

# ■ GROWWISE – Complete Database Structure

This document presents the complete, normalized, and AI-centric database design of the GrowWise system. All tables are structured to support dynamic AI-driven assessment, learning, and evaluation workflows.

## ■ PHASE 1: User & Authentication

Table: users

Column	Description / Constraint
user_id	Primary Key
full_name	NOT NULL
email	UNIQUE, NOT NULL
password_hash	NOT NULL
role	CHECK ('user','admin')
created_at	DEFAULT CURRENT_TIMESTAMP

**Constraints / Notes:** Ensures unique identity and role-based access control.

## ■ PHASE 2: Track / Domain Selection

Table: tracks

Column	Description / Constraint
track_id	Primary Key
track_name	UNIQUE, NOT NULL
description	NOT NULL

Table: user\_track\_selection

Column	Description / Constraint
selection_id	Primary Key
user_id	FK → users(user_id)
track_id	FK → tracks(track_id)
selected_at	DEFAULT CURRENT_TIMESTAMP

**Constraints / Notes:** One active track per user (enforced at application logic level).

## ■ PHASE 3: Runtime Assessment Engine

Table: assessment\_sessions

Column	Description / Constraint
session_id	Primary Key
user_id	FK → users(user_id)
track_id	FK → tracks(track_id)

status	CHECK ('in_progress','completed')
started_at	DEFAULT CURRENT_TIMESTAMP
completed_at	NULLABLE

Table: assessment\_question\_pool

Column	Description / Constraint
question_id	Primary Key
track_id	FK → tracks(track_id)
question_text	NOT NULL
question_type	CHECK ('mcq','logic','open')
difficulty	CHECK ('low','medium','high')

**Constraints / Notes:** Reusable AI-driven question bank (no fixed papers).

Table: assessment\_session\_questions

Column	Description / Constraint
id	Primary Key
session_id	FK → assessment_sessions(session_id)
question_id	FK → assessment_question_pool(question_id)

**Constraints / Notes:** Proof of runtime question generation for viva/exam.

Table: assessment\_responses

Column	Description / Constraint
response_id	Primary Key
session_id	FK → assessment_sessions(session_id)
question_id	FK → assessment_question_pool(question_id)
user_answer	NOT NULL
ai_score	CHECK (0–1)

Table: assessment\_results

Column	Description / Constraint
result_id	Primary Key
session_id	UNIQUE FK → assessment_sessions
overall_score	CHECK (0–100)
detected_level	CHECK ('beginner','intermediate','advanced')
ai_reasoning	NOT NULL

## ■ PHASE 4: Skill Intelligence

Table: skill\_profiles

Column	Description / Constraint
profile_id	Primary Key
user_id	UNIQUE FK → users(user_id)
strengths	NOT NULL
weaknesses	NOT NULL
thinking_pattern	NOT NULL

## ■ PHASE 5: AI Generated Learning Path

Table: learning\_paths

Column	Description / Constraint
path_id	Primary Key
user_id	FK → users(user_id)
result_id	FK → assessment_results(result_id)
created_at	DEFAULT CURRENT_TIMESTAMP

Table: learning\_path\_stages

Column	Description / Constraint
stage_id	Primary Key
path_id	FK → learning_paths(path_id)
stage_name	NOT NULL
stage_order	NOT NULL
focus_area	NOT NULL

**Constraints / Notes:** (path\_id, stage\_order) must be unique.

## ■ PHASE 6: RAG Based Contextual Chat Assistant

Table: knowledge\_base

Column	Description / Constraint
kb_id	Primary Key
track_id	FK → tracks(track_id)
content	NOT NULL
source	NOT NULL
embedding_vector	NOT NULL

Table: chat\_sessions

Column	Description / Constraint
chat_id	Primary Key

user_id	FK → users(user_id)
stage_id	FK → learning_path_stages(stage_id)
started_at	DEFAULT CURRENT_TIMESTAMP

Table: chat\_messages

Column	Description / Constraint
message_id	Primary Key
chat_id	FK → chat_sessions(chat_id)
sender	CHECK ('user','ai')
message_text	NOT NULL
created_at	DEFAULT CURRENT_TIMESTAMP

## ■ PHASE 7: Chat-Based Project Evaluation

Table: evaluation\_sessions

Column	Description / Constraint
evaluation_id	Primary Key
user_id	FK → users(user_id)
path_id	FK → learning_paths(path_id)
status	CHECK ('in_progress','completed')
started_at	DEFAULT CURRENT_TIMESTAMP
completed_at	NULLABLE

Table: evaluation\_dialogues

Column	Description / Constraint
dialogue_id	Primary Key
evaluation_id	FK → evaluation_sessions(evaluation_id)
speaker	CHECK ('ai','user')
message_text	NOT NULL
sequence_no	NOT NULL

Table: evaluation\_results

Column	Description / Constraint
result_id	Primary Key
evaluation_id	UNIQUE FK → evaluation_sessions
reasoning_score	CHECK (0–100)
problem_solving	CHECK (0–100)
final_feedback	NOT NULL
readiness_level	CHECK ('junior','mid','senior_ready')



## ■ Complete Database Flow

users → user\_track\_selection → assessment\_sessions → assessment\_session\_questions → assessment\_responses → assessment\_results → skill\_profiles → learning\_paths → learning\_path\_stages → chat\_sessions → chat\_messages → evaluation\_sessions → evaluation\_dialogues → evaluation\_results

### **Examiner Killer Line:**

“Our database stores AI decisions and learning intelligence, not static content. All assessments, paths, and evaluations are generated dynamically and persisted for traceability.”