Brian L Moore
Design Document: Database Design
INFM480: Research Methods & Project Planning
Dr. Zhiling Long
April 17, 2025

Database Design

User

- Represents Registered Nurses, LPNs, MAs, and Admins.
- Each user can:
    - Submit **multiple responses** to quiz questions.
    - Receive **multiple assessment results** (e.g., one per level).
- **Primary Key:** user_id
- **Relationships:**
    - **1 to many** with Response (a user can answer many questions).
    - **1 to many** with Result (a user may have results from different levels).

Question

- Represents individual quiz questions.
- Each question:
    - Belongs to a specific **level** (e.g., Level 1, Level 2, Level 3).
    - Is associated with a **category** (e.g., Communication, Ethics).
    - Can have **multiple answer choices**.
    - Can appear in **multiple responses** by different users.
- **Primary Key:** question_id
- **Relationships:**
    - **1 to many** with Answer (each question has multiple answer options).
    - **1 to many** with Response (many users may answer the same question).

Answer

- Represents possible answer options for a question.
- One answer:
    - Belongs to **one question**.
    - May be marked as **correct or incorrect**.
- **Primary Key:** answer_id
- **Foreign Key:** question_id → Question
- **Relationships:**
    - **Many to 1** with Question.

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Response

- Represents a user's individual answer to a question.
- Each response:
  - Is linked to **one user** and **one question**.
  - Stores the **selected answer** and whether it was correct.
- **Primary Key:** response_id
- **Foreign Keys:** user_id, question_id
- **Relationships:**
  - **Many to 1** with both User and Question.

Result

- Stores a user's **performance summary** for a specific quiz level.
- Each result:
  - Is linked to **one user**.
  - Includes **score, level, and pass/fail status**.
  - Can generate **one feedback record**.
- **Primary Key:** result_id
- **Foreign Key:** user_id
- **Relationships:**
  - **1 to many** from User to Result.
  - **1 to 1** with Feedback.

Feedback

- Provides **custom study suggestions** based on quiz performance.
- Each feedback entry:
  - Is associated with **one result**.
  - Contains a **recommendation message**.
- **Primary Key:** feedback_id
- **Foreign Key:** result_id
- **Relationships:**
  - **1 to 1** with Result.

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Question	
PK	question_id
	text
	level
	category

User	
PK	user_id
	name
	email
	password
	role

Result	
PK	result_id
FK	user_id
	level
	score
	passed

Answer	
PK	answer_id
FK	question_id
	text
	is_correct

Recieves

Has Options

Appears in

Submits

Generates

Response	
PK	reponse_id
FK	user_id
FK	question_id
	selected_answer
	is_correct

Feedback	
PK	feedback_id
FK	result_id
	recommendation_text