

TEAM 15

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University Event Management System

1. Introduction

The database design for an all-encompassing University Event Management System is customized to meet the intricate needs of university events. Its purpose is to simplify and manage the organization of different events by handling attendee tracking, ticketing, venue reservations, resource management, payment processing and sponsorships, ensuring efficient event execution and a smooth user experience.

2. Business Problems

The Event Management System tackles several key business challenges, including:

- **Efficient Event Planning and Management:** Challenges in coordinating various elements of event planning, such as scheduling, venue booking, resource allocation, and ticketing, which affects event execution.
- **Effective Participant Management:** Difficulties in monitoring and managing participant registrations, bookings and attendance across various events lead to inefficiencies.
- **Resource Allocation and Utilization:** The need for effective allocation and tracking of resources (such as equipment and staff) is essential to avoid shortages or overuse during events.
- **Financial Management:** Difficulties in handling budgets, payments and sponsorships for events, which affect financial transparency.
- **Attendance Tracking:** Lack of accurate attendance tracking, affecting post-event reporting and analysis.

The University Event Management System addresses these issues by providing an integrated solution.

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3. Business Rules

3.1 User Management

User Registration:

- Each user must sign up using a unique email address.
- Users are assigned one of three roles: Student, Faculty or Admin.

User Roles:

- Admin users can create, edit, or delete events and manage all parts of the system.
- Users with the "Organizer" role (whether Faculty or Student) can create and manage events.
- Both Students and Faculty members can register for and attend events.

3.2 Event Management

Event Creation:

- An organizer must set up events.
- Events must be assigned at least one venue and one category.
- Each event should have a set start and end date and events cannot overlap at the same venue.

Event Modification:

- Only the event's organizer or an admin can modify event details such as date, venue and budget.

Event Cancellation:

- Organizers or admins can cancel an event. Upon cancellation, all related bookings and registrations should be updated accordingly (e.g., ticket refunds, status changes).

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Event Budget:

- Events must have a set budget that does not exceed the combined income from sponsorship and ticket sales.

3.3 Registration and Booking

User Registration for Events:

- Users can register for events unless the event is full or registration is closed.
- Users can register for multiple events, but each registration must be unique to the event.
- A user's registration status can be marked as Confirmed, Pending or Canceled.

Booking Tickets:

- Users may book tickets for events they have registered for, selecting from ticket types such as Regular, VIP or Student.
- Tickets are issued after payment confirmation.
- Users can purchase multiple tickets for the same event, but each ticket is individually linked to the user and event.

Venue Booking:

- Organizers are responsible for booking venues for their events. Venue reservations are tracked through the booking system, which logs details such as booking status (e.g., Confirmed or Pending).

3.4 Venue Management

Venue Assignment:

- Every event must be allocated a venue.
- The number of registered users cannot exceed the venue's capacity.
- Venues are categorized as Indoor or Outdoor and events must match the appropriate venue type.

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3.5 Resource Management

Resource Allocation:

- Events must be assigned the necessary resources (e.g., equipment or staff).
- The quantity of resources allocated to an event cannot surpass the available resources.

Resource Usage:

- Once a resource is assigned to an event, it cannot be used for another event happening at the same time.

3.6 Payment and Sponsorship

Payment for Registration and Tickets:

- Payments must be completed before registrations are confirmed or tickets are issued.
- Payment statuses can be Paid, Pending or Refunded.

Sponsorship Management:

- Events can receive support from one or more sponsors, who may contribute either financially or in-kind.
- Sponsorship agreements must detail the type and amount of sponsorship provided.

3.7 Ticket Management

Ticket Sales:

- Tickets can only be sold for events that still have available spots and are open for registration.
- Each ticket must specify its type (Regular, VIP, or Student), price, and issue date.
- Tickets can have one of the following statuses: Active, Canceled or Used.

Ticket Cancellation:

- Users can cancel tickets before the event begins, with refunds processed according to the event's cancellation policy.

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3.8 Sponsor Relationships

Sponsor and Event Relationship:

- Sponsors can provide support for multiple events.
- Each sponsor must have a designated contact person and email address for communication purposes.

4. Entities Description

4.1 User

- **Attributes:**
 - UserID (PK), UserName, UserEmail, UserPhone, UserRole (Student, Faculty, Admin), Password
- **Relationships:**
 - Registers for events, Books venues, Books tickets Attends events, Can act as an Organizer, Can make Payments
- **Description:** Represents all users interacting with the system, such as students, faculty members and administrators.

4.2 Event

- **Attributes:**
 - EventID (PK), EventTitle, EventDescription, StartDate, EndDate, EventBudget
- **Relationships:**
 - Organized by Organizers, Held at Venues, Allocated Resources, Has Categories, Tracks Attendance, Issues Tickets, Receives Sponsorship
- **Description:** Represents the events hosted by the university, including all relevant details.

4.3 Organizer

- **Attributes:**
 - OrganizerID (PK), OrganizerRole, ContactInfo
- **Relationships:**
 - Manages one or more Events, Makes bookings for venues
- **Description:** Represents users responsible for managing & organizing events.

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4.4 Registration

- **Attributes:**
 - RegistrationID (PK), RegistrationDate, RegistrationStatus
- **Relationships:**
 - Links Users and Events, Can have associated Payments
- **Description:** Tracks event registrations for different users.

4.5 Booking

- **Attributes:**
 - BookingID (PK), BookingDate, BookingStatus
- **Relationships:**
 - Managed by Organizers, Linked to Venues, Made for specific Events
- **Description:** Manages booking details for venues registered for events.

4.6 Venue

- **Attributes:**
 - VenueID (PK), VenueName, VenueCapacity, VenueLocation, VenueType
- **Relationships:**
 - Hosts Events, Booked by organizers
- **Description:** Represents venues available for hosting events.

4.7 Event Category

- **Attributes:**
 - CategoryID (PK), CategoryName, CategoryDescription
- **Relationships:**
 - Categories Events
- **Description:** Represents different event categories (e.g., workshops, seminars, sports).

4.8 Resource

- **Attributes:**
 - ResourceID (PK), ResourceName, ResourceDescription, Quantity
- **Relationships:**
 - Allocated to Events via Event Resource Allocation
- **Description:** Represents resources needed for organizing events.

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4.9 Event Resource Allocation

- **Attributes:**
 - AllocationID (PK), AllocatedQuantity
- **Relationships:**
 - Links Events with Resources
- **Description:** Tracks resource allocation to specific events.

4.10 Tickets

- **Attributes:**
 - TicketID (PK), TicketType, TicketPrice, TicketIssueDate, TicketStatus
- **Relationships:**
 - Issued to Users for Events
- **Description:** Represents tickets sold for events.

4.11 Attendance

- **Attributes:**
 - AttendanceID (PK), CheckInTime, CheckOutTime, AttendanceStatus
- **Relationships:**
 - Links Users with Events
- **Description:** Tracks attendance of users for events.

4.12 Payment

- **Attributes:**
 - PaymentID (PK), Amount, PaymentDate, PaymentStatus
- **Relationships:**
 - Linked to Registrations
- **Description:** Represents payments made by users for registrations or ticket purchases.

4.13 Sponsors

- **Attributes:**
 - SponsorID (PK), SponsorName, ContactPerson, SponsorEmail, SponsorshipAmount, SponsorshipType
- **Relationships:**
 - Supports Events
- **Description:** Represents sponsors who provide financial or in-kind support for events.

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5. Entity Relationships

5.1 User

- **Events:** Many-to-Many (A user can register for multiple events, and each event can have multiple attendees)
- **Payments:** One-to-Many (A user can make multiple payments for registrations)
- **Organizers:** One-to-Many (A user can organize multiple events)

5.2 Event

- **Organizers:** Many-to-One (An event is organized by one organizer, but an organizer can manage multiple events)
- **Venues:** One-to-One (Each event is held at one specific venue, but a venue can host multiple events over time)
- **Categories:** Many-to-One (An event belongs to one category, but a category can include multiple events)
- **Tickets:** One-to-Many (Multiple tickets can be issued for a single event, and each ticket is associated with one event)
- **Resources:** Many-to-Many (An event can use multiple resources, and each resource can be allocated to multiple events)
- **Registrations:** One-to-Many (An event can have many registrations)
- **Sponsorships:** Many-to-Many (An event can have multiple sponsors, and sponsors can support multiple events)

5.3 Organizer

- **Events:** One-to-Many (An organizer manages multiple events)
- **Bookings:** One-to-Many (An organizer can book for multiple events)

5.4 Registration

- **Users:** Many-to-One (A registration belongs to a user, but a user can register for multiple events).
- **Events:** Many-to-One (A registration is for one event)

5.5 Booking

- **Organizers:** Many-to-One (A booking belongs to an organizer, but an organizer can make multiple bookings)
- **Events:** Many-to-One (A booking is made for one event)

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- **Venues:** One-to-One (Each booking refers to one specific venue for one event)

5.6 Venue

- **Events:** One-to-Many (A venue can host multiple events, but each event takes place at one venue)
- **Bookings:** One-to-One (Each booking refers to one specific venue for one event)

5.7 Event Category

- **Events:** One-to-Many (A category can contain multiple events)

5.8 Resource Allocation

- **Events:** Many-to-One (Multiple resource allocations can be made for an event)
- **Resources:** Many-to-One (Multiple events can share resources)

5.9 Ticket

- **Users:** Many-to-One (A ticket belongs to a user, but a user can purchase multiple tickets)
- **Events:** Many-to-One (A ticket is for one event)

5.10 Attendance

- **Users:** Many-to-One (Attendance records belong to users, who can attend multiple events)
- **Events:** Many-to-One (An event can have multiple attendees)

5.11 Payment

- **Registration:** One-to-One (A payment is linked to one registration)

5.12 Sponsor

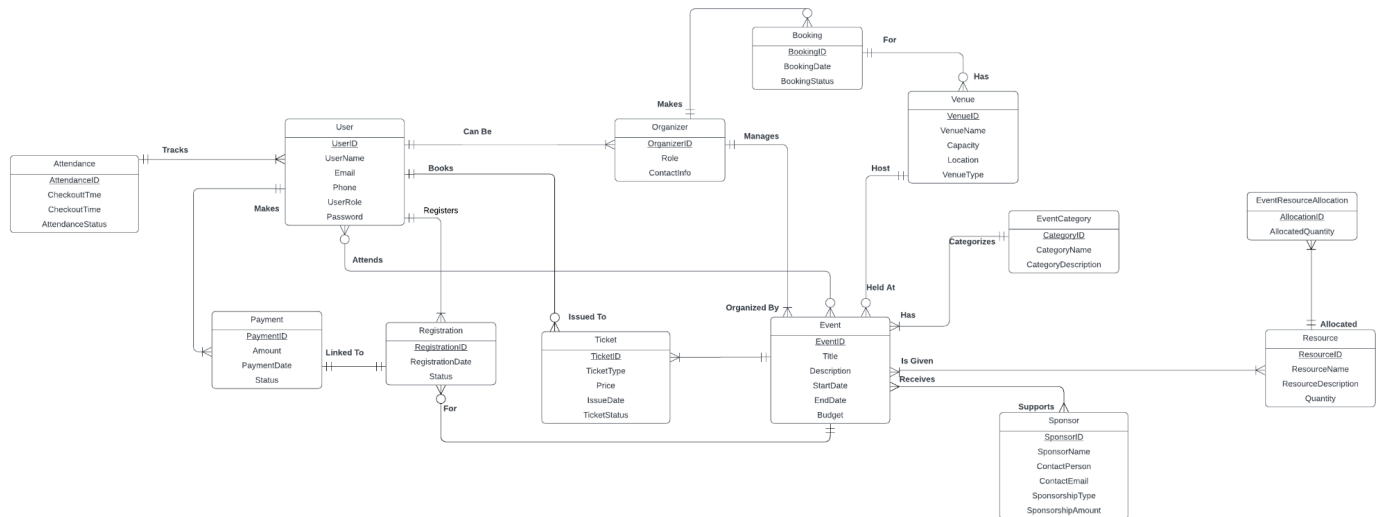
- **Events:** Many-to-Many (A sponsor can support multiple events, and each event can have multiple sponsors)

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6) Conceptual ER Diagram for University Event Management System:



ERD

Link: https://lucid.app/lucidchart/18a61de8-fe32-4fa8-975e-44cbd9552bd2/edit?viewport_lo c=-608%2C-668%2C1667%2C966%2C0_0&invitationId=inv_7fbaed63-389b-4c15-924d-0d87532c0e12 (for more reference)

gitHub Link : https://github.com/VaranaNavadiya/DAMG_UEMS