records," and "Audience Poll Results." Judges efficiently select and evaluate participants in ongoing events, and assessment data is securely added to the "Event Evaluation Records" database. Furthermore, judges can create real-time audience polls, with questions and polling options stored in the "Audience Poll Results" database, enriching the evaluation process with crowd perspectives. This module ensures transparency and efficiency in event evaluations while providing judges with valuable insights

into participant scores, profiles, and audience engagement data, stored in the respective databases for enhanced event management.

C. Coordinator's Module

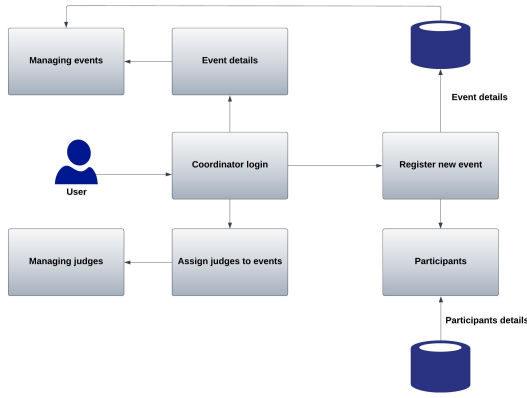


Fig. 3. Architecture of coordinator's module

The architecture of the Coordinator module in the Event Management System is underpinned by a secure Event Coordinator login, which facilitates the registration of new events, triggers notifications to participants upon event creation, and grants access for the management of event details and the assignment of judges. Numerous crucial features are accessible with this login, such as managing event data and assigning and supervising judges to particular events. The setup includes two essential databases: the "Event Database" is a repository for event-specific data, including times, venues, and categories, as well as the "Participant Database" that is used to manage participant data—such as registrations for events and personal information—efficiently. This strong architecture promotes effective event planning and execution by giving the Coordinator the ability to manage events, assign judges, interact with participants, and oversee the smooth operation of athletic and artistic activities held at the college.

D. College/Admin's Module

Our event management system's administrative module acts as a central hub, giving planners and administrators an easy-to-use platform for smooth planning and execution of the event. With an easy-to-use interface, they may quickly enter and update events, control the full event lifetime, assign coordinators, and provide details. By informing coordinators as soon as an event is created, this module not only makes the process of creating events more efficient but also guarantees efficient communication.

Because the system is dynamic, changes may be made in real time, giving administrators the ability to rapidly change

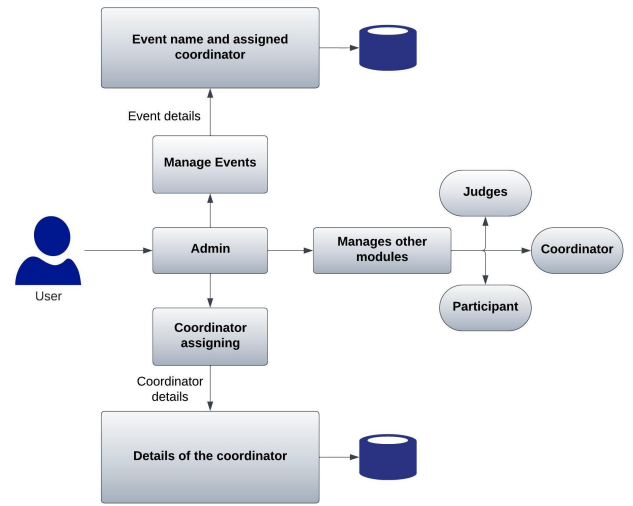


Fig. 4. Admin/college's modular architecture

event details. This all-encompassing strategy improves communication, collaboration, and organization inside the college and offers a centralized platform for effective planning and execution of events. The system turns into an indispensable resource for organizers and administrators, helping to ensure the smooth running of various events for the entire campus community.

IV. IMPLEMENTATION

We have utilised contemporary technologies in the building of our web application to provide a streamlined and effective system. We've used the flexible and strong framework Flutter on the front end. We were able to develop the best user-friendly interface that touches the variety of demands of our participants and guarantees a breathtaking experience over different devices and operating systems because of Flutter's comprehensive widget library.

Regarding the back end, Python has been adopted for developing an accurate and versatile server-side framework. Python is a terrific option for handling information, authentication of users, and immediate data synchronization due to its copious number of libraries and extensibility. A tailored backend solution designed to administer server-side functionalities is being constructed with Django. The primary characteristic of our application is its groundbreaking front-end and back-end collaboration with Flutter and Python. The design and development of our web-based software show expert utilization of contemporary technologies in order to offer a straightforward and productive venue for coordinating college events. Our architecture includes a significant database foundation to accommodate countless modules, Python for the back end, and Flutter for the front-end functionality.

A. Front End: Flutter

Our front-end development has been constructed around the extensible Flutter framework, which is widely recognized for developing aesthetically pleasing and intuitive user interfaces.

With Flutter's extensive component package and compatibility across platforms, designers are able to create an intuitive user interface that assures an identical experience on a wide variety of gadgets and operating machines.

B. Back End: Python and Django

Our front-end development is based on the flexible framework Flutter, which is well-known for producing user interfaces that are both engaging and responsive. Our ability to create a user-friendly interface with Flutter's extensive widget library and cross-platform interoperability guarantees a consistent experience across various devices and operating systems.

C. Database Structure

a) *Participant's Module*: The Participant Module offers a user-friendly interface, starting with a seamless student sign-up page for account creation. Essential login credentials are securely stored in the database. Upon logging in, participants access a suite of powerful features.

- Register for an Event: Empowers students to enroll in various college activities, capturing and storing participant and event details in the database for transparent record-keeping.
- View Registered Events: Participants can conveniently review a comprehensive list of events they've registered for, streamlining their event management experience.
- Download Certificates: Enables students to retrieve certificates by inputting their admission number and name, providing quick and efficient access to their achievements.

b) *Judge's Module*: The Judges Module, an integral part of the event management application, offers secure user authentication for judges and seamless integration with three core databases: "Participant Data," "Event Evaluation Records," and "Audience Poll Results."

- Event Evaluation: Judges efficiently select and evaluate participants in ongoing events, with assessment data securely stored in the "Event Evaluation Records" database.
- Audience Polls: Judges have permission to carry out live crowd polls, which include public perspectives in their judgment process. The incorporates a database of "Audience Poll Results" decision-making and enquiries for surveys.

c) *Coordinators Module*: The conceptual framework of the Coordinator module is based on the secure Event Supervisor login, which enables additional events, the registration process, participant announcements, as well as entry for information about the event changes and judge appointment.

- Event Details Management: The coordinators may effectively handle data pertaining to a specific event, such as timelines, locations, and groupings, by using the "An Event Database".
- Judge Rendezvous: To guarantee successful event implementation, directors can utilize the procedures to nominate and regulate judges for particular ceremonies.

d) *Admins Module*: The administrative module functions as a centralised interface for providing administrators and organisers an intuitive environment for frictionless event management and periodic upkeep.

- Event Creation and Administration: Transferring coordinators, monitoring throughout the course of the event, as well as successfully inputting and updating event data all make the process for producing events easier.
- Real-time Updates: By enabling simultaneous updates of event specifics, the dynamic system enhances interactions, scheduling, as well as coordination among institution personnel.

Because of its trustworthy design, coordinators can effortlessly handle events, decide on judges, interface with participants, and organize and keep track of events.

V. RESULT

Our integrated system design to supervise college activities has successfully combined a number of components, every single of which provides specific purposes that assists in the optimum organisation and execution of campus activities. Our

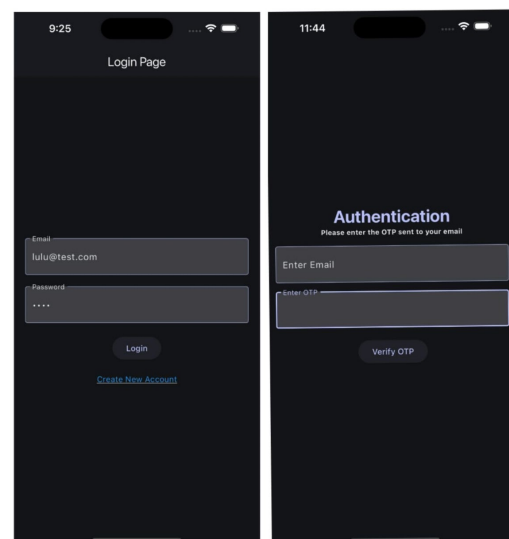


Fig. 5. Authentication OTP is send to mail given during account creation

system ensures security measures through user login using OTP authentication. The Participants Modules optimises the way pupils interact with the computerised system through providing them simple tools for registering events and retrieving certifications. By offering public openness and immediate feedback, and polling options, ranging the Evaluation Module advances the evaluation process. At the same time the Event Coordinator Module makes event scheduling and handling smoother by providing an appropriate environment enabling coordinators to keep tabs on and allocate judges. It makes use of contemporary online technologies to provide straightforward communication throughout every entity involved alongside significant repositories that safeguard data consistency. In order to meet the various needs of college event organizers,

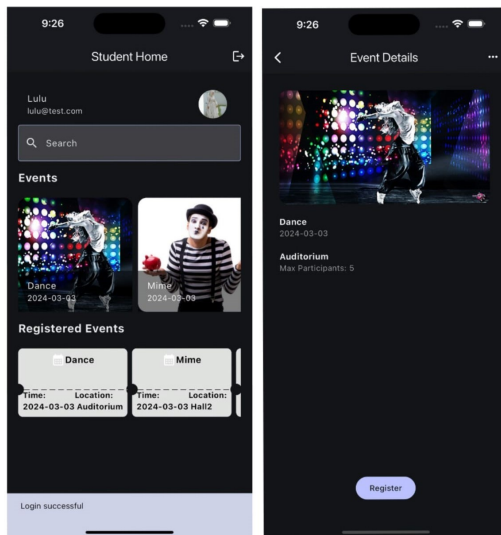


Fig. 6. Students can view list of events and details of each

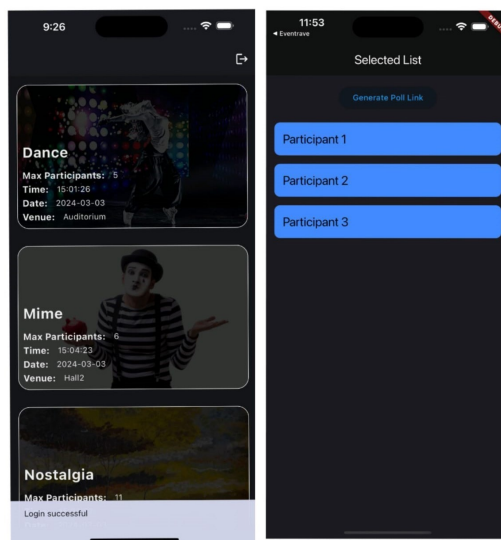


Fig. 7. Assigned of events for judge is listed and add scores

participants, and administrators, our architecture embraces the confluence of arts and sports event management, providing features specifically designed for both fields. Ultimately, our project represents a pivotal step towards fostering a more vibrant and efficient event culture within academic institutions.

We've successfully developed and launched our app, EventRave, and it's now easily accessible for download on the App Store. It offers promising solutions to enhance the quality of college events and contributes to the ever-evolving landscape of education in the digital age.

VI. FUTURE SCOPE

The "Streamlined Web Application for Managing College Arts and Sports Events" project presents substantial opportunities for future development and expansion. These avenues include the integration of advanced technologies like AI

and machine learning to enhance recommendation systems, automate administrative tasks, and provide real-time event analytics. Personalization of the user experience, secure on-line payment gateways, and advanced data security measures are also promising areas of future development. Moreover, advanced reporting and analytics, blockchain integration for certificates, IoT for real-time monitoring, and global expansion possibilities should be explored. Ensuring accessibility features for a broader user base, user training and support, and research collaborations with academic institutions are also pivotal for the project's future success. These directions offer promising prospects for the continuous improvement and expansion of the application, fostering a more efficient and inclusive event culture within academic institutions.

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