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# Software Requirements Specification

for

## Cultural Committee Database

Version 1.0

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# **1 Introduction**

## **1.1 Document Purpose**

The purpose of this document is to suggest the design and implementation of the DAU Cultural Committee Database. The main goal is to create a shared understanding among everyone involved, including the cultural committee, students, faculty, and the development team of how the system will simplify and improve the management of events at DAU..

The document covers the entire DAU Cultural Committee Database. It lists the key modules for managing user accounts, events and their schedules, club activities, student participation, committee members, vendors, budgets, sponsors, and feedback from students and faculty. We aim to build a reliable, well-rounded system that meets our immediate needs and acts as a way that non-technical members can understand how this system will support their daily activities. At the same time, this will lay the groundwork for any improvements we want to make in the future.

## **1.2 Product Scope**

The DAU Cultural Committee Database solves the common problem of scattered information. It serves as an organized hub that centralizes all data related to cultural activities and events at DAU.

Our main goal is to replace old, inefficient methods with one centralized system that is tailored for effectively managing events of the DAU Cultural Committee . This database will be the key resource for every stage of event management that enhances collaboration and transparency. It covers initial planning, budgeting, participant registration, and collecting feedback. This will give committee members a unified view and provide faculty members with a clear overview of all ongoing and upcoming activities.

This new system is not just for storing data; it is about changing the way the Cultural Committee of DAU works. It will significantly reduce administrative tasks for committee members, allowing them to focus more on event planning and systematically collecting and reviewing feedback from students and faculty to create a strong mechanism for continuous improvement. This will help ensure that each future event is better than the last and supports a more lively and engaging campus culture.

## **1.3 Intended Audience and Document Overview**

This Software Requirements Specification Document is a crucial resource for everyone involved in the development and use of the database. It is designed with a variety of audiences in mind, allowing each group to find the information that matters most to them. This document outlines both the functional and non-functional requirements. It also encourages effective communication and teamwork, helping everyone work together towards the project's goals.

Who's this document for?

#### 1. Instructor and Teaching Assistants

This document will be valuable for the instructor and teaching assistants when grading the project. This way, we ensure the project is complete and meets the stated requirements.

#### 2. Project Team (Students)

We will use this document as our main reference throughout the project's development. It defines all the essential requirements, keeping us focused and on track from the start to the finish of the project.

This document acts as a guide for navigating each step of the project.

#### 3. Cultural Committee Members and Event Organizers

As future and primary users of the system, Cultural Committee Members and Event Organizers can read this document to see how the system will make their work easier, simpler and efficient. It will streamline their daily tasks and responsibilities, making event management and participant registration simpler.

This system will let them focus on their creativity and engagement while reducing their workload, bringing clarity and ease to event management, making their daily tasks easier, faster and more efficiently organized.

#### 4. Administrative Staff and Institutional Leadership

They will use the information from the database to improve efficiency and make informed decisions based on student engagement data. This database will help them spot trends and patterns that can guide them in creating more dynamic cultural events that enhance campus life.

This Software Requirements Specification (SRS) document for the Cultural Committee Database is organized to provide a clear understanding of the system's objectives, functionalities, and design considerations. The structure aims to serve a diverse audience, including evaluators, developers, users, and other project stakeholders.

### **Document Overview**

The Software Requirements Specification is organized to guide the readers throughout the entire description of the Cultural Committee Database, starting with general concepts and moving to more detailed information. This structure helps readers understand the goals, operations and functions of the system better.

1. The Executive Summary: This section is for everyone involved in the database. It provides an overview of the project's scope and purpose. It serves as the starting point for grasping the objectives and goals, making it accessible for all.
2. The Core Functionality: This part includes the detailed plan for the project's development process. It outlines what the system will do to support the Cultural Committee's operations, describing its functions and data management processes, and also acts as a guide for project team members.
3. The Technical Foundation: This addresses the "how," focusing on the quality, technical aspects, and performance of the system. It contains essential information for the development team and teaching assistants to ensure the system is strong and reliable.
4. Supplementary Details: This section offers extra information that acts as a key reference for the technical team during system implementation and future maintenance. It ensures all necessary details like integration options and documentation are available for a smooth development process.

## **1.4 Document Conventions**

- **Formatting Conventions**

This document follows the IEEE formatting guidelines to ensure clarity, professionalism, and consistency. The main font throughout the document is Times, with a size of 12 points for the body text. The text is single-spaced for better readability, with uniform 1-inch margins on all sides as required by the template. Section and subsection titles follow the structure and style specified in the IEEE template, with clear differences in font size and weight to aid navigation.

- **Highlighting and Emphasis**

Italic text is used only for comments, explanatory notes, or examples that add to the main content. Bold font is used for section headings and subsection titles to set them apart from regular text. Numbered and bulleted lists are used to present information clearly and concisely, helping the logical flow of requirements.

- **Naming Conventions**

All technical terms, acronyms, and abbreviations are defined when they first appear and listed in the glossary section for consistent understanding. Additionally, variables, system components, and database entities are named descriptively, following common software engineering practices to avoid confusion.

- Document Structure

The document is organized into clearly labeled sections and subsections, each introduced by a header that aligns with IEEE standards. Tables, figures, and diagrams are numbered in order and include descriptive captions for easy reference.

## 2 Overall Description

### 2.1 Product Overview

#### 1. New and Self-Contained System

The Cultural Committee Database is a new software product made for managing cultural events hosted by the cultural committee. It doesn't replace or expand existing systems. Instead, it operates independently, providing a dedicated platform tailored to the specific needs of the committee. This improves the planning, coordination, and execution of various events and brings all the activities onto one easy-to-use platform instead of using manual processes.

#### 2. Environment and Integration

The system runs smoothly within the DAU campus network and includes other tools for managing data and integrating easily with other systems of DAU. It features clear interfaces for integrating with specific external systems like institutional email and calendar services.

#### 3. Primary Users and Daily Interaction

- Cultural committee members review and approve event proposals and their budgets using simple dashboards and also manage volunteer assignments.
- Event organizers (Students or Clubs) submit proposals through proper forms, register participants and manage events. They bring their visions to life and ensure a smooth experience for attendees effortlessly.
- Volunteers easily sign up for tasks and shifts through user friendly interfaces and receive automated reminders.
- Participants can register for events and receive confirmation notifications.
- Administrative staff coordinate scheduling and resources for events, offering their essential support. They also use this system via dashboard to generate reports for gaining insights into the event status and resources usage.

#### 4. System Functionality

- The system centralizes the entire workflow - submission, review, approval, and scheduling process - for cultural events.
- It sends automated email notifications to all participants and attendees, keeping them informed with timely updates such as approvals, changes and remainders.

- Optional synchronization with institutional calendar systems via APIs helps prevent conflicts between events and improves overall coordination in planning, reducing last minute issues.
- The database stores event-related documents in a repository, maintaining records of proposed, revised and approved budgets. This makes record-keeping and reference easier for future use.
- User friendly report generation via dashboards provide detailed views of events, budgets, vendors, volunteers, sponsors and feedback to guide decision making and continuous improvements.

## 5. Modularity and Scalability

- The system is designed to be modular, allowing future integration with other DAU systems. This ensures flexibility for future improvements without compromising performance or usability.
- It has a scalable architecture to support a growing user base and new features, ensuring it remains practical as the committee's needs evolve.

## 6. User Interaction

- Users have different access rights and functionalities based on their roles and responsibilities. Non-technical users can also access the system through simple dashboards designed for ease of understanding, requiring absolutely no knowledge of database languages.
- Technical users such as administrators can access the advanced management tools for system maintenance and security. This ensures each user can access the database according to their specific tasks.

## 7. Document Repository

All event proposals, approvals, and related documents are stored in a centralized system. This organized approach makes tracking and auditing efficient, facilitating easy access to information and enhancing accountability throughout the event planning process.

## **2.2 Fact Finding Techniques**

### **2.2.1 Roleplay by the Team**

Role Play: Developer and Cultural Committee Member Discussing SRS Data

Developer : Anistina Dsouza

Cultural Committee Member: Maryam Shaikh



Developer: Good morning! Thank you for taking the time to meet with me. I'm gathering detailed requirements to build the Cultural Committee Database. Could you help me understand how the cultural committee currently manages events and what key challenges you face?

Cultural Committee Member: Good morning! Of course. Right now, most of our event details, budgets, and participant information are maintained in scattered spreadsheets and emails, which makes tracking and coordination difficult.

Developer: I see. So one of the goals is centralizing all that data. Could you tell me about the main tasks you perform as a committee member during event management?

Cultural Committee Member: Sure. We review event proposals submitted by students or clubs, approve budgets, assign volunteers, schedule venues, and later gather feedback. We also generate reports on event participation and finances.

Developer: That's helpful. Regarding event proposals, who submits them and how?

Cultural Committee Member: Student organizers submit proposals using forms. Currently, this is mostly email or paper-based, but we want it digitized so submissions go directly into the system for review.

Developer: Understood. What about participant registrations? How is that handled?

Cultural Committee Member: Participants register for approved events, sometimes manually via forms or on the spot. It would be great to have a system where registrations are tracked automatically to avoid duplicates and generate attendance summaries.

Developer: Great. For budget management, how do you track approvals and spending?

Cultural Committee Member: Budgets go through multiple versions: initial proposals, revisions, and final approvals. We also monitor actual expenses versus planned allocations. Currently, it's manual and error-prone.

Developer: We'll include a budget versioning feature. How do you manage vendors and sponsors?

Cultural Committee Member: Vendors provide services and submit contracts, which we track for quality and timeliness. Sponsors submit funding and branding details. Keeping these linked to events is important.

Developer: Perfect. What kind of reports or analytics would you find most useful?

Cultural Committee Member: Detailed event schedules, budget consumption reports, participant stats, vendor and sponsor evaluations, and summarized feedback to improve future events.

Developer: That's clear. Lastly, who else will use the system besides committee members and organizers?

Cultural Committee Member: Faculty, administrative staff, volunteers, and possibly guests like judges. They will need varying access levels to view or update relevant information securely.

Developer: Thank you! This gives me a solid foundation for the SRS document. If I may follow up later with more detailed questions, would that be okay?

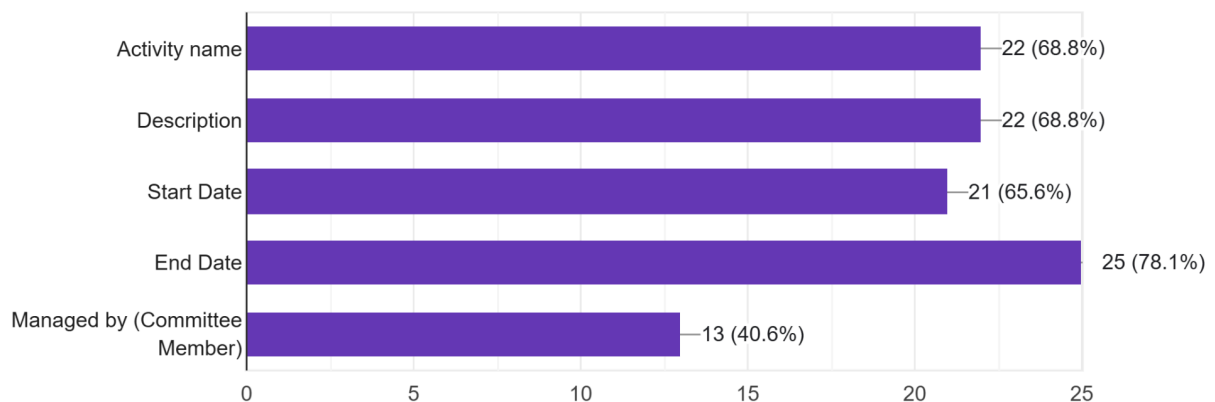
Cultural Committee Member: Absolutely! Happy to help make this system as useful as possible.

This role-play helps simulate a real conversation to extract critical functional and non-functional requirements for the SRS. It ensures the database design aligns with user needs and daily activities.

### 2.2.2 Survey

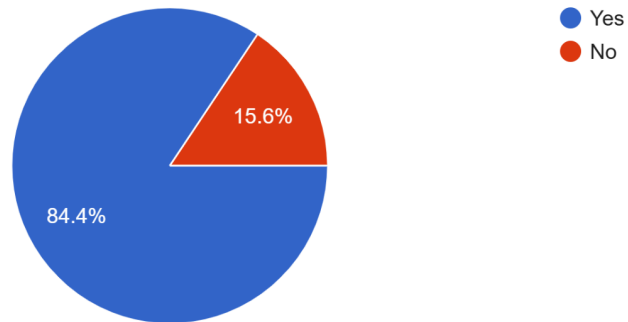
What details should be stored about each activity?

32 responses



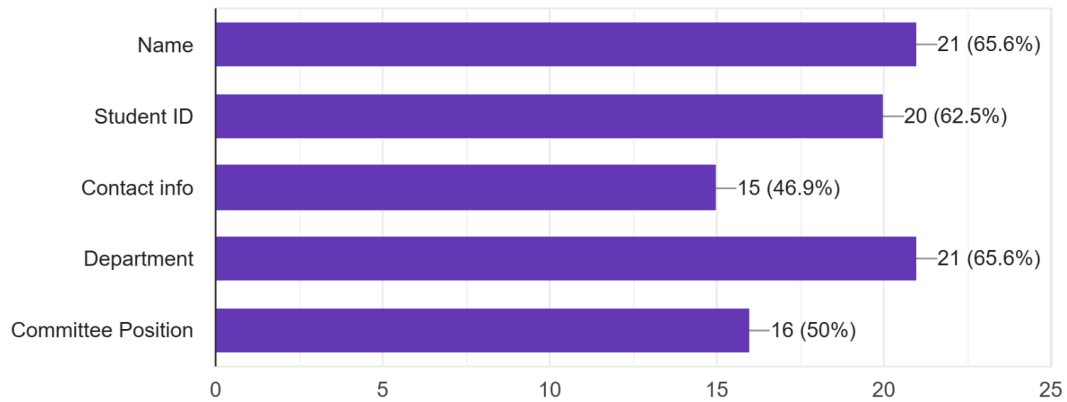
Should the database store information about cultural committee members and their positions?

32 responses



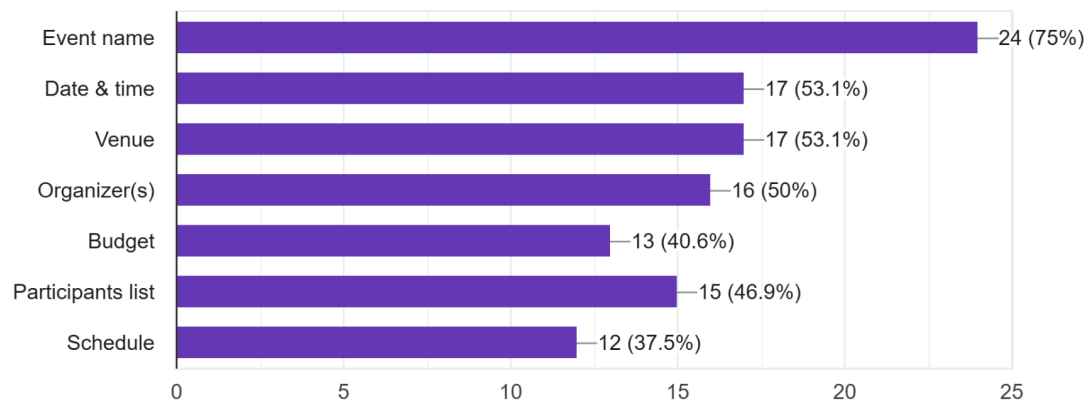
Which details should be stored for committee members?

32 responses



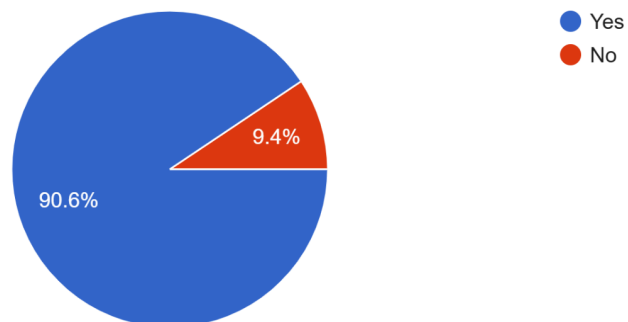
What details should be recorded for each event?

32 responses



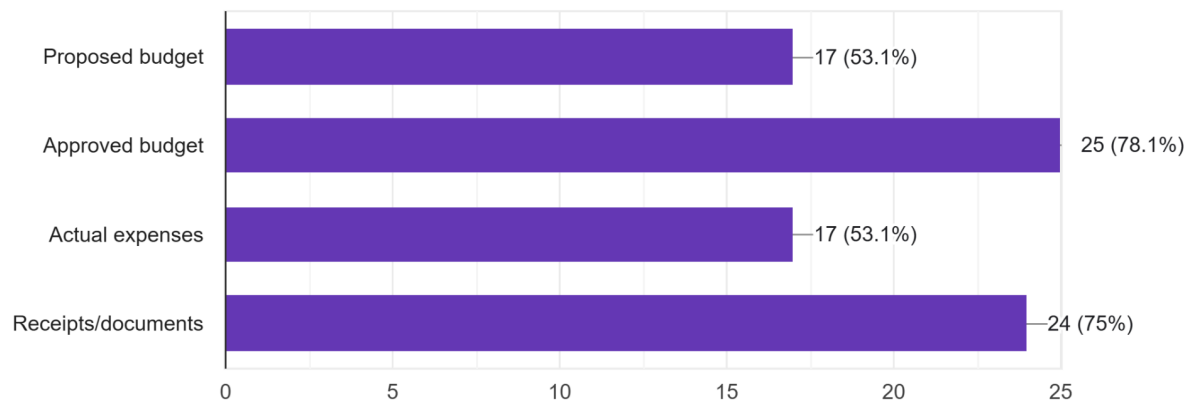
Should the system integrate with institutional calendars to avoid scheduling conflicts?

32 responses



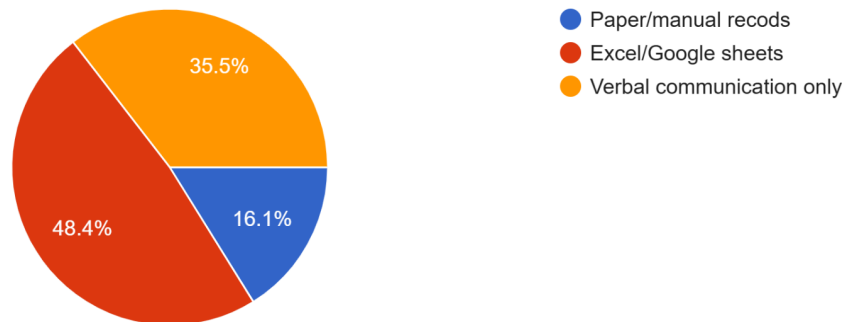
## What budget details should be tracked?

32 responses



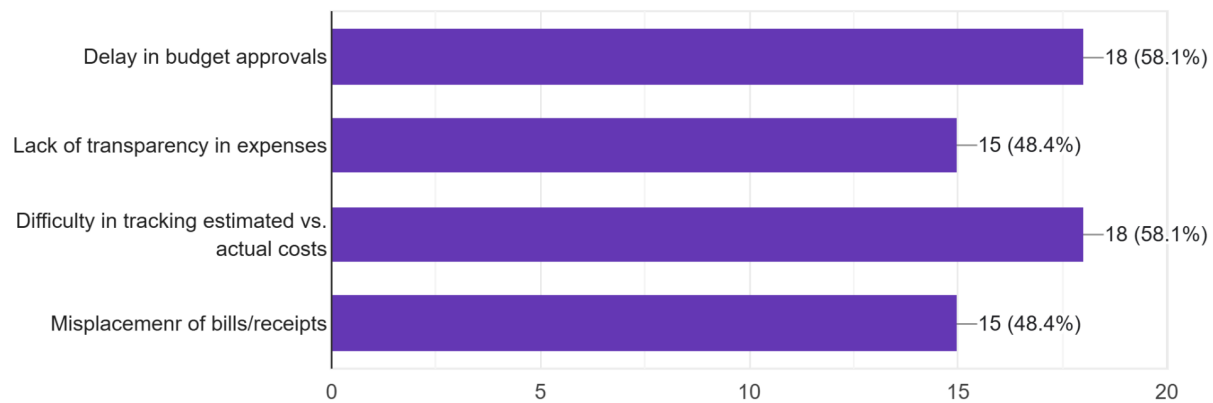
## How are event budgets currently prepared and maintained?

31 responses



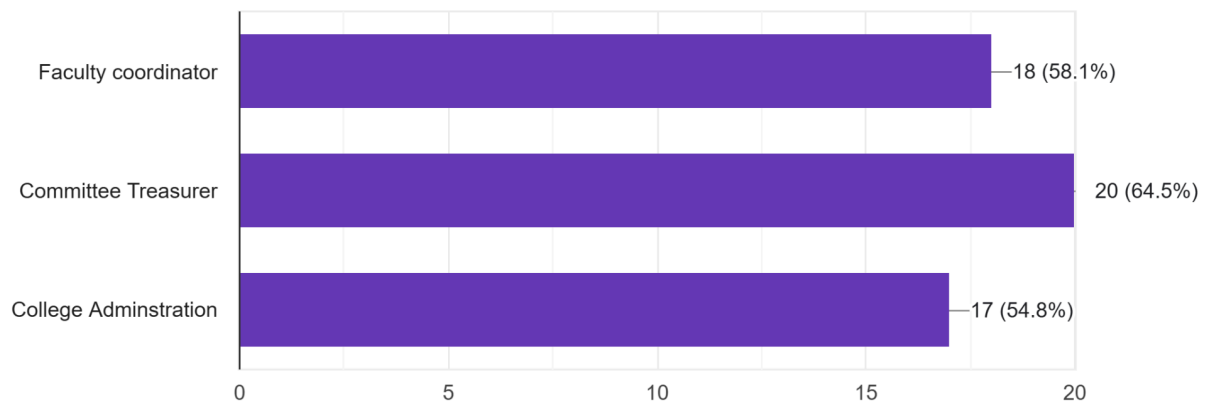
What are the main challenges you face with budget management? (Select all that apply)

31 responses



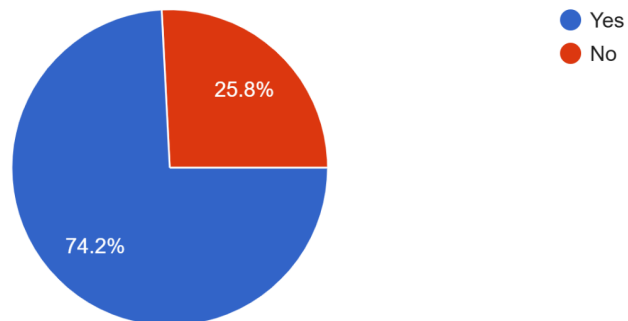
Who is usually responsible for approving cultural event budgets?

31 responses



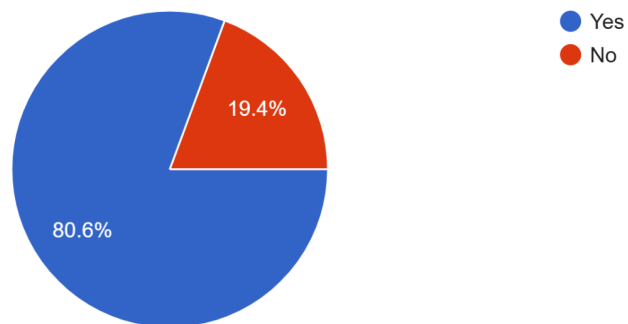
Should the system allow uploading and storing of bills, quotations, and receipts?

31 responses



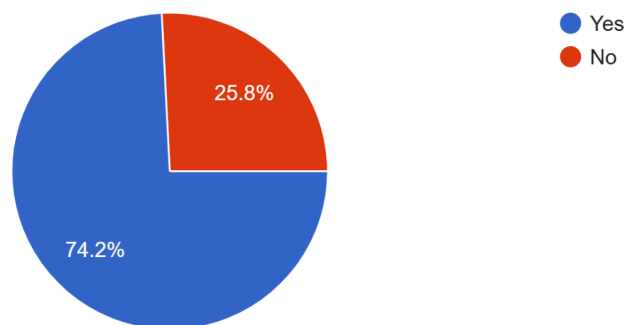
Should spending be categorized? (Food, Logistics, Travel, Decorations, etc.)

31 responses



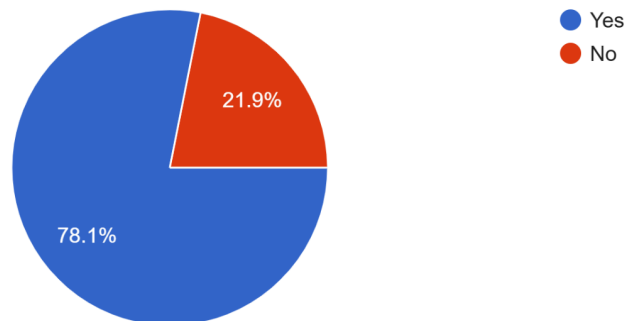
Should each budget entry be linked to specific vendors?

31 responses



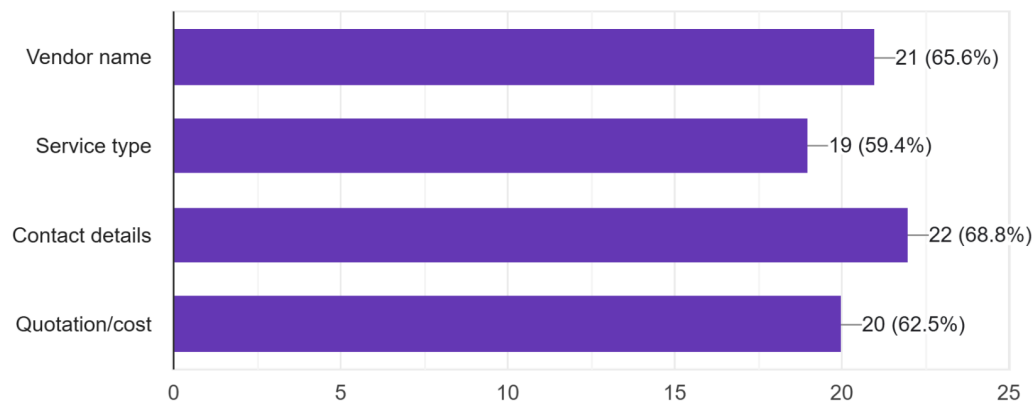
Should the system maintain records of vendors (e.g., decorators, caterers, equipment suppliers)?

32 responses



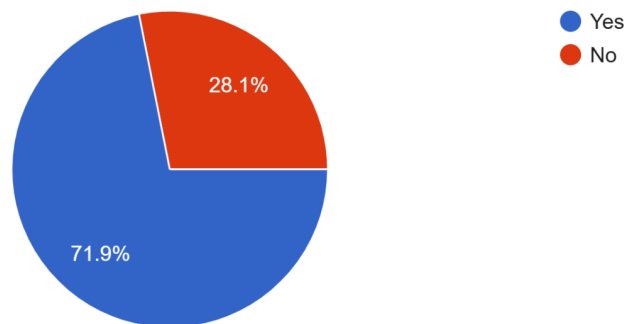
If yes, what vendor details should be stored?

32 responses



Should the database track sponsorships for cultural events?

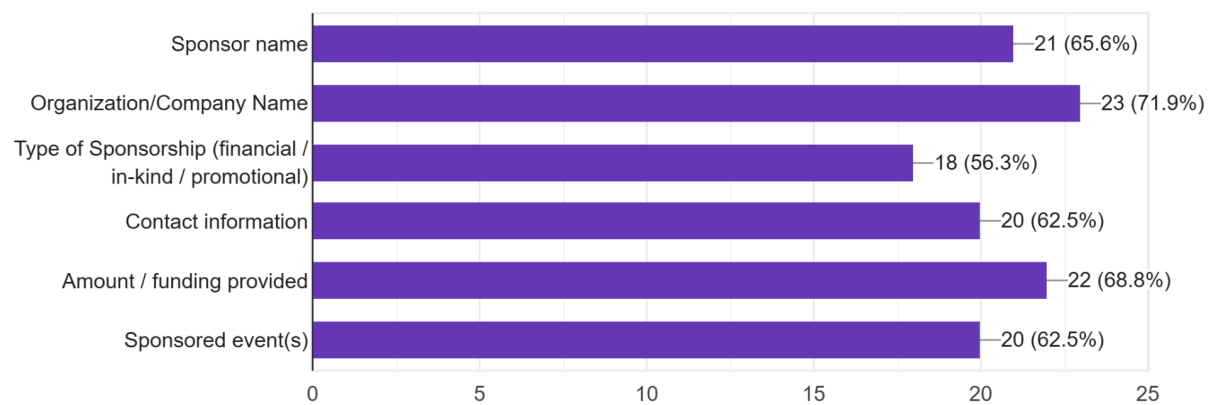
32 responses





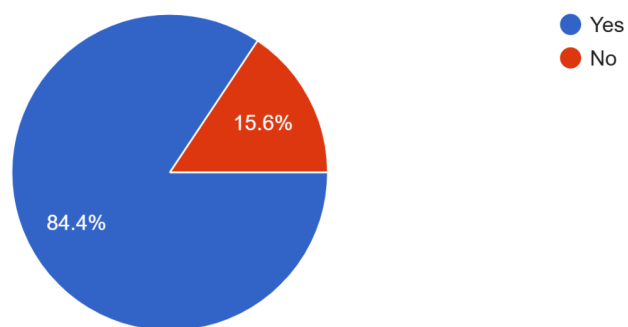
## What sponsor details should be stored?

32 responses



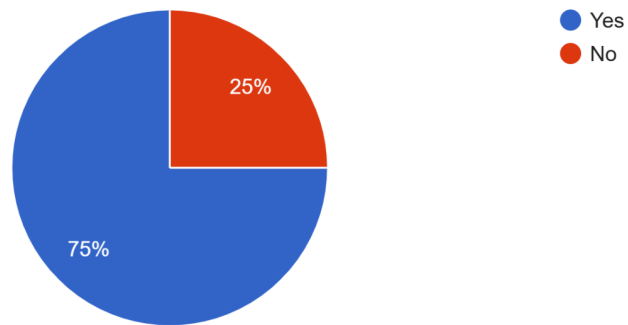
## Should sponsors have access to acknowledgments (certificates, promotional benefits, etc.) through the system?

32 responses



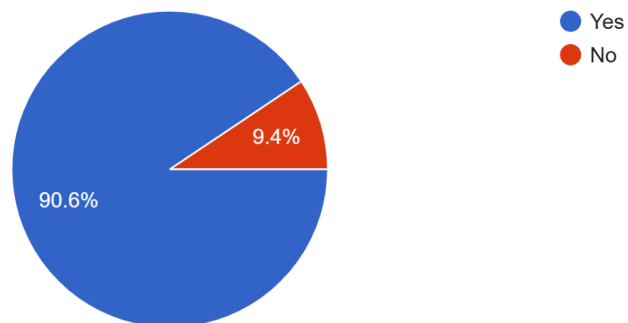
Would you like the system to generate sponsorship reports (total sponsorship received per event/year)?

32 responses



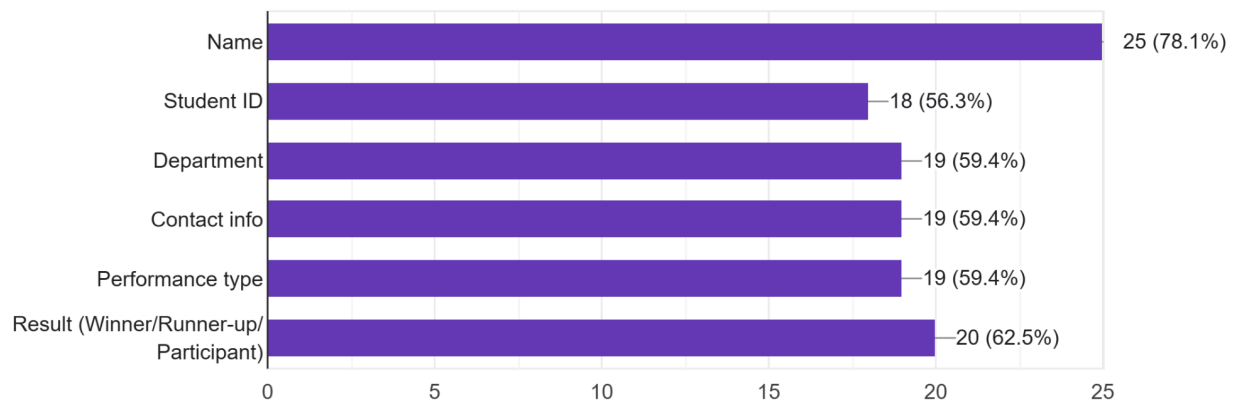
Should students register online for cultural events?

32 responses



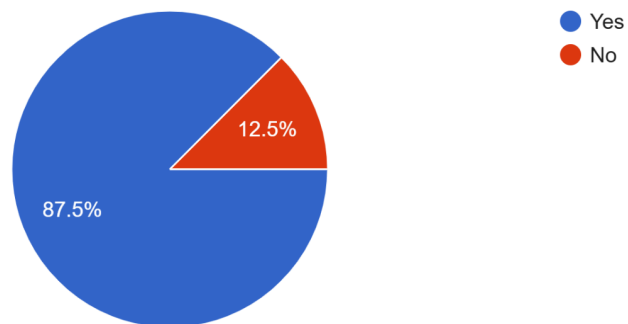
## What participant details should be collected?

32 responses



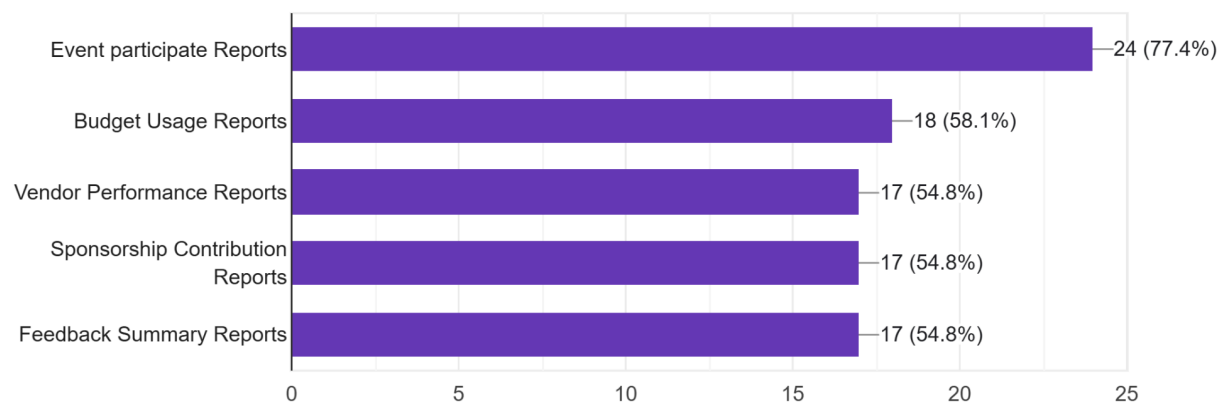
## Should faculty and students be able to provide feedback after events?

32 responses



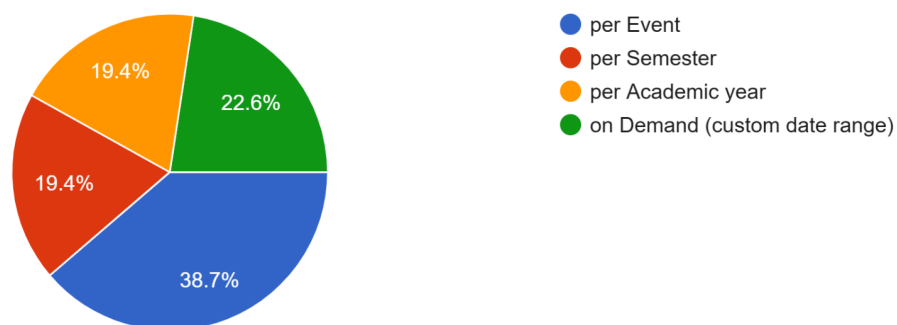
## What types of reports should be generated from the database?

31 responses



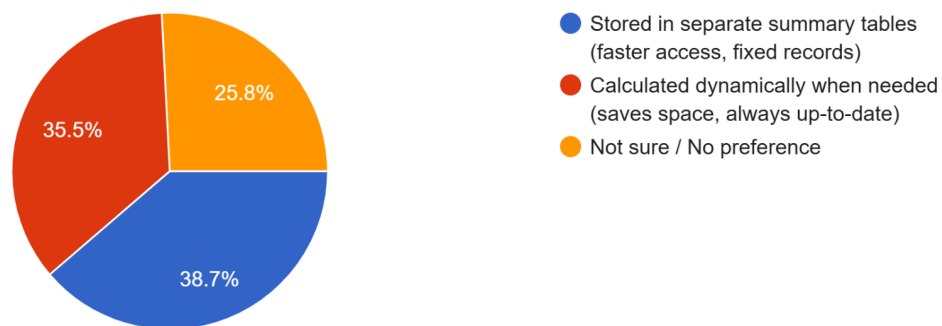
## At what frequency should reports be generated?

31 responses



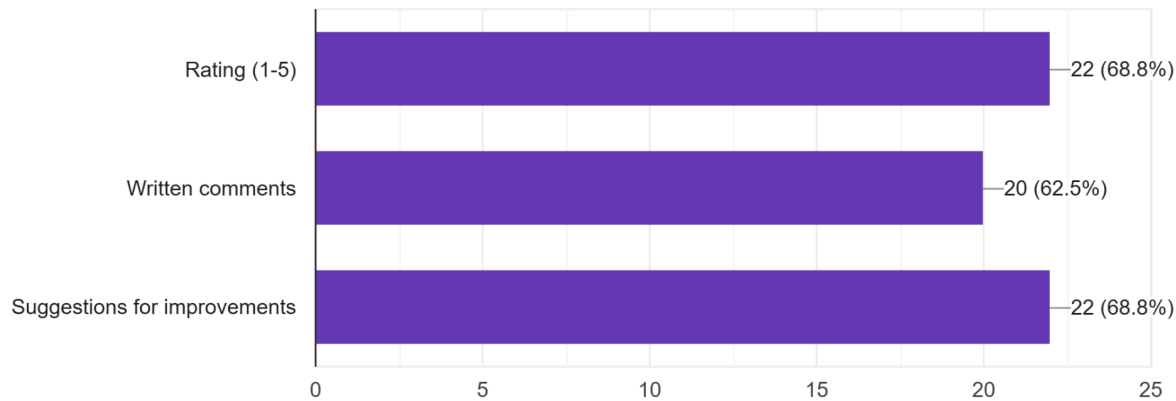
## Should summary statistics be stored or calculated dynamically?

31 responses



What kind of feedback should be collected?

32 responses



## 2. 3 Product Functionalities

The main purpose of the Cultural Committee Database is to provide an organized storage system for all data related to the committee's day-to-day activities. It ensures data accuracy, reduces duplication, and creates clear links between data points. The database improves efficiency within the committee and helps in making informed decisions by offering a complete overview of activities.

### 1. Club Activities Management

- The database acts as a detailed repository for all cultural club activities, capturing important information like activity types, timeframes, and event planning.
- Committee members can log new events that are going to take place. It also supports management by tracking the real-time status of club activities, whether they are planned, active, completed, or archived.
- This feature preserves the DAU's past events and provides necessary information for upcoming activities, promoting continuous improvement and better engagement.

### 2. Committee Members Management

- The database features a clear structure that outlines the entire hierarchy of the committee. It records member profiles, including their roles and responsibilities within the committee. The system captures the specific responsibilities tied to each position, making it easier for organizers to contact the right person.

- As roles and responsibilities change over time, the system keeps track of member contributions and role changes over time.

### 3. Event Management

- The database covers the full event management lifecycle, facilitating the entire process. It tracks detailed event profiles, including participant registrations via guided forms. The system organizes complex scheduling, managing venue assignments and resource needs to avoid booking conflicts.
- It also serves as a central document management system for storing proposals, permits, contracts, and checklists, ensuring nothing gets lost and everyone involved can access up-to-date information, which encourages collaboration and openness during event planning.

### 4. Budget Management

- The database implements an easy to understand financial control system that ensures transparency through multi-level budget approval, submission and tracking. It stores budget versions, including initial proposals, revisions, and approved allocations, for tracking changes.
- The system allows for monitoring spending in real-time, comparing actual expenses to allocated budgets with detailed breakdowns. This feature provides a clear and easy to understand and download financial record.

### 5. Vendor Management

- The database maintains a comprehensive vendor system through detailed vendor profiles that reflect an organization's capabilities. It creates connections between vendor services, specific events, and budget allocations.
- The system tracks contract obligations, service metrics, and performance evaluations through an easy to use dashboard interface.

### 6. Feedback Management

- The database sets up a structured interface for gathering and analyzing feedback via feedback forms. It tracks connections between feedback entries, specific events, and respondents.
- The system enables performance analysis by preserving feedback data and supports ongoing improvement efforts. This feature transforms feedback into valuable insights via thorough data analysis.

## **2.3 Design and Implementation Constraints**

This section of the Software Requirements Specification Document describes the rules and technical limits for creating the Cultural Committee Database. It ensures that the database is well-structured and maintains data integrity, while providing a proper interface for the users.

### **1. Required Design Method**

- We won't use the COMET method (Collaborative Object Modeling and Architectural Design Method) strictly to design the system effectively, but our design process will be collaborative and object-oriented. This method helps create a clear blueprint using objects and models based on the core entities and their relationships before constructing the database.
- By using the COMET method, we can achieve a more flexible and efficient workflow for database development.

### **2. Required Modeling Language**

- We must use UML (Unified Modeling Language) to create all diagrams essential for the database project. UML allows the creation of various diagrams, like use case diagrams, class diagrams, and sequence diagrams.
- Using UML ensures consistency and helps us visualize the relations in the database model. We cannot use other modeling languages, as that may compromise data integrity.

### **3. Technology Rules**

We must use the following technologies to build the Cultural Committee Database:

- Database Environment: PL/SQL Database
- Programming: PL/SQL only for all database programming tasks

This technology stack ensures that users without any technical knowledge can also access the database features like stored procedures and triggers.

### **4. Database Performance Needs**

The database must manage the following performance needs:

- The system should support 50 concurrent users querying the database simultaneously, providing a seamless experience.

- The system must respond in less than 2 seconds for most queries. This is essential for efficient data retrieval.
- The system should have enough storage for at least 5 years of committee data, ensuring integrity and accessibility for future references for committee members.

## 5. Integration Limits

The database architecture must be carefully designed to:

- Ensure support for future connections to other systems to improve functionality.
- Maintain all data within the PL/SQL database to guarantee data integrity and consistency throughout the system.

## 6. Security Rules

- The database must implement role-based security using PL/SQL roles and privileges. This ensures access is granted appropriately based on the roles and responsibilities of the Cultural Committee members.
- All sensitive data stored within the database must be protected using PL/SQL security features tailored to prevent unauthorized access.

## 7. Coding and Maintenance Rules

- All PL/SQL code must be written clearly and accompanied by comments for better understanding and maintenance.
- Database design must follow standard naming conventions to ensure consistency.
- All database objects must be properly documented, detailing their purpose and functionality to support proper usage and future enhancements.
- We must provide complete database documentation upon project completion, covering all aspects of database design, implementation, and usage guidelines for the database system's users.

## 2.4 Assumptions and Dependencies

The design and successful implementation of the Cultural Committee Database rely on several assumptions and external factors and dependencies. These elements are crucial for ensuring the database works well. If any of these assumptions are incorrect or change during the project, it could impact the system's requirements, usability and performance.



### 1. User Access and Devices

- Students, faculty, vendors, and committee members are assumed to be able to access the system using internet-enabled devices like laptops, desktops, or smartphones.
- Reliable internet connectivity is assumed to be available on the college campus for an uninterrupted access to the system.
- The users with basic digital skills are assumed to interact with the system's web-based interfaces.

### 2. Institutional Infrastructure and Technology Support

- The DAU will provide hosting servers for the data storage and handle the hardware and network setup.
- Staff will conduct routine maintenance, security checks, monitoring, and troubleshooting of any issues will be managed by an experienced team.
- Backup and recovery services will be in place to prevent data loss from the database.

### 3. Email and Calendar Integration

- The system will rely heavily on the availability of institutional email servers for sending reminders and event updates.
- In addition, calendar applications may be available for scheduling cultural events, promoting student engagement.

### 4. Budget and Sponsorship Data

- Event organizers and sponsors will provide accurate and up-to-date information about budgets, funds, and sponsorship.
- Financial data entered into the system is expected to be verified by the cultural committee or accounts department, ensuring the information's reliability.

### 5. Technology Stack Availability

- The system assumes access and support to commonly available open-source technologies like PostgreSQL, which is efficient in handling complex database systems.

- Development tools, libraries, and frameworks needed for the project will remain freely available and well-supported, ensuring system evolution with future feature addition.

## 6. External Dependencies

- The system depends on third-party services like email services, calendar systems, and DAU infrastructure to function reliably.
- The project also relies on the cooperation of sponsors, faculty coordinators, and the student committee to provide data and feedback for maintaining accurate information.

## 3 Specific Requirements

### 3.1 External Interface Requirements

#### 3.1.1 User Interfaces

The Cultural Committee Database is accessed through a comprehensive web-interface designed to accommodate various user roles, including both types: with technical knowledge and those without. This interface, according to the role-based access of PostgreSQL, allows the users perform their tasks efficiently while maintaining the integrity and security of the database.

##### a. pgAdmin Environment

- pgAdmin, the open-source web based GUI of PostgreSQL, offers the backend interface for writing and running SQL queries, managing database objects, and monitoring database performance to optimize the system and connect the users with technical knowledge and authority to the database environment.
- Users with the appropriate credentials will log in through pgAdmin to access the database securely. This setup will improve the user experience and support.

##### b. Data Entry and Retrieval

- All insertions, updates, deletions, and queries will be done using the web interface for general users without any technical knowledge.
- Information like event records, committee member details, budgets, vendors, and feedback will be entered and managed through forms and dashboards equipped with validation rules to ensure data integrity.

##### c. Functions and Stored Procedures

- pgAdmin allows the creation of user-defined functions and stored procedures to simplify and enhance the efficiency of common tasks.
- These will handle various functions such as generating event statistics, calculating total budgets, validating participant data, and preparing attendance summaries, thereby improving data management.

##### d. Report Generation

- Reports such as participation lists, budget summaries, and sponsor records will be created through queries or stored procedures and functions.

- These results and reports created will be accessible to authorized users via the web interface which can also be exported in standard forms to enable people even with non-technical knowledge to understand the statistics and also aid them in efficient event planning.

e. Role-based Access

- The Cultural Committee Database uses role-based access control based on PostgreSQL roles and privileges. Each user type has specific roles and system interactions, which are linked to database permissions.

1. Committee Members

- Committee Members have access to dashboards for event proposals, budget approval of events, and feedback review.
- Privileges: VIEW, INSERT, and limited UPDATION on events, budgets, and feedback, which support effective collaboration among members and regular updates during event planning.

2. Event Organizers (Students / Clubs)

- Event Organizers can submit event proposals, register participants, and access information about the resources and venues.
- Privileges: INSERT on event proposal and participant tables; VIEW access on venue/resource data. These privileges make data handling and resource allocation for events more efficient.

3. Vendors

- Vendors are provided access via an interface through stored procedures for managing quotes, contracts, and tracking service delivery status.
- Privileges: VIEW access on assigned contracts to retrieve necessary information. This privilege, though limited to read-only access, enables vendors to work effectively with DAU in event planning.

4. Sponsors

- Sponsors have privileges for submitting sponsorships, contract details, and branding allocation records. The role ensures sponsors can update and verify their sponsorships while maintaining appropriate control over sensitive data of DAU.
- Privileges: VIEW access on event details they have sponsored.

#### 5. Guests (Judges / Chief Guests)

- Guests are granted read-only access to invitations and access to the event itinerary.
- Privileges: VIEW only on invitation and schedule tables, allowing them to view details without modifying any information.

#### 6. Volunteers

- Volunteers can access their profiles, access the event schedules, view their responsibilities and also submit their feedback.
- Privileges: Limited VIEW access for events, providing support and inputs where needed while maintaining the integrity of the system.

#### 7. Faculty / Administrative Staff

- Faculty and Administration via a scheduling dashboard support seamless venue allocation, timetable management, and resource booking, managing event scheduling.
- Privileges: INSERT, UPDATE, and VIEW on scheduling/venues, ensuring easy access to event schedules.

#### 8. Administrators

- Administrators have full control over the database, including user and role management, schema changes, backups, and security enforcement.
- Privileges: ALL PRIVILEGES on the database with unrestricted access while ensuring system integrity and security by overseeing the technical and administrative operations.

### 3.1.2 Hardware Interfaces

The Cultural Committee Database will be built to run efficiently with minimal hardware. It is a relational database that uses PostgreSQL. This setup makes the system accessible and affordable.

Hardware interaction is limited to the following:

- Server Machine

- The database will be hosted on a dedicated server or institutional machine equipped with sufficient capacity to support PostgreSQL.
- This guarantees a dependable environment for data management maintained by DAU to guarantee security.

- User Devices
  - Users will connect to the server through internet-enabled devices via a web-interface, providing responsive and secure access.
- Peripheral Hardware
  - There are no extra hardware units that are directly linked to the database.

### **3.1.3 Software Interfaces**

The Cultural Committee Database relies on several specific software components to function. These components support efficient data management and user interaction.

#### **1. Database Software**

- PostgreSQL will act as the relational database management system for the database. It supports SQL queries, PL/pgSQL functions, triggers, stored procedures, and role-based security to protect sensitive information and maintain data integrity and secure multi-user access.

#### **2. Management Tool**

- pgAdmin will serve as the main user interface for administrators and technical staff.
- It offers a graphical web interface that makes database interaction with the database easier, and export options for data reports and analysis.

#### **3. Web Interface**

- The users will interact with the database through a role-based web interface that is designed to understand the complex system easily. It enables the event organizers, committee members, volunteers, faculty, and others involved to access the functionalities relevant to their roles, such as submitting proposals, registering the participants, scheduling events, and viewing reports through a secure and user-friendly portal.

#### **4. Export and Reporting**

- The system supports exporting the reports from the database in CSV or Excel format, allowing easy access to the data and analysis on participation, budgets and sponsorships to facilitate the event planning process.

## 5. Email and Calendar Systems

- Although not part of the database at the moment, integration with DAU email servers and calendars may be implemented in the future for automated event notifications and scheduling.
- This improvement will enable smooth event scheduling, ensuring that students stay informed about upcoming events.

## 3.2 Functional Requirements

The functional requirements outline the specific behavior, features, and services needed for the Cultural Committee Database. These requirements ensure that the system serves all user groups, including committee members, event organizers, faculty, vendors, sponsors, and administrators, while also keeping data accurate, secure, and efficient.

The goal of these functional requirements is to develop a database that allows smooth coordination among users. It will protect information and improve the process of planning and managing events.

### 3.2.1 F1: User Account and Role Management

- The system will let administrators create, update, and deactivate user accounts easily via the dashboard.
- It will assign users to predefined roles: Committee Member, Event Organizer, Vendor, Sponsor, Guest, Faculty, and Administrator. This will clarify their roles and responsibilities.
- The system will use role-based access control. This will ensure that users can only access information and functions that are relevant to their role, which will improve the overall user experience.

### 3.2.2 F2: Cultural Committee Member Management

- The system will store complete profiles of committee members, including their name, designation, role, and contact information.
- The system will let committee members review event proposals, approve budgets, and give organized feedback to improve the event planning process.
- The system will keep historical records of member contributions for accountability and continuity.

### 3.2.3 F3: Event Proposal and Approval Management

- The system will let event organizers submit event proposals using structured forms to gather all the necessary information.
- The system will allow committee members to review and approve or reject proposals based on feasibility, budget, and resource availability to make decisions.

- The system will track proposal status with timestamps for transparency and accountability.

#### **3.2.4 F4: Event Scheduling and Resource Allocation**

- The system will manage event schedules, including dates, venues, and timings to organize events properly.
- The system will ensure that venue and resource bookings do not conflict with existing reservations, which improves resource use.
- The system will notify students, faculty, and administrative staff about scheduling updates so they are informed and can plan accordingly.

#### **3.2.5 F5: Participant Registration**

- The system will let students register for approved events. It will check participant information to avoid duplicate entries and keep the data clean.
- The system will create attendance summaries for organizers and faculty to give them an event engagement report.

#### **3.2.6 F6: Volunteer Management**

- The system will provide an interface for creating and maintaining their profiles via forms. It also supports validation to ensure accuracy of the information.
- They should be able to track the volunteer participation and also be able to get notifications and reminders.

#### **3.2.7 F7: Budget and Financial Management**

- The system will let event organizers submit budget proposals. This provides a clear way to plan finances.
- The system will track different budget versions, including initial, revised, and approved, throughout the process. It will record actual spending compared to allocated funds for each event, ensuring good financial tracking.
- The system will generate financial reports for transparency and auditing, which will improve overall financial management.

#### **3.2.8 F8: Vendor Management**

- The system will store vendor details, including services offered, past performance, and contracts.
- The system will allow vendors to submit quotations and service delivery updates, ensuring clear communication.
- The system will enable committee members to evaluate vendor performance based on service quality and timeliness.



### **3.2.9 F9: Sponsorship Management**

- The system will let sponsors submit sponsorship offers that include details about the funding or resources provided for each event.
- The system will store contract details and branding allocation agreements.
- The system will generate sponsorship reports to track contributions across events, which will help administration assess the impact of sponsorship activities.

### **3.2.10 F10: Feedback Management**

- After each event, the system will collect organized feedback from students, faculty, and guests. It will support both numerical and descriptive feedback.
- The system will create summary reports that highlight strengths and areas for improvement to improve the quality of future events.

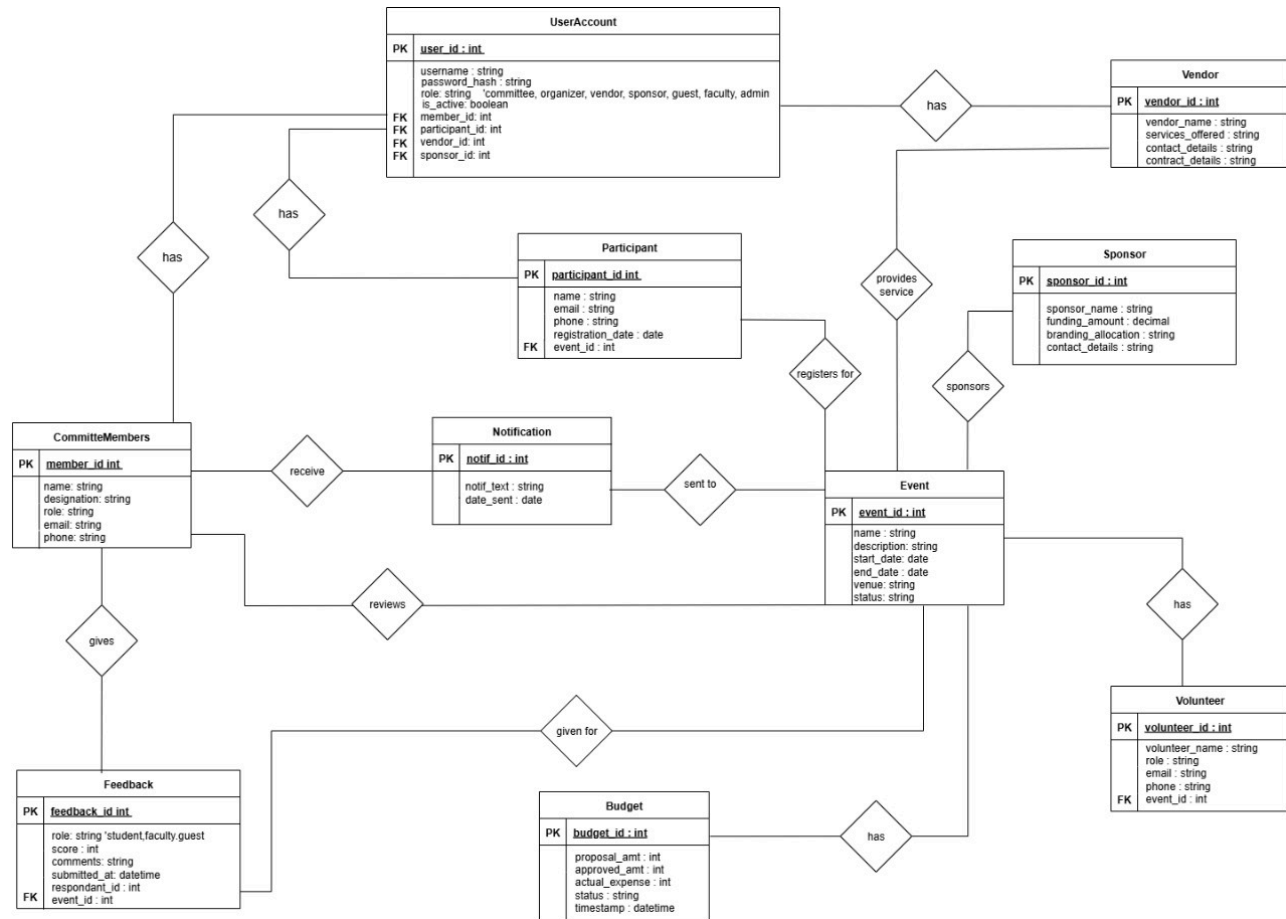
### **3.2.11 F11: Notifications and Communication**

- The system will send automated email notifications for approvals, scheduling updates, and registration confirmations.
- Users can receive event reminders and updates through the DAU email system; this ensures that everyone stays informed.

### **3.2.12 F12: Reporting and Analytics**

- The system shall generate reports such as:
  - A detailed list of upcoming and past events for proper scheduling and planning.
  - In-depth budget usage reports for tracking financial expenditures.
  - Participant registration summaries for better planning and outreach.
  - Vendor and sponsor performance reports.
  - Feedback analysis reports.
- The system shall allow exporting reports in standard format for easy sharing and access across various platforms.

### 3.3 Entity Relationship Diagram



## 4 Other Non-Functional Requirements

Non-functional requirements define the quality and operational characteristics of the Cultural Committee Database. These requirements ensure that the system performs efficiently, remains secure, and provides a reliable user experience. These requirements ensure that the database upholds the standards of performance, safety, and user satisfaction.

### 4.1 Performance Requirements

The Cultural Committee Database must deliver consistent and reliable performance for all its users. Since the system will be accessed by multiple types of users, performance is critical to ensuring smooth operations.

- **P1. Concurrent Users:**

The system must support at least 50 users at the same time, allowing them to run queries and updates without slowing down.

- **P2. Query Response Time:**

The system will provide results for standard queries within 2 seconds during normal operating conditions.

- **P3. Report Generation:**

The system will create medium-sized reports in 5 seconds and large reports in 10 seconds.

- **P4. Database Storage:**

The system will store at least 5 years of historical event data without needing to be restructured. Storage should be able to grow to meet future needs.

- **P5. Availability:**

The system will keep 99% uptime during the academic year, not counting scheduled maintenance periods.

### 4.2 Safety and Security Requirements

Budgets, sponsorship agreements, committee records, and student information are among the sensitive data stored in the Cultural Committee Database. To stop data loss, misuse, or illegal access, safety and security measures are essential.

- **S1. Role-based Access Control:**

To guarantee that users can only access information pertinent to their roles, the system will enforce PostgreSQL role-based privileges.

- **S2. Authentication:**

The system will guarantee that only authorized users can use pgAdmin to access the database.

- **S3. Data Encryption:**

To avoid misuse in the event of a breach, sensitive data must be stored in an encrypted format.

- **S4. Backup and Recovery:**

The database will be backed up by the system every day.

## 4.3 Software Quality Attributes

The Cultural Committee Database's quality is determined by both its features and its capacity to support users over an extended period of time. The system's usability, maintainability, and reliability are described in the following characteristics.

### 4.3.1 Reliability

Error-handling procedures shall ensure that failures do not corrupt stored data.

### 4.3.2 Maintainability

A database object must have a consistent name in addition to comments in documentation.

Procedures and functions have to adhere to modular coding techniques.

Administrators can modify report formats, add new event categories, and update user roles with minimum disturbance to the system.

### 4.3.3 Usability

The system will be gently letting the user know why queries fail.

The documentation will be well equipped with examples of common queries and stored procedures to be of use to the Committee members and staff.

Users having SQL knowledge at a basic level would be able to retrieve data after being trained for a few minutes.

#### **4.3.4 Scalability**

The database schema shall be normalized to reduce redundancy, making it adaptable to future expansion.

#### **4.3.5 Interoperability**

The system shall be designed with the ability to integrate with institutional e-mail and calendar systems through the APIs.

The data export functions shall support common formats for supporting compatibility with external tools.

## References

*IEER Template for Software Requirements Specification Document -*  
<https://ieeexplore.ieee.org/document/720574>

*Cultural Committee of DAU -* <https://www.daiict.ac.in/dean-students#tab-1>

*Cultural Committee of IIPS -* <https://www.iipsindia.ac.in/content/cultural-committee>

*Cultural Festival of IIT Bombay -* <https://in.linkedin.com/company/mood-indigo>

*References taken from the Requirements Gathering via Survey through Google Forms:*  
<https://forms.gle/dbZAoJPYQrri1GVY7>

*A Comprehensive Overview of Methodologies in Software System Analysis -*  
<https://www.ask.com/news/comprehensive-overview-methodologies-software-system-analysis>

*Design Database for Event Management -*  
<https://www.geeksforgeeks.org/dbms/how-to-design-a-database-for-event-management/>

*Sending Email from Postgres-* <https://dev.to/davepar/sending-email-from-postgres-47i0>

*User Management -* [https://www.pgadmin.org/docs/pgadmin4/development/user\\_management.html](https://www.pgadmin.org/docs/pgadmin4/development/user_management.html)

*RBAC in PostgreSQL -* <https://www.datasunrise.com/knowledge-center/rbac-in-postgresql/>

*Implementing Role-Based Access Control in PostgreSQL for Multi-Database Environments in PostgreSQL -*  
<https://medium.com/%40wasialhasib/implementing-role-based-access-control-in-postgresql-for-multi-database-environments-in-postgresql-bb3673eece10>

*Import/Export Data Dialog -*  
[https://www.pgadmin.org/docs/pgadmin4/development/import\\_export\\_data.html](https://www.pgadmin.org/docs/pgadmin4/development/import_export_data.html)

*How to export data from PostgreSQL to CSV -* <https://blog.n8n.io/postgres-export-to-csv/>

*Entity Relationship Diagram created using -* <https://www.drawio.com/>