**Entities and Attributes**

1. **User** (For future account system)
   * user\_id (PK, UUID)
   * email (Unique)
   * password\_hash
   * created\_at
   * updated\_at
2. **Survey**
   * survey\_id (PK, UUID)
   * title
   * description
   * created\_by (FK → User)
   * created\_at
   * updated\_at
3. **Question**
   * question\_id (PK, UUID)
   * survey\_id (FK → Survey)
   * question\_text
   * question\_order
   * created\_at
   * updated\_at
4. **Response**
   * response\_id (PK, UUID)
   * question\_id (FK → Question)
   * user\_id (FK → User, nullable for guest users)
   * ip\_address (Stored for tracking)
   * response\_date
   * recording\_filename (Format: {ip}\_{date}\_{question\_id}.mp3)
5. **Recording Metadata**
   * recording\_id (PK, UUID)
   * response\_id (FK → Response)
   * file\_path
   * duration
   * size
   * uploaded\_at

**Relationships**

1. **User - Survey** → (1:N) A user can create multiple surveys.
2. **Survey - Question** → (1:N) A survey contains multiple questions.
3. **Question - Response** → (1:N) Each question can have multiple responses.
4. **Response - Recording Metadata** → (1:1) Each response has one associated recording.
5. **Response - User** → (N:1) Responses may be linked to a registered user or be anonymous (tracked via IP).

**ERD Visualization**

Here’s a textual representation of the ERD structure:

scss

CopyEdit

User (1) ---- (N) Survey

Survey (1) ---- (N) Question

Question (1) ---- (N) Response

Response (1) ---- (1) Recording Metadata

Response (N) ---- (1) User (Nullable)

**Next Steps**

* Would you like a **graphical ERD** for visualization?
* Do you need modifications to support additional features like **question types (MCQ, voice, text), survey analytics, or reporting**?