**DB DESIGN FOR TRAINING MODULE**

-- Courses table

CREATE TABLE courses (

id INT PRIMARY KEY AUTO\_INCREMENT,

title VARCHAR(255) NOT NULL,

description TEXT,

is\_mandatory BOOLEAN DEFAULT FALSE,

mandatory\_frequency\_days INT NULL, -- 90 for quarterly, 365 for yearly, etc.

estimated\_duration\_minutes INT,

status ENUM('active', 'inactive', 'draft') DEFAULT 'active',

created\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

updated\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP ON UPDATE CURRENT\_TIMESTAMP,

created\_by INT,

INDEX idx\_status (status),

INDEX idx\_mandatory (is\_mandatory)

);

-- Lessons table (chapters within a course)

CREATE TABLE lessons (

id INT PRIMARY KEY AUTO\_INCREMENT,

course\_id INT NOT NULL,

title VARCHAR(255) NOT NULL,

description TEXT,

sequence\_order INT NOT NULL,

estimated\_duration\_minutes INT,

status ENUM('active', 'inactive') DEFAULT 'active',

created\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

updated\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP ON UPDATE CURRENT\_TIMESTAMP,

FOREIGN KEY (course\_id) REFERENCES courses(id) ON DELETE CASCADE,

INDEX idx\_course\_sequence (course\_id, sequence\_order),

UNIQUE KEY unique\_course\_sequence (course\_id, sequence\_order)

);

-- Lectures table (individual videos/content within a lesson)

CREATE TABLE lectures (

id INT PRIMARY KEY AUTO\_INCREMENT,

lesson\_id INT NOT NULL,

title VARCHAR(255) NOT NULL,

description TEXT,

content\_type ENUM('video', 'document', 'quiz', 'interactive') DEFAULT 'video',

content\_url VARCHAR(500),

duration\_seconds INT, -- Total duration in seconds

sequence\_order INT NOT NULL,

status ENUM('active', 'inactive') DEFAULT 'active',

created\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

updated\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP ON UPDATE CURRENT\_TIMESTAMP,

FOREIGN KEY (lesson\_id) REFERENCES lessons(id) ON DELETE CASCADE,

INDEX idx\_lesson\_sequence (lesson\_id, sequence\_order),

UNIQUE KEY unique\_lesson\_sequence (lesson\_id, sequence\_order)

);

for process tracking:

-- User course enrollments and completion tracking

CREATE TABLE user\_course\_progress (

id INT PRIMARY KEY AUTO\_INCREMENT,

user\_id INT NOT NULL,

course\_id INT NOT NULL,

enrollment\_date TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

last\_accessed\_at TIMESTAMP NULL,

completion\_date TIMESTAMP NULL,

completion\_percentage DECIMAL(5,2) DEFAULT 0.00, -- 0.00 to 100.00

is\_completed BOOLEAN DEFAULT FALSE,

last\_completed\_date TIMESTAMP NULL, -- For mandatory course tracking

next\_due\_date TIMESTAMP NULL, -- When next completion is due

created\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

updated\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP ON UPDATE CURRENT\_TIMESTAMP,

FOREIGN KEY (user\_id) REFERENCES users(id) ON DELETE CASCADE,

FOREIGN KEY (course\_id) REFERENCES courses(id) ON DELETE CASCADE,

UNIQUE KEY unique\_user\_course (user\_id, course\_id),

INDEX idx\_user\_id (user\_id),

INDEX idx\_course\_id (course\_id),

INDEX idx\_due\_date (next\_due\_date),

INDEX idx\_completion (is\_completed, last\_completed\_date)

);

-- User lesson progress

CREATE TABLE user\_lesson\_progress (

id INT PRIMARY KEY AUTO\_INCREMENT,

user\_id INT NOT NULL,

lesson\_id INT NOT NULL,

course\_id INT NOT NULL, -- Denormalized for faster queries

first\_accessed\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

last\_accessed\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP ON UPDATE CURRENT\_TIMESTAMP,

completion\_date TIMESTAMP NULL,

completion\_percentage DECIMAL(5,2) DEFAULT 0.00,

is\_completed BOOLEAN DEFAULT FALSE,

created\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

updated\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP ON UPDATE CURRENT\_TIMESTAMP,

FOREIGN KEY (user\_id) REFERENCES users(id) ON DELETE CASCADE,

FOREIGN KEY (lesson\_id) REFERENCES lessons(id) ON DELETE CASCADE,

FOREIGN KEY (course\_id) REFERENCES courses(id) ON DELETE CASCADE,

UNIQUE KEY unique\_user\_lesson (user\_id, lesson\_id),

INDEX idx\_user\_course (user\_id, course\_id),

INDEX idx\_completion (is\_completed, completion\_date)

);

-- User lecture progress (detailed tracking)

CREATE TABLE user\_lecture\_progress (

id INT PRIMARY KEY AUTO\_INCREMENT,

user\_id INT NOT NULL,

lecture\_id INT NOT NULL,

lesson\_id INT NOT NULL, -- Denormalized for faster queries

course\_id INT NOT NULL, -- Denormalized for faster queries

first\_accessed\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

last\_accessed\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP ON UPDATE CURRENT\_TIMESTAMP,

completion\_date TIMESTAMP NULL,

watched\_duration\_seconds INT DEFAULT 0, -- How much user has watched

total\_duration\_seconds INT, -- Total duration (denormalized from lectures table)

completion\_percentage DECIMAL(5,2) DEFAULT 0.00,

is\_completed BOOLEAN DEFAULT FALSE,

watch\_count INT DEFAULT 1, -- How many times user accessed this lecture

created\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

updated\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP ON UPDATE CURRENT\_TIMESTAMP,

FOREIGN KEY (user\_id) REFERENCES users(id) ON DELETE CASCADE,

FOREIGN KEY (lecture\_id) REFERENCES lectures(id) ON DELETE CASCADE,

UNIQUE KEY unique\_user\_lecture (user\_id, lecture\_id),

INDEX idx\_user\_lesson (user\_id, lesson\_id),

INDEX idx\_user\_course (user\_id, course\_id),

INDEX idx\_completion (is\_completed, completion\_date)

);

-- Track mandatory course compliance

CREATE TABLE user\_mandatory\_compliance (

id INT PRIMARY KEY AUTO\_INCREMENT,

user\_id INT NOT NULL,

course\_id INT NOT NULL,

due\_date DATE NOT NULL,

completion\_date TIMESTAMP NULL,

is\_compliant BOOLEAN DEFAULT FALSE,

is\_overdue BOOLEAN DEFAULT FALSE,

notification\_sent\_at TIMESTAMP NULL,

escalation\_level INT DEFAULT 0, -- 0=none, 1=reminder, 2=warning, 3=critical

created\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

updated\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP ON UPDATE CURRENT\_TIMESTAMP,

FOREIGN KEY (user\_id) REFERENCES users(id) ON DELETE CASCADE,

FOREIGN KEY (course\_id) REFERENCES courses(id) ON DELETE CASCADE,

INDEX idx\_user\_due\_date (user\_id, due\_date),

INDEX idx\_overdue (is\_overdue, due\_date),

INDEX idx\_compliance (is\_compliant, due\_date)

);

[“9905”,”5441”,”7332”]

Pitstop ID PS Name Terminal ID Polygon Name District HH - MASTERPolygon District