Database Systems Lab

Final Project
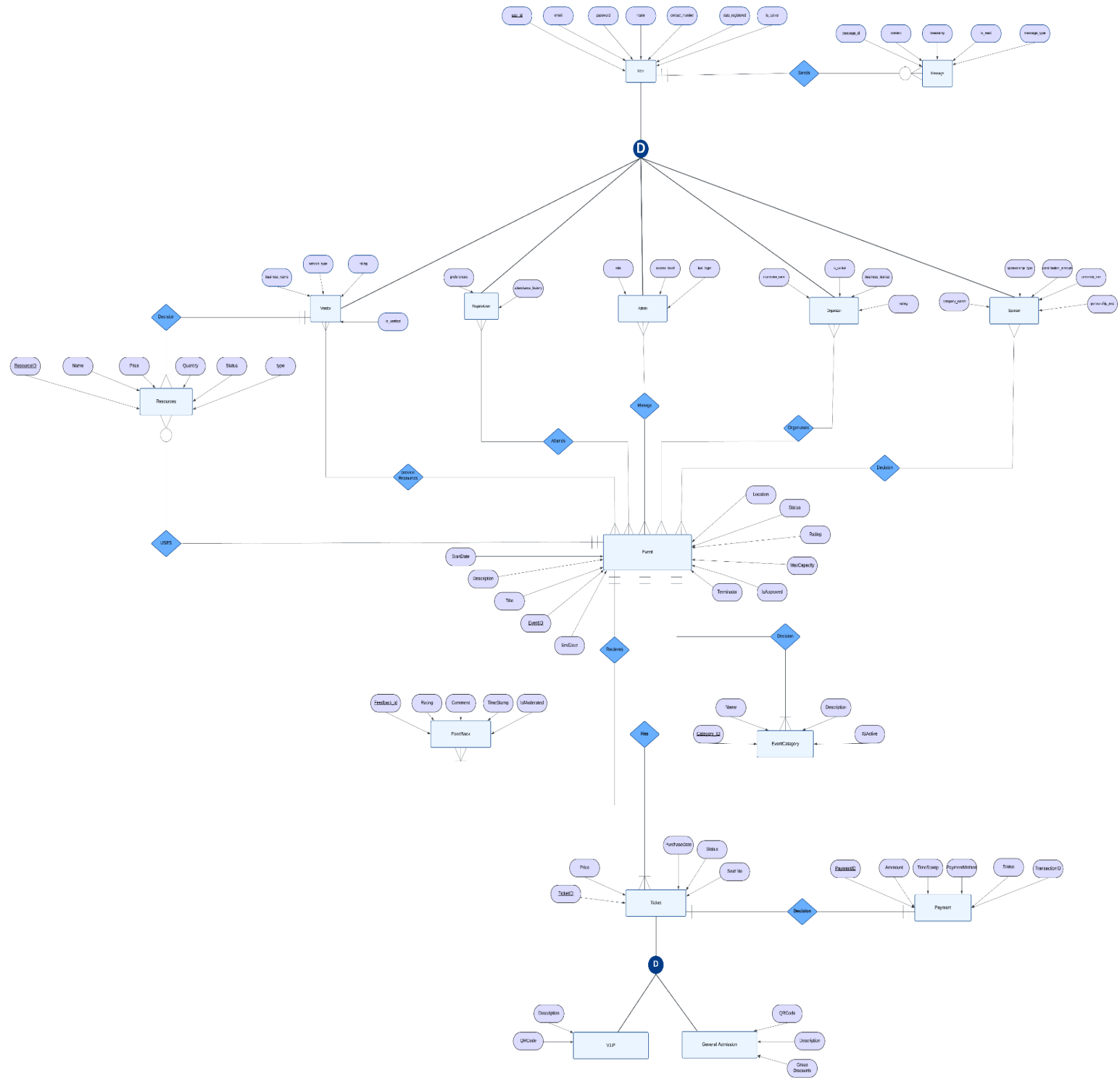## Milestone 1

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Table of Contents

ERD

Relational Mapping

User

User_ID	Email	Password	Name	Contact_Number	Date_Registered	Is_active

Message

Message_id	Content	Timestamp	Is_read	Message_type	*UserID (FK)*

Vendor

User_ID	Business_name	Service_type	Rating	Is_verified

RegularUser

User_ID	Preferences	Attendance_history

Admin

User_ID	Role	Access_level	Last_login

Organizer

User_ID	Organization_name	Is_verified	Business_license	Rating

Sponsor

User_ID	Company_name	Sponsorship_type	Contribution_amount	Partnership_start	Partnership_end

Event

EventID	Decription	Title	StartDate	EndDate	Location	Status	Rating	Max|Capacity	IsApproved	Terminator

V.I.P

QRCode	Description	TicketID

General Admission

QRCode	Description	TicketID	Group Discounts

Ticket

TicketID	Status	Price	QRCode	PurchaseDate	Seat No	PaymentID (FK)	EventID (FK)

Payment

PaymentID	Amount	TimeStamp	PaymentMethod	Status	TransactionID

FeedBack

Feedback_id	Rating	Comment	TimeStamp	IsModerated	EventID (FK)	User_ID

EventCatagory

Category_ID	Name	Description	IsActive	EventID (FK)

Resources

ResourceID	Name	Price	Quantity	Status	Type	EventID (FK)	UserID(FK)

EventManagement

EventID	UserID

EventOrganiser

EventID	UserID

EventSponsor

EventID	UserID

EventVendor

EventID	UserID

EventParticipants

EventID	UserID

Relational Mapping After Normalisation

User

User_ID	Email	Password	Name	Contact_Number	Date_Registered	Is_active

UserTypes

User_ID	Type ('RegularUser', 'Admin', 'Vendor', 'Organizer', 'Sponsor')	*User_ID (FK)* references Users(User_ID)

RegularUser

User_ID	Preferences	Attendance_history	*User_ID (FK)* references UsersTypes (User_ID)

Admin

User_ID	Role	Access_level	Last_login	*User_ID (FK)* references UsersTypes (User_ID)

Vendor

User_ID	Business_name	Service_type	Rating	Is_verified	*User_ID (FK)* references UsersTypes (User_ID)

Organizer

User_ID	Organization_name	Is_verified	Business_license	Rating	*User_ID (FK)* references UsersTypes

					(User_ID)

Sponsor

User_ID	Company_ name	Sponsorshi p_type	Contributio n_amount	Partnership _start	Partnership _end	_User_ID (FK)_ references UsersTypes (User_ID)

Message

Message_id	Content	Timestamp	Is_read	Message_type	_UserID (FK)_

Event

Eve ntI D	Decrip tion	Titl e	Start Date	EndD ate	Locati on	Statu s	Rating	MaxCapa city	IsApprov ed	Terminat or	Status('U pcoming', 'Ongoing' , 'Complet ed', 'Cancelle d')

EventParticipants

EventID	UserID	EventID(FK) references Events(EventID)	UserID(FK) references Events(UserID)

EventVendors

EventID	UserID	EventID(FK) references Events(EventID)	UserID(FK) references Events(UserID)

EventSponsors

EventID	UserID	EventID(FK) references Events(EventID)	UserID(FK) references Events(UserID)

Tickets

TicketID	Type('VIP', 'General Admission')	Price	QRCode	PurchaseDate	Seat No	*EventID (FK)* references Events(EventID)

Payments

PaymentID	Amount	TimeStamp	PaymentMethod('Credit Card', 'Debit Card', 'PayPal', 'Bank Transfer')	Status('Pending', 'Completed', 'Failed')	TransactionID	TicketID	*TicketID (FK)* references Tickets(TicketID)

FeedBack

FeedbackID	Rating	Comment	TimeStamp	IsModerated	*EventID (FK)* references Events(EventID)	*User_ID* references User(UserID)

EventCatagories

Category_ID	Name	Description	IsActive	*EventID (FK)* references Event(EventID)

Resources

ResourceID	Name	Price	Quantity	Status('Available', 'Unavailable')	Type	*EventID (FK)* references Events(EventID)	*UserID(FK)* references User(UserID)

Overview

1. Core Entities and Their Relationships:

a) User System (Inheritance Structure):

- Base User entity with attributes like User_ID, Email, Password, Name, etc.
- Specialized user types (inheritance):
    - Regular User (attendees)

- ○ Vendor (business services)
- ○ Admin (system management)
- ○ Organizer (event creation/management)
- ○ Sponsor (event funding)

b) Event Management:

- Central Event entity with attributes like EventID, Title, Description, Dates, Location
- Connected to multiple user types through relationship tables:
  - ○ EventManagement
  - ○ EventOrganiser
  - ○ EventSponsor
  - ○ EventVendor
  - ○ EventParticipants

c) Ticketing System:

- Ticket entity with specialization into:
  - ○ VIP tickets
  - ○ General Admission tickets
- Connected to Payment system
- Includes attributes like QR Code, Status, Price, Seat No

2. Key Relationships and Cardinalities:
- User to Event (Many-to-Many):
  - ○ Users can participate in multiple events
  - ○ Events can have multiple participants
  - ○ Implemented through junction tables (EventParticipants, EventManagement, etc.)
- Event to Ticket (One-to-Many):
  - ○ One event can have multiple tickets
  - ○ Each ticket belongs to one event
- Ticket to Payment (One-to-One):
  - ○ Each ticket has one payment
  - ○ Each payment is for one ticket

3. Important Features:

a) Resource Management:

- Resources entity tracks event-related items
- Connected to both Events and Users
- Includes attributes like Price, Quantity, Status, Type

b) Feedback System:

- Allows for event ratings and comments
- Includes moderation capability (IsModerated flag)
- Connected to specific events

c) Event Categorization:

- EventCategory entity for organizing events
- Includes attributes like Name, Description, IsActive

4. Notable Design Choices:
    - Use of inheritance for user types (good for specialization)
    - Separation of concerns between tickets, payments, and events
    - Comprehensive tracking through timestamps and status flags
    - Moderation and verification systems (IsVerified, IsModerated flags)
    - Flexible resource management system
5. Security and Validation:
    - User authentication (Password field)
    - Activity tracking (Is_active, Last_login)
    - Business verification (Is_verified for vendors and organizers)
    - Status tracking across multiple entities
6. Payment and Financial Handling:
    - Dedicated Payment entity with:
        - Transaction tracking
        - Multiple payment methods
        - Status monitoring
        - Timestamp recording