On-campus Event Management System
Database Design Document

1. **Introduction:**

   The following document explains the database system design of the on-campus event management system, which has functionalities like creating events, managing budgets, booking venues, managing inventory items, managing organizations, analyzing participation information, and marketing the events.

2. **Business and Problems Addressed:**

   The database is to solve and boost the following issues/challenges:

   - **Event creation, management, and scheduling:** One place to manage everything. It makes things easy for both the host as well as the management/admin
   - **Participant enrolment and follow-up:** Nudge the participants who have attended the previous events to enroll in new events
   - **Finance management, budgeting, and ticketing:** Plan and organize budgets and tickets for each event privately
   - **Marketing:** Notifying and reminding participants
   - **Data analysis:** Analysis of the participants' data for each event along with feedback for the organizers to track the performance of their events

3. **Entities Description:**

3.1 User

- **Attributes**: UserID (Primary Key), Password, FirstName, LastName, DOB, Gender, Email
- **Relationships:** Has User Type, SuperType of Admin, SuperType of Participant, SuperType of Host

3.2 User Type

- **Attributes**: UserID (Foreign Key -> User(UserID)), UserType
- **Relationships**: Owned by User

3.3 Admin

- **Attributes**: StartDate, Responsibility, Inherits all the attributes from User

- **Relationships:** Fulfills Requests, Manage Tickets, Manage Venues, Manage Items, Create Organization, Create Host, Subtype of User

3.4 Participant

- **Attributes**: MajorName, StartYear, EduType, T-Shirt Size, Inherits all the attributes from User
- **Relationships:** Gives Feedback, Registration to Event Seats, Subtype of User

3.5 Host

- **Attributes**: OrgID (Foreign Key -> Organization(OrgID)), HostStatus, Inherits all the attributes from User
- **Relationships:** Belongs to Organization, Raises Requests, Post Events, Is created by Admin, Subtype of User

3.6 Requests

- **Attributes**: RequestID (Primary Key), Description, Status, HostID(Foreign Key -> Host(HostID))
- **Relationships:** Raised by Host, Fulfilled by Admin

3.7 Organization

- **Attributes**: OrgID (Primary Key), OrgName, FoundingYear, Founder
- **Relationships:** Has Host, Created by Admin

3.8 Feedback

- **Attributes**: EventID (Primary Key, Foreign Key -> Event(EventID)), UserID (Primary Key, Foreign Key -> User(UserID)), Message, Rating
- **Relationships:** Given by Participant, Rated to Event

3.9 Budget

- **Attributes**: BudgetID(Primary Key).
- **Relationships:** Allocated to Event, Budget Sheet ot Items

3.10 Event

- **Attributes**: EventID (Primary Key), EventName, Description, Status, OrgID (Foreign Key -> Host(OrgID)), VenueID (Foreign Key -> Venue(VenueID)), ReservationDate, BookingDateTime, CancelDateTime, CheckinDateTime
- **Relationships:** Posted by Host, Receive Rating, Book Venue, Registration by Participants for Seats, Get Budget Allocated, Have Seats

3.11 Registration (Associative Entity)

- **Attributes**: TicketQuantity, TransactionTime, Remarks
- **Relationships:** Registered by Participant for an Event for Seats

3.12 Budget Sheet (Associative Entity)

- **Attributes**: Quantity
- **Relationships:** Budget has Budget Sheet of an Item

3.13 Venue

- **Attributes**: VenueID (Primary Key), VenueName, Location, Capacity
- **Relationships:** Booked by Event, Managed by Admin

3.14 Seats

- **Attributes**: EventID(Primary Key, Foreign Key -> Event(EventID)), TicketID(Primary Key, Foreign Key -> Tickets(TicketID)), Description, MaxQuantity, AutoApprove
- **Relationships:** Assigned by Event, Assigned by Registration, Assigned by Tickets

3.15 Item

- **Attributes**: ItemID (Primary Key), ItemName, ItemCost
- **Relationships:** Has Budget Sheet for Budget, Managed by Admin

3.16 Tickets

- **Attributes**: TicketID (Primary Key), Cost
- **Relationships:** Categorize Seats, Managed by Admin

4. Entity Relationships:

4.1 User:

- **User Type:** One-to-Many relationship (each user can have one or more user types)
- Is a supertype of **Admin, Participant, and Host** (a user can be an admin, participant, or host) with an **overlap** (Example: User can be a host and participant simultaneously)

4.2 User Type:

- **User:** Many-to-one relationship(Multiple user types can be linked to same User)

4.3 Admin:

- Is a subtype of **User**
- **Tickets:** One-to-many relationship (One admin can manage multiple tickets)
- **Item:** One-to-many relationship (One admin can manage multiple items)
- **Venue:** One-to-many relationship (One admin can manage multiple venues)
- **Organization:** One-to-many relationship (One admin can create multiple organizations)
- **Host:** One-to-many relationship (One admin can create multiple Hosts)
- **Requests:** One-to-many relationship (One admin can fulfill multiple requests)

4.4 Participant:

- Is a subtype of **User**
- **Event:** Many-to-many via Registration Associative relationship entity (One participant can register for multiple events for different times and tickets)
- **Feedback:** One-to-one relationship (A user can give single feedback associated to an event)

4.5 Host:

- Is a subtype of **User**
- **Organization:** Many-to-one relationship (Multiple hosts can belong to the same organization)
- **Requests:** One-to-many relationship (One host can raise multiple requests)
- **Admin:** Many-to-one relationship (Many hosts are created by a single admin)
- **Events:** One-to-many relationship (One host can post multiple events)

4.6 Requests:

- **Host:** Many-to-one relationship (Many requests are created by a single host)
- **Admin:** Many-to-one relationship (Many requests are fulfilled by a single admin)

4.7 Organization:

- **Host:** One-to-many relationship (One organization can have multiple hosts)
- **Admin:** Many-to-one relationship (Many organizations are created by a single admin)

4.8 Feedback:

- **Event:** Many-to-one relationship (Many feedbacks can be rated to the same event)
- **Participant:** One-to-one relationship (One feedback is given by only one participant)

4.9 Budget:

- **Event:** One-to-one relationship (One budget is associated to only one event)
- **Item:** Many-to-many via Budget Sheet Associative relationship entity (One budget has budget sheets for multiple items with different quantity)

4.10 Event:

- **Host:** Many-to-one relationship (Many events are posted by a single host)
- **Venue:** One-to-one relationship (One event at a particular time can be booked for a particular venue)
- **Seats:** One-to-many relationship (One event can have multiple seats)
- **Participant:** Many-to-many via Registration Associative relationship entity (One even is registered by multiple participants with at different time and quantity)
- **Feedback:** One-to-many relationship (One event can be rated with multiple feedbacks)
- **Budget:** One-to-one relationship (One event can have only one budget)

4.11 Venue:

- **Event:** One-to-one relationship (One venue can be booked by only one event for a particular BookingDateTime)
- **Admin:** Many-to-one relationship (Many venues are managed by a single admin)

4.12 Seats:

- **Events:** Many-to-one relationship (Many seats have to belong a single event)
- **Tickets:** Many-to-one relationship (Many seats can be categorized to one ticket)

4.13 Item:

- **Budget:** Many-to-many via Budget Sheet Associative relationship entity (One item is having a budget sheet to multiple budgets with different quantity)
- **Admin:** Many-to-one relationship (Many items are managed by a single admin)

4.14 Tickets:

- **Seats:** One-to-many relationship (One ticket can be categorized into multiple seats)
- **Admin:** Many-to-one relationship (Many tickets are managed by a single admin)

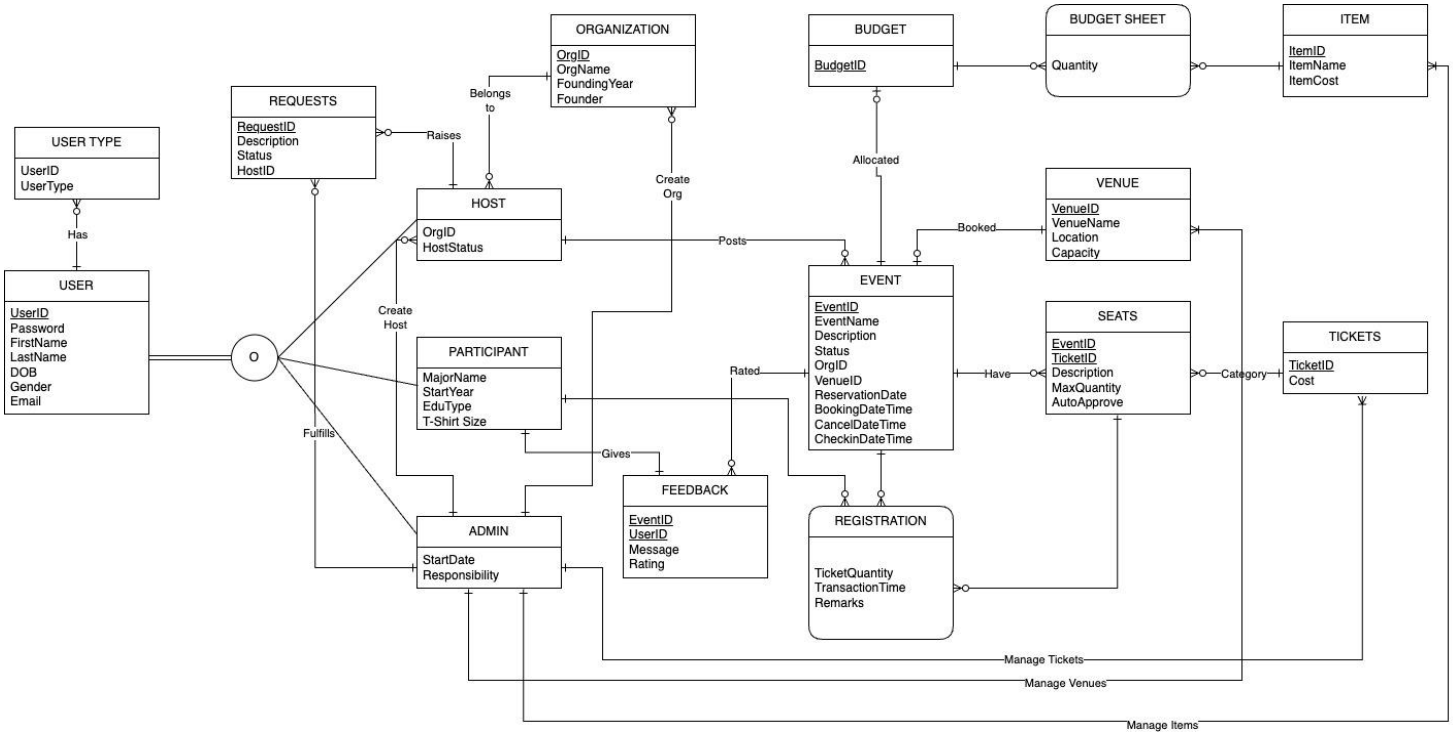
4.15 Registration:

- It is an Associative Entity between Participant, Event, and Seats

4.16 Budget Sheet:

- It is an Associative Entity between Budget and Items

5. ER Diagram: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BUDGET SHEET
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ITEM
ItemID
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ItemCost
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Description
Status
HostID
Belongs to
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Status
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VenueID
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CancelDateTime
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TransactionTime
Remarks
Manage Tickets
Manage Venues
Manage Items