Appendix D Details of Entities Attributes and Constraints

The entities’ attributes and constraints are shown in SQL format:

CREATE TABLE *Users* (

    id\_user UUID *PRIMARY KEY* *DEFAULT* uuid\_generate\_v4(),

    user\_email VARCHAR(40) NOT NULL UNIQUE *CHECK* (user\_email LIKE '%@%'),

    password\_hash VARCHAR(60) NOT NULL,

    created\_date TIMESTAMP NOT NULL,

    updated\_date TIMESTAMP,

    mother\_language VARCHAR(20) NOT NULL,

    username VARCHAR(40) NOT NULL,

    conversation\_points INT *DEFAULT* 50,

    last\_message\_date DATE

);

CREATE TABLE *Study\_Items* (

    id\_study SERIAL *PRIMARY KEY*,

    id\_user UUID NOT NULL *REFERENCES* Users(id\_user) *ON DELETE CASCADE*,

    category VARCHAR(20) NOT NULL *CHECK* (category IN ('Vocabulary', 'Reading', 'Listening', 'Conversation', 'Writing', 'Culture', 'Other')),

    title VARCHAR(50) NOT NULL,

    content VARCHAR(2000),

    created\_date TIMESTAMP NOT NULL,

    scheduled\_date DATE NOT NULL,

    finished\_date DATE,

    status VARCHAR(20) NOT NULL *CHECK* (status IN ('Scheduled', 'Finished', 'Canceled'))

);

CREATE TABLE *Review\_Items* (

    id\_review SERIAL *PRIMARY KEY*,

    id\_user UUID NOT NULL *REFERENCES* Users(id\_user) *ON DELETE CASCADE*,

    category VARCHAR(20) NOT NULL *CHECK* (category IN ('Vocabulary', 'Reading', 'Listening', 'Conversation', 'Writing', 'Culture', 'Other')),

    title VARCHAR(50) NOT NULL,

    content VARCHAR(2000),

    created\_date TIMESTAMP NOT NULL

);

CREATE TABLE *Review\_Sessions* (

    id\_session SERIAL *PRIMARY KEY*,

    id\_review INTEGER NOT NULL *REFERENCES* Review\_Items(id\_review) *ON DELETE CASCADE*,

    created\_date TIMESTAMP NOT NULL,

    scheduled\_date DATE NOT NULL,

    finished\_date DATE,

    status VARCHAR(20) NOT NULL *CHECK* (status IN ('Scheduled', 'Finished', 'Canceled'))

);

CREATE TABLE *ChatMessages* (

    id\_message SERIAL *PRIMARY KEY*,

    id\_user UUID NOT NULL *REFERENCES* Users(id\_user) *ON DELETE CASCADE*,

    created\_date TIMESTAMP NOT NULL,

    chatbot\_name VARCHAR(100) NOT NULL,

    role VARCHAR(50) NOT NULL *CHECK* (status IN ('user', 'assistant', 'topic')),

    content TEXT NOT NULL,

    prompt\_tokens INT,

    completion\_tokens INT

);

CREATE TABLE *Courses* (

    id\_course SERIAL *PRIMARY KEY*,

    title VARCHAR(100) UNIQUE NOT NULL,

    description VARCHAR(1000) NOT NULL,

    created\_date TIMESTAMP NOT NULL

);

CREATE TABLE *Course\_Default\_Study\_Items* (

    id\_default\_study SERIAL *PRIMARY KEY*,

    id\_course INTEGER NOT NULL *REFERENCES* Courses(id\_course) *ON DELETE CASCADE*,

    category VARCHAR(20) NOT NULL *CHECK* (category IN ('Vocabulary', 'Reading', 'Listening', 'Conversation', 'Writing', 'Culture', 'Other')),

    title VARCHAR(50) NOT NULL,

    content VARCHAR(2000) NOT NULL,

    created\_date TIMESTAMP NOT NULL,

scheduled\_date\_offset INTEGER NOT NULL

);

CREATE TABLE User\_Courses (

id\_user\_course SERIAL PRIMARY KEY,

id\_user UUID NOT NULL REFERENCES Users(id\_user) ON DELETE CASCADE,

id\_course INTEGER NOT NULL REFERENCES Courses(id\_course) ON DELETE CASCADE,

registration\_date TIMESTAMP NOT NULL,

UNIQUE (id\_user, id\_course)

);