MUST Voting System - Database Design Explanation

This document explains the structure and relationships of the database used in the MUST Voting System project. The database is designed to manage students, leaders, votes, and voting results in a secure and structured manner.

# 📊 Database Name: must\_voting\_final\_v2

# 🔶 Tables Overview

## 1. students

Stores students allowed to vote.

|  |  |  |
| --- | --- | --- |
| Column Name | Data Type | Description |
| reg\_number | VARCHAR(20) | Primary Key, unique registration number |
| password | VARCHAR(50) | Static password "123" for all students |

## 2. leaders

Stores candidates (leaders) available to be voted on.

|  |  |  |
| --- | --- | --- |
| Column Name | Data Type | Description |
| id | INT (AUTO\_INCREMENT) | Primary Key |
| name | VARCHAR(100) | Leader's full name |
| description | TEXT | Short profile of the leader |
| image\_url | TEXT | Link to the leader's image |

## 3. votes

Stores which student voted for which leader.

|  |  |  |
| --- | --- | --- |
| Column Name | Data Type | Description |
| id | INT (AUTO\_INCREMENT) | Primary Key |
| reg\_number | VARCHAR(20) | Student who cast the vote (not FK for dev ease) |
| leader\_id | INT | ID of the leader voted for |

🔒 Constraint: UNIQUE(reg\_number, leader\_id) → A student can only vote once per leader (max 2 total, enforced via frontend)

# 📈 ER Diagram (Text Representation)

+------------+ Votes for +----------+  
| students |---------------------| votes |  
|------------| |----------|  
| reg\_number |◄────────────┐ | id |  
| password | └──────►| reg\_number  
+------------+ | leader\_id|  
 +----------+  
 ▲  
 │  
 +----------+  
 | leaders |  
 |----------|  
 | id |  
 | name |  
 | desc |  
 | image\_url|  
 +----------+

# 🔄 Relationships

- students ↔ votes: One-to-many (one student can vote for multiple leaders)

- leaders ↔ votes: One-to-many (one leader can have many votes)

# ✅ Example Data

students

reg\_number | password  
-------------------|---------  
2310053335001 | 123  
2310053335002 | 123

leaders

id | name | description | image\_url  
---|------------|--------------------------|-------------------  
1 | John Doe | Tech enthusiast | https://.../john.jpg  
2 | Jane Smith | Student welfare champion | https://.../jane.jpg

votes

id | reg\_number | leader\_id  
---|------------------|-----------  
1 | 2310053335001 | 1  
2 | 2310053335001 | 2

# 🔐 Security Notes

- No password hashing (for learning purposes). Should be added for real deployment.

- Login roles are separated logically (students vs. committees).

# 🧠 Summary

Aspect | Notes  
-------------|------------------------------------------------------  
Easy to use | Fixed credentials, intuitive UI  
Controlled | One-time vote enforced with UNIQUE(reg\_number, leader\_id)  
Extendable | New roles or leader categories can be added  
Responsive | Scales well with more data