## ****1. Database Solution****

**SQLite** for development (can later switch to PostgreSQL/MySQL).

Use **Django ORM** for schema management + migrations (python manage.py makemigrations && migrate).

Base on Django’s built-in auth\_user table or extend it via a custom User model.

## ****2. Initial Database Schema****

### ****Table 1: users\_user**** (Custom User Model extending AbstractUser)

| **Field** | **Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| id | INTEGER | PK, Auto | Primary key |
| username | VARCHAR(150) | Unique, Not Null | Username |
| email | VARCHAR(254) | Unique, Not Null | Email |
| password | VARCHAR(128) | Not Null | Hashed password (PBKDF2) |
| first\_name | VARCHAR(150) | Optional | First name |
| last\_name | VARCHAR(150) | Optional | Last name |
| date\_joined | DATETIME | Default now | Registration time |
| last\_login | DATETIME | Nullable | Last login time |
| is\_active | BOOLEAN | Default True | Account active status |
| is\_staff | BOOLEAN | Default False | Admin/staff status |
| reset\_code | VARCHAR(64) | Nullable | One-time verification code for password reset |
| reset\_code\_expires | DATETIME | Nullable | Expiration time of reset\_code |

### ****Table 2: users\_profile**** (User Profile Extension)

| **Field** | **Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| id | INTEGER | PK, Auto | Primary key |
| user\_id | INTEGER | FK → users\_user.id | Linked user |
| display\_name | VARCHAR(150) | Optional | Display nickname |
| preferred\_system | VARCHAR(50) | Optional | Default bidding system (Acol/Standard American/Precision) |
| timezone | VARCHAR(50) | Optional | Time zone |
| bio | TEXT | Optional | User bio |

### ****Table 3: partnerships\_partnership****

| **Field** | **Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| id | INTEGER | PK, Auto | Primary key |
| name | VARCHAR(100) | Not Null | Partnership name |
| system\_card\_url | TEXT | Optional | Link to system card file |
| created\_at | DATETIME | Default now | Creation time |

### ****Table 4: partnerships\_membership****

| **Field** | **Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| id | INTEGER | PK, Auto | Primary key |
| partnership\_id | INTEGER | FK → partnerships\_partnership.id | Partnership ID |
| user\_id | INTEGER | FK → users\_user.id | User ID |
| role | VARCHAR(50) | Optional | Role in partnership (North/South/East/West) |
| joined\_at | DATETIME | Default now | Join time |

### ****Table 5: bids\_auction****

| **Field** | **Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| id | INTEGER | PK, Auto | Primary key |
| partnership\_id | INTEGER | FK → partnerships\_partnership.id | Partnership |
| deal\_id | INTEGER | FK → deals\_deal.id | Deal ID |
| position | VARCHAR(5) | Not Null | Seat position (N/S/E/W) |
| status | VARCHAR(20) | Default 'active' | active/closed/archived |
| created\_at | DATETIME | Default now | Record time |
| updated\_at | DATETIME | Default now | Last update time |
| updated\_by\_id | INTEGER | FK → users\_user.id | Last editor |
| version | INTEGER | Default 0 | Optimistic lock version |

### ****Table 6: deals\_deal****

| **Field** | **Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| id | INTEGER | PK, Auto | Primary key |
| cards | TEXT | Not Null | Card distribution (JSON) |
| created\_at | DATETIME | Default now | Generation time |

### ****Table 7: auth\_throttle\_log**** (Login Throttling)

| **Field** | **Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| id | INTEGER | PK, Auto | Primary key |
| ip\_address | VARCHAR(45) | Not Null | IPv4/IPv6 address |
| username | VARCHAR(150) | Optional | Attempted username |
| fail\_count | INTEGER | Default 0 | Consecutive failed attempts |
| last\_attempt | DATETIME | Default now | Last attempt time |

****Table 8:** bids\_node**

| **Field** | **Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| id | INTEGER | PK, Auto | Primary key |
| auction\_id | INTEGER | FK → bids\_auction.id, Not Null | Which auction this node belongs to |
| parent\_id | INTEGER | FK → bids\_node.id, Nullable | Parent node (NULL = root) |
| position | VARCHAR(5) | Not Null | N/S/E/W making this call |
| bid | VARCHAR(16) | Not Null | PASS/X/XX/1C/1D/1H/1S/1NT/… |
| explanation | TEXT | Optional | System meaning / notes |
| created\_by\_id | INTEGER | FK → users\_user.id, Optional | Who created |
| created\_at | DATETIME | Default now | Created time |
| version | INTEGER | Default 0 | Optimistic lock |
| (Unique) | — | UNIQUE (auction\_id, parent\_id, bid) | Prevent duplicate branch under same parent |

****Table 9:** bids\_annotation**

| **Field** | **Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| id | INTEGER | PK, Auto | Primary key |
| node\_id | INTEGER | FK → bids\_node.id, Not Null | Which node is annotated |
| author\_id | INTEGER | FK → users\_user.id, Optional | Author |
| note\_type | VARCHAR(24) | Default 'system' | system/note/disagreement/example |
| content | TEXT | Not Null | Note content |
| created\_at | DATETIME | Default now | Created time |

****Table 10:** bids\_cursor(The node each user is currently viewing/editing)**

| **Field** | **Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| id | INTEGER | PK, Auto | Primary key |
| auction\_id | INTEGER | FK → bids\_auction.id, Not Null | Auction |
| user\_id | INTEGER | FK → users\_user.id, Not Null | User |
| node\_id | INTEGER | FK → bids\_node.id, Nullable | Current node (NULL = none) |
| updated\_at | DATETIME | Default now | Last update time |
| (Unique) | — | UNIQUE (auction\_id, user\_id) | One cursor per user per auction |

****Table 11:** bids\_event**

| **Field** | **Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| id | INTEGER | PK, Auto | Primary key |
| auction\_id | INTEGER | FK → bids\_auction.id, Not Null | Auction |
| node\_id | INTEGER | FK → bids\_node.id, Optional | Related node |
| actor\_user\_id | INTEGER | FK → users\_user.id, Optional | Actor |
| action | VARCHAR(24) | Not Null | create\_node/edit\_node/delete\_node/close\_… |
| payload | TEXT | Optional | JSON diff / client version, etc. |
| created\_at | DATETIME | Default now | Time |

## ****3. Initial Data Dictionary (User Module)****

| **Table** | **Field** | **Type** | **Description** |
| --- | --- | --- | --- |
| users\_user | username | VARCHAR(150) | Unique username |
| users\_user | email | VARCHAR(254) | Unique email |
| users\_user | password | VARCHAR(128) | Hashed password |
| users\_profile | preferred\_system | VARCHAR(50) | Default bidding system |
| partnerships\_membership | role | VARCHAR(50) | Position in partnership |

