# **DATABASE DESIGN**

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**Database Used: MySQL** 

Project: QBankPro Web Application

### 1. Overview

The" qbankproweb" database is designed to manage an online interview question bank system, supporting job-related interview preparation. It consists of custom tables for handling jobs, questions, categories, mock interviews, and saved questions. Additionally, Django's built-in tables manage authentication, permissions, and session data.

# 2. Tables Created (Created in qbankapp)

### 2.1 qbankapp job

- **Purpose:** Stores job roles available in the system.
- Columns:
  - o id (Primary Key, Auto-increment)
  - o name (VARCHAR) Job title (e.g., Data Analyst, Software Engineer etc)

### 2.2 qbankapp\_category

- Purpose: Stores question categories such as Aptitude, Technical, etc.
- Columns:
  - o id (Primary Key, Auto-increment)
  - o name (VARCHAR) Category name

### 2.3 qbankapp\_question

• **Purpose:** Stores questions mapped to jobs and categories.

#### • Columns:

- o id (Primary Key, Auto-increment)
- job\_id (Foreign Key → qbankapp\_job)
- category\_id (Foreign Key → qbankapp\_category)
- o text (TEXT) Question content
- o options (JSON, Nullable) Stores multiple-choice options
- o correct answer (VARCHAR, Nullable) Stores the correct answer
- o difficulty (ENUM: Easy, Medium, Hard) Difficulty level
- o generated\_by\_ai (BOOLEAN) Indicates AI-generated questions

## 2.4 qbankapp\_mockinterviewquestion

- **Purpose:** Stores questions used in mock interviews.
- Columns:
  - o id (Primary Key, Auto-increment)
  - o question\_id (Foreign Key → qbankapp\_question)
  - job\_id (Foreign Key → qbankapp\_job)

### 2.5 qbankapp\_interviewquestion

- **Purpose:** Stores questions related to interview sessions.
- Columns:
  - o id (Primary Key, Auto-increment)
  - o question\_id (Foreign Key → qbankapp\_question)
  - o job id (Foreign Key → qbankapp job)

### 2.6 qbankapp savedquestion

- **Purpose:** Stores questions that users save for later review.
- Columns:
  - o id (Primary Key, Auto-increment)
  - o user id (Foreign Key  $\rightarrow$  auth user)
  - o question id (Foreign Key → qbankapp\_question)

o saved at (DATETIME) – Timestamp of when the question was saved

# 3. Relationships Summary

- One qbankapp\_job → Many qbankapp\_question
- One qbankapp\_category → Many qbankapp\_question
- One qbankapp\_question → Many qbankapp\_mockinterviewquestion & qbankapp\_interviewquestion
- One auth user → Many qbankapp savedquestion

Table Name	Related Table	Relationship Type
qbankapp_job	qbankapp_question	One-to-Many
qbankapp_category	qbankapp_question	One-to-Many
qbankapp_question	qbankapp_mockinterviewquestion	One-to-Many
qbankapp_question	qbankapp_interviewquestion	One-to-Many
qbankapp_question	qbankapp_savedquestion	One-to-Many
auth_user	qbankapp_savedquestion	One-to-Many

### 4. Django Default Tables

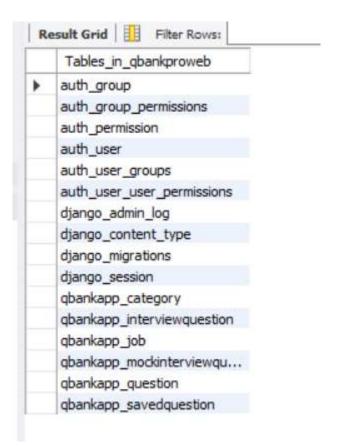
#### 4.1 Authentication and Permissions Tables

- auth user Stores user account details.
- auth\_group Stores user groups for permission management.
- auth group permissions Links groups to permissions.
- **auth permission** Stores permission types (add, delete, update, etc.).
- auth\_user\_groups Links users to groups for role-based access.
- auth\_user\_user\_permissions Assigns specific permissions to users.

#### **4.2 System and Session Management**

- django admin log Stores logs of admin panel actions.
- **django content type** Maps permissions to models.
- **django migrations** Tracks applied database migrations.
- **django session** Stores user session data.

#### 5. Screenshots



```
∨ templates qbanka...

                             67 # Database
68 DATABASES = (
  O login.html
                                    DATABASES = {
    'default': {
        'ENGINE': 'django.db.backends.mysql',
        'NAME': 'dbankproweb', # database name
    'USER': 'root', # MySQL username
    'PASSWORD': 'root', # MySQL password
    'NOST': 'localhost', # Used '127.0.0.1' for local development
    'PORT': '3386', # Default MySQL port
  mock test.html
  models.py
 Q question_bank.ht...
  saved_questions....
  select job.html
__init__py
admin.py
· apps.py
forms.py
generate_question...
                                   # Password validation
AUTH PASSWORD VALIDATORS = [
models.py
                                                   'NAME': 'django.contrib.auth.password_validation.UserAttributeSimilarityValidator',
urls.py
views.py

y gbankproweb

 > _pycache_
                             PROBLEMS OUTPUT DEBUG CORSCUE TERMINAL PORTS
_init__py
asgi.py
                             Session data: dict_items([('_auth_user_id', '4'), ('_auth_user_backend', 'django.contrib.auth.backends.Model
                             4ef8fcb@e6cf16ab7de623e970')])
settings.py
```

