1. **Admin Role in Course Management**
   - **Entities Involved**: ADMIN, TEACHER, COURSE
   - **Flow**: Admins create and manage **COURSES** and assign them to **TEACHERS**. This one-to-many relationship enables admins to oversee the academic structure and ensures proper course setup and alignment.

2. **Course Enrollment and User Management**
   - **Entities Involved**: USER, USER_COURSE, COURSE
   - **Flow**: Students (**USERS**) enroll in courses, recorded in the **USER_COURSE** bridge table. Each course can have multiple students which facilitates many-to-many relationships through **USER_COURSE**.

3. **Assessment Setup and File Management**
   - **Entities Involved**: ASSESSMENT, ASSESSMENT_FILE, COURSE, TEACHER
   - **Flow**: Teachers create **ASSESSMENTS** for their courses, associating each with a file in **ASSESSMENT_FILE**. Each assessment has details like duration and difficulty level and is managed by the assigned teacher while overseen by the admin.

4. **Question and Answer Structuring**
   - **Entities Involved**: QUESTION, ANSWER, ASSESSMENT
   - **Flow**: Within each **ASSESSMENT**, teachers add **QUESTIONS**. Each question can have multiple **ANSWERS**, with one or more designated as correct. This structure supports various question types like multiple-choice, true/false, and open-ended questions.

5. **User Interaction and AI Feedback**
   - **Entities Involved**: USER_MESSAGE, QUESTION, ANSWER, USER, AI_MODEL, REPORT
   - **Flow**: Users interact with questions during assessments, selecting answers that are logged in **USER_MESSAGE**. The **AI_MODEL** provides feedback on responses and send thats feedback to **REPORT**.

6. **Assessment Attempt Tracking and Reporting**
   - **Entities Involved**: ASSESSMENT_ATTEMPT, REPORT, ASSESSMENT, AI_MODEL
   - **Flow**: Each user's assessment attempt is tracked in **ASSESSMENT_ATTEMPT**. After completion, a **REPORT** is generated, summarizing performance, AI analysis, and feedback. Reports provide valuable insights for teachers and admins that enable data-driven decisions.

7. **AI Feedback:**
   a. **Entities Involved:** feedback Attribute in **AI MODEL**: The feedback attribute in **AI_MODEL** stores AI-generated analysis or comments for each assessment attempt.
   b. **Flow**:

i. **ASSESSMENT_ATTEMPT → AI_MODEL:** Each assessment attempt can now reference an entry in AI_MODEL, linking feedback to specific attempts.
ii. **REPORT → ASSESSMENT_ATTEMPT:** Each report is generated based on a specific assessment attempt, creating a direct link between the user's performance and their assessment data.