202509 - Software Development Basic - Assignment 1

TeacherShare (Basic Version)

App Description

A streamlined platform where teachers can easily upload, organize, and share educational resources with colleagues
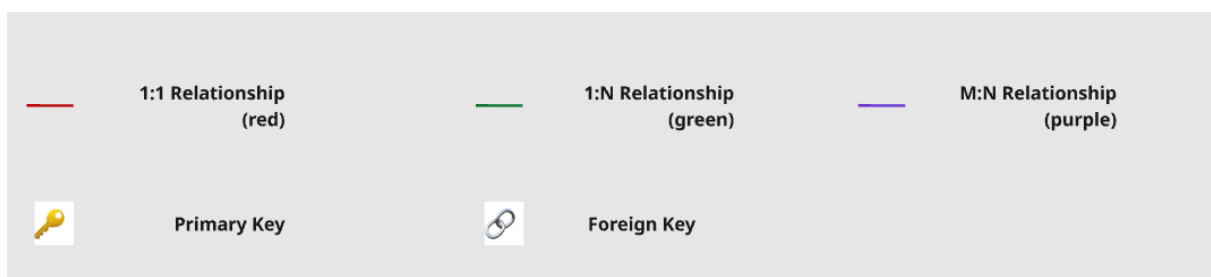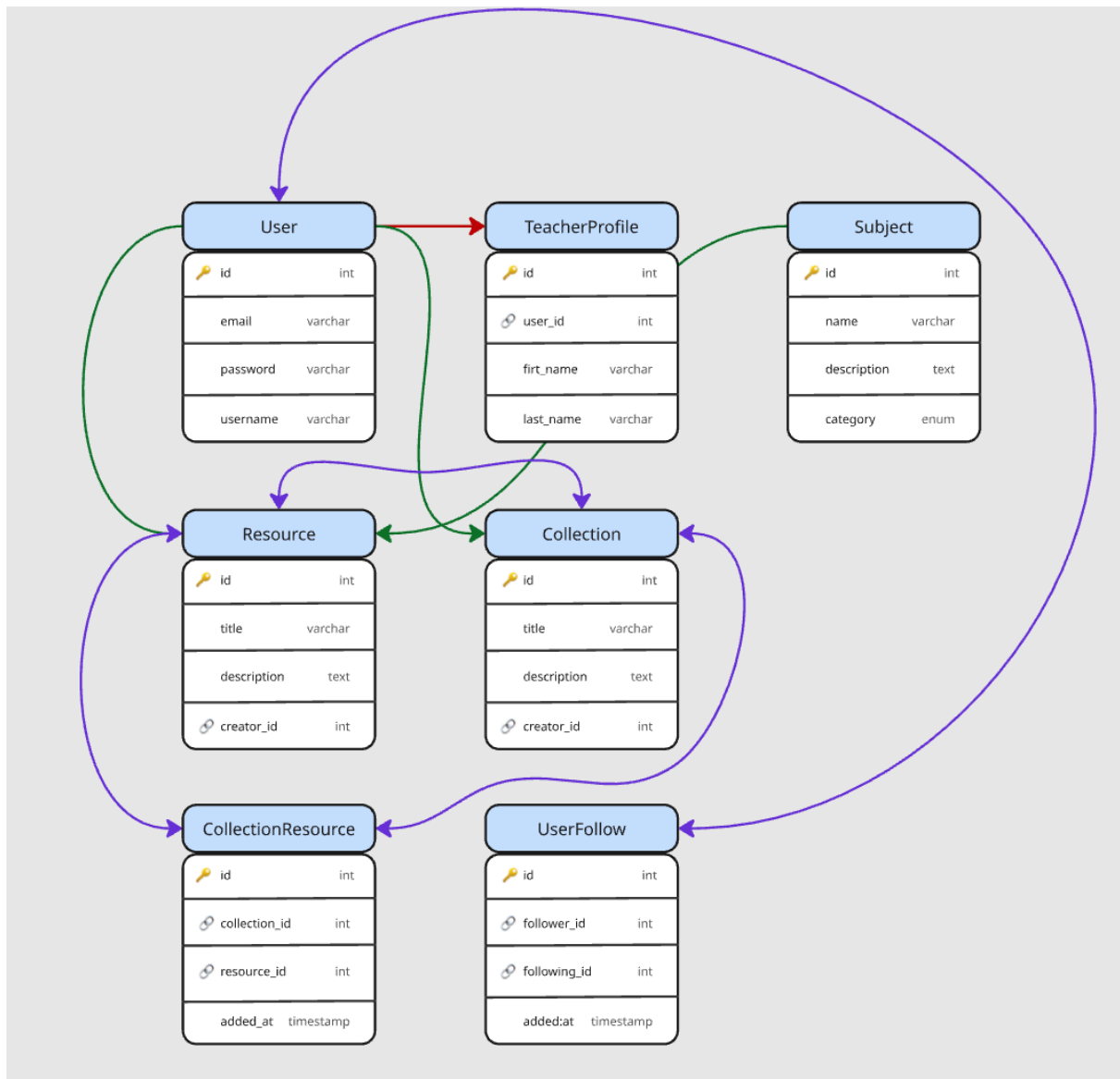
Core Features:

- Teachers create profiles showcasing their experience and school

- Upload lesson plans, worksheets, and activities by subject and grade level

- Organize resources into themed collections (e.g., "5th Grade Math Unit")

- Follow favorite teachers to see their latest uploads

- Browse and download resources shared by the community

- Simple search by subject, grade level, or teacher

Target User:

Teachers looking for a simple way to share and discover quality educational materials without the complexity of social media platforms.

Models and their properties

Database Entity Relationship Diagram

Legend:
- **1:1 Relationship (red)**
- **1:N Relationship (green)**
- **M:N Relationship (purple)**
- 🔑 **Primary Key**
- 🔗 **Foreign Key**

Naming of the relations

User-TeacherProfile is a 1:1 relationship

- A `User` **hasOne** teacher profile

- A `TeacherProfile` **belongsTo** a user

User-Resource is a 1:M relationship

- A `User` **hasMany** resources (as creator)
- A `Resource` **belongsTo** a creator (user)

Subject-Resource is a 1:M relationship

- A `Subject` **hasMany** resources
- A `Resource` **belongsTo** a subject

User-Collection is a 1:M relationship

- A `User` **hasMany** collections (as creator)
- A `Collection` **belongsTo** a creator (user)

Collection-Resource is a M:N relationship

- A `Collection` **belongsToMany** resources (through collection_resources)
- A `Resource` **belongsToMany** collections (through collection_resources)

User-User is a M:N relationship (Following)

- A `User` **belongsToMany** following users (through user_follows as follower_id)
- A `User` **belongsToMany** follower users (through user_follows as following_id)

TeacherHub (Advanced Version)

App Description

A comprehensive professional platform that combines resource sharing, career development, and community building specifically for educators - a Linkedin for Teachers
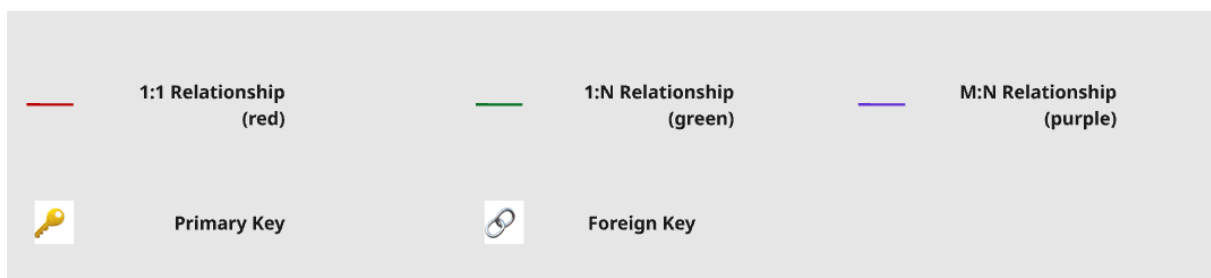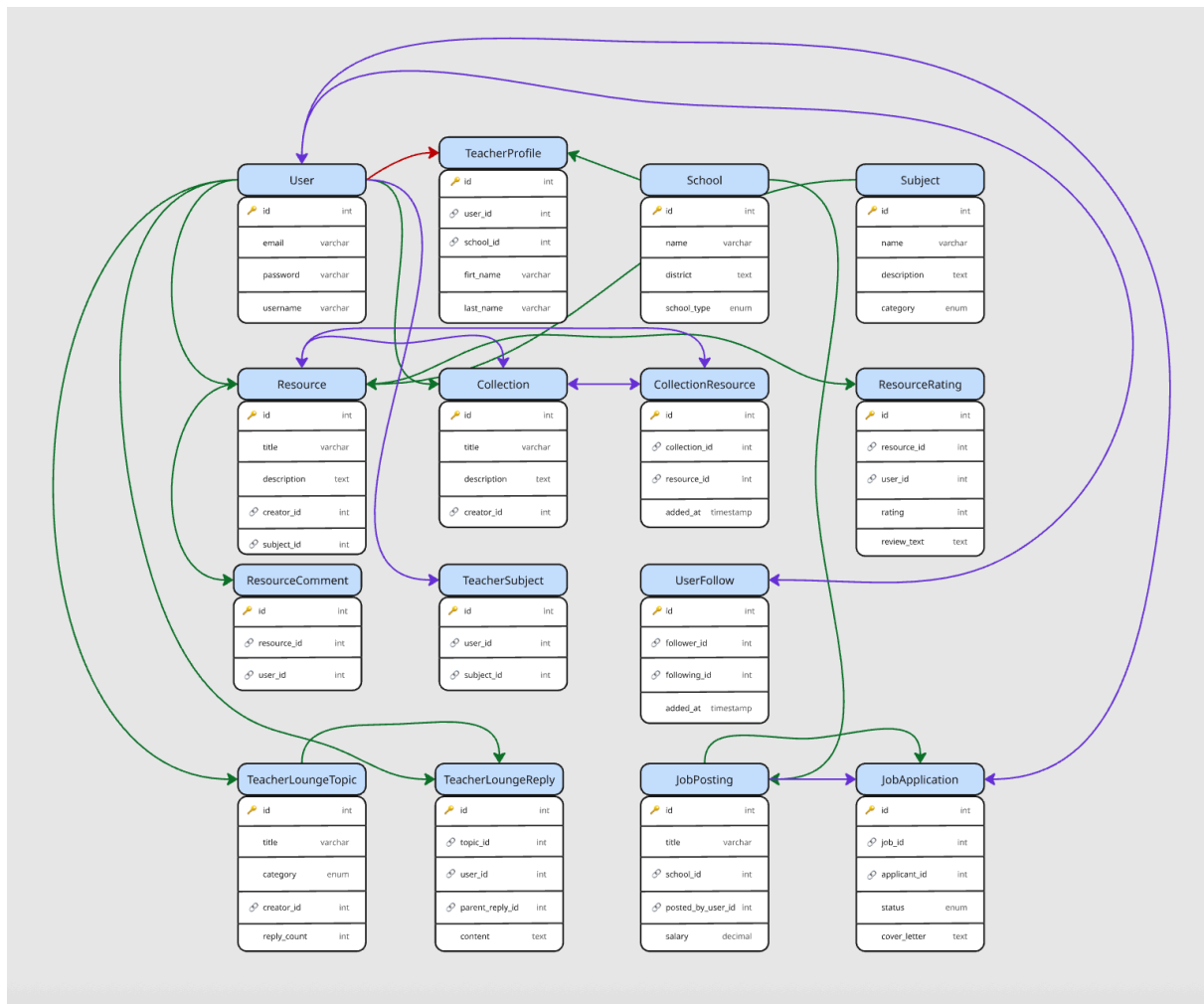
Core Features:

- **Professional Profiles:** Detailed teacher profiles with school affiliations, subject expertise, and experience tracking

- **Smart Resource Management:** Upload resources with detailed metadata, ratings, and peer reviews

- **Collection System:** Create and collaborate on resource collections with other teachers

- **Teacher Lounge:** Discussion forums where teachers ask questions, share advice, and solve problems together

- **Career Marketplace:** Job posting board where schools can post positions and teachers can apply

- **Social Learning:** Follow teachers, rate resources, comment on materials, and build professional networks

- **Expertise Tracking:** System tracks which subjects teachers specialize in and their proficiency levels

Target User:

Professional educators seeking career growth, resource sharing, networking opportunities, and community support in one integrated platform.

Models and their properties

Naming of the relations

User-TeacherProfile is a 1:1 relationship

- A `User` **hasOne** teacher profile
- A `TeacherProfile` **belongsTo** a user

School-TeacherProfile is a 1:M relationship

- A `School` **hasMany** teacher profiles

- A `TeacherProfile` **belongsTo** a school

User-Resource is a 1:M relationship

- A `User` **hasMany** resources (as creator)
- A `Resource` **belongsTo** a creator (user)

Subject-Resource is a 1:M relationship

- A `Subject` **hasMany** resources
- A `Resource` **belongsTo** a subject

User-Collection is a 1:M relationship

- A `User` **hasMany** collections (as creator)
- A `Collection` **belongsTo** a creator (user)

Subject-Collection is a 1:M relationship

- A `Subject` **hasMany** collections
- A `Collection` **belongsTo** a subject

Collection-Resource is a M:N relationship

- A `Collection` **belongsToMany** resources (through collection_resources)
- A `Resource` **belongsToMany** collections (through collection_resources)

User-Subject is a M:N relationship (Teaching Expertise)

- A `User` **belongsToMany** subjects (through teacher_subjects)
- A `Subject` **belongsToMany** users (through teacher_subjects)

User-User is a M:N relationship (Following)

- A `User` **belongsToMany** following users (through user_follows as follower_id)
- A `User` **belongsToMany** follower users (through user_follows as following_id)

Resource-ResourceRating is a 1:M relationship

- A `Resource` **hasMany** resource ratings
- A `ResourceRating` **belongsTo** a resource

User-ResourceRating is a 1:M relationship

- A `User` **hasMany** resource ratings (as reviewer)
- A `ResourceRating` **belongsTo** a user (reviewer)

Resource-ResourceComment is a 1:M relationship

- A `Resource` **hasMany** resource comments
- A `ResourceComment` **belongsTo** a resource

User-ResourceComment is a 1:M relationship

- A `User` **hasMany** resource comments (as commenter)
- A `ResourceComment` **belongsTo** a user (commenter)

ResourceComment-ResourceComment is a 1:M relationship (Self-referencing)

- A `ResourceComment` **hasMany** child comments (as parent)
- A `ResourceComment` **belongsTo** a parent comment

User-TeacherLoungeTopics is a 1:M relationship

- A `User` **hasMany** teacher lounge topics (as creator)
- A `TeacherLoungeTopics` **belongsTo** a creator (user)

Subject-TeacherLoungeTopics is a 1:M relationship

- A `Subject` **hasMany** teacher lounge topics
- A `TeacherLoungeTopics` **belongsTo** a subject

TeacherLoungeTopics-TeacherLoungeReplies is a 1:M relationship

- A `TeacherLoungeTopics` **hasMany** teacher lounge replies
- A `TeacherLoungeReplies` **belongsTo** a teacher lounge topic

User-TeacherLoungeReplies is a 1:M relationship

- A `User` **hasMany** teacher lounge replies (as author)
- A `TeacherLoungeReplies` **belongsTo** an author (user)

TeacherLoungeReplies-TeacherLoungeReplies is a 1:M relationship (Self-referencing)

- A `TeacherLoungeReplies` **hasMany** child replies (as parent)
- A `TeacherLoungeReplies` **belongsTo** a parent reply

User-TeacherLoungeTopics is a M:N relationship (Voting)

- A `User` **belongsToMany** teacher lounge topics (through teacher_lounge_votes)
- A `TeacherLoungeTopics` **belongsToMany** users (through teacher_lounge_votes)

User-TeacherLoungeReplies is a M:N relationship (Voting)

- A `User` **belongsToMany** teacher lounge replies (through lounge_reply_votes)
- A `TeacherLoungeReplies` **belongsToMany** users (through lounge_reply_votes)

School-JobPosting is a 1:M relationship

- A `School` **hasMany** job postings
- A `JobPosting` **belongsTo** a school

User-JobPosting is a 1:M relationship

- A `User` **hasMany** job postings (as poster)
- A `JobPosting` **belongsTo** a poster (user)

Subject-JobPosting is a 1:M relationship

- A `Subject` **hasMany** job postings
- A `JobPosting` **belongsTo** a subject

JobPosting-JobApplication is a 1:M relationship

- A `JobPosting` **hasMany** job applications
- A `JobApplication` **belongsTo** a job posting

User-JobApplication is a 1:M relationship

- A `User` **hasMany** job applications (as applicant)
- A `JobApplication` **belongsTo** an applicant (user)

User-JobPosting is a M:N relationship (Applications)

- A `User` **belongsToMany** job postings (through job_applications)
- A `JobPosting` **belongsToMany** users (through job_applications)