

Michaela's Choir Management System: Milestone 0

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Introduction:

This project aims to create a robust database and user-friendly interface for the Sea Change Corral choir, of which Michaela is a member. Currently, the choir manages data through Google Sheets, but this method is becoming inefficient. The new system will manage member information, attendance records, and dues payments while ensuring data security and providing easy access to various users.

ER Diagram

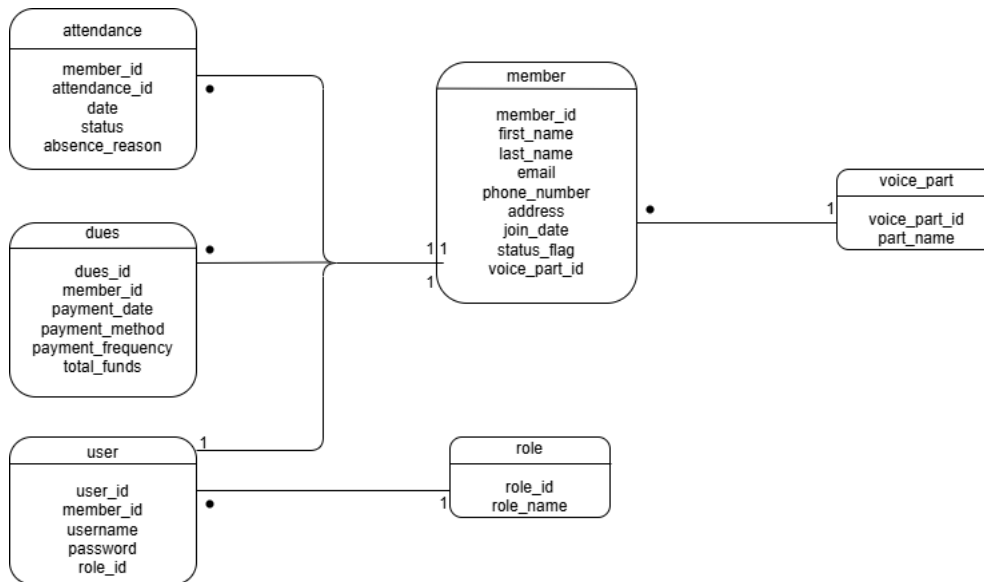
The ER diagram includes the following main entities and their relationships:

1. **Member:** Stores essential information about each choir member.
2. **Attendance:** Tracks weekly attendance, including reasons for absences.
3. **Dues:** Manages dues payments and maintains a history of payments.
4. **Voice Part:** Identifies the choir section each member belongs to (e.g., Soprano, Alto).
5. **User:** Provides system access control based on specific roles.
6. **Role:** Defines different levels of access permissions for various user roles.

Key Relationships:

- **Member - Attendance:** One-to-many, as each member can have multiple attendance records.
- **Member - Dues:** One-to-many, as each member can have multiple dues payment records.
- **Member - Voice Part:** Many-to-one, as each member belongs to a single voice part.
- **User - Member:** One-to-one, as each user in the system corresponds to a member.
- **User - Role:** Many-to-one, as each user has a specific role that defines their permissions.

ER Diagram Structure:



Explanation:

1. **Member**: Central entity representing choir members, linked to various aspects of the system.
2. **User**: Represents individual system users linked directly to a **Member**. Each **User** has one **Role** that defines their permissions in the system.
3. **Role**: Defines access levels, such as Administrator, Treasurer, Secretary, etc.
4. **Attendance**: Tracks each member's attendance records, linked directly to **Member**.
5. **Dues**: Manages dues payments and records, also directly connected to **Member**.
6. **Voice Part**: Represents the section each member belongs to within the choir, associated with **Member**.

In this diagram, **User** and **Role** manage access controls, while **Attendance** and **Dues** monitor the choir's operational records. **Voice Part** categorizes each member within the choir's vocal sections. This structure ensures a streamlined database that maintains secure access while efficiently tracking attendance and dues.

Schemas

1. Member Table

Field Name	Data Type	Description
member_id	INT	Primary key, unique identifier for each member
first_name	VARCHAR	Member's first name
last_name	VARCHAR	Member's last name
email	VARCHAR	Email address
phone_number	VARCHAR	Contact number
address	VARCHAR	Mailing address
join_date	DATE	Date the member joined
voice_part_id	INT	Foreign key referencing VoicePart
status_flag	BOOLEAN	Flags members who have not attended regularly
notes	TEXT	Additional comments or notes about the member

2. Role Table

Field Name	Data Type	Description
role_id	INT	Primary key, unique identifier for each role
role_name	VARCHAR	Name of the role (e.g., Treasurer, Secretary, Section Leader)

3. Attendance Table

Field Name	Data Type	Description
attendance_id	INT	Primary key
member_id	INT	Foreign key referencing Member
date	DATE	Date of the rehearsal
status	BOOLEAN	Indicates attendance status (TRUE = Present, FALSE = Absent)
absence_reason	VARCHAR	Reason for absence (e.g., sick, vacation)

4. Dues Table

Field Name	Data Type	Description
dues_id	INT	Primary key
member_id	INT	Foreign key referencing Member
amount	DECIMAL	Payment amount
payment_date	DATE	Date of payment
payment_method	ENUM('Venmo', 'Check', 'Mail')	Method of payment
payment_frequency	ENUM('Monthly', 'Yearly')	Frequency of dues payment

total_funds	DECIMAL	Running total of available funds
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5. VoicePart Table

Field Name	Data Type	Description
voice_part_id	INT	Primary key
part_name	VARCHAR	Name of the voice part (e.g., Tenor, Alto)

6. User Table

Field Name	Data Type	Description
user_id	INT	Primary key
member_id	INT	Foreign key referencing Member
username	VARCHAR	Username
password	VARCHAR	Hashed password
role	ENUM('Admin', 'Treasurer', 'Secretary', 'Section Leader', 'Member')	User role

User Roles and Permissions

Based on Michaela's feedback, here's a breakdown of the roles and permissions:

1. Administrator:

- Full access to all functions.
- Can add, edit, and delete members, attendance, dues, and voice parts.
- Manages user accounts and assigns roles.

2. Treasurer:

- Access to dues and financial data.
- Can record and edit dues payments.
- Can generate financial reports.
- **Note:** Only the Treasurer and Board President have access to financial information.

3. Secretary:

- Responsible for adding and updating member information, including attendance records.
- Can view contact information for follow-up on attendance issues.

4. Section Leader:

- Records attendance for members within their voice part.
- Has limited access to member information within their section.

5. Regular Member:

- Can view their own attendance and dues history.
- Can update personal contact information.

6. Artistic Director:

- Similar to a regular member but may have additional viewing permissions if needed.

7. Board President and Board Member:

- **Board President:** Access to financial information alongside the Treasurer.
- **Board Member:** Viewing access to non-financial data, such as attendance records.

Data Security

1. Contact Information Privacy:

- Only authorized users (e.g., Administrator, Secretary) can access members' contact information.

2. Password Encryption:

- Passwords are securely hashed to prevent unauthorized access.

3. Access Control:

- Financial data is restricted to the Treasurer and Board President.

4. Data Encryption:

- Sensitive information will be encrypted to ensure data security and member privacy.

Financial Reports:

- Includes details on dues payment frequency, average annual payments, and payment methods (e.g., Venmo, Check).

- A running total of available funds is updated in real time.

2. **Attendance Reports:**

- Attendance reports highlight members with frequent absences and track specific absence reasons (e.g., sick, vacation).

3. **Data Visualizations:**

- Financial and attendance data visualizations offer insights into dues trends and attendance patterns, supporting better follow-up and financial management.
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Additional Functionalities

1. **Flagging Inactive Members:**

- Members with frequent or prolonged absences are automatically flagged for follow-up.
- The status_flag field in the **Member Table** indicates members requiring further attention.

2. **Running Total of Funds:**

- The system continuously tracks dues and updates the running total of available choir funds for transparency.
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User Interface and Accessibility

The system will feature an accessible, user-friendly interface designed to meet the needs of elderly users. Key considerations include:

1. **Simple Layout:**

- Large fonts, clear icons, and an uncluttered design to facilitate navigation.

2. **Role-Specific Access:**

- Each user only sees data and functions relevant to their role, simplifying usage and enhancing security.

3. **Compatibility:**

- The interface will be compatible with both desktop and mobile devices to accommodate various user needs.