הנדסת תוכנה – מסמך הארכיטקטורה

מגישים: ניקול דוידוב 322441387

ענבל בולשינסקי 322522673

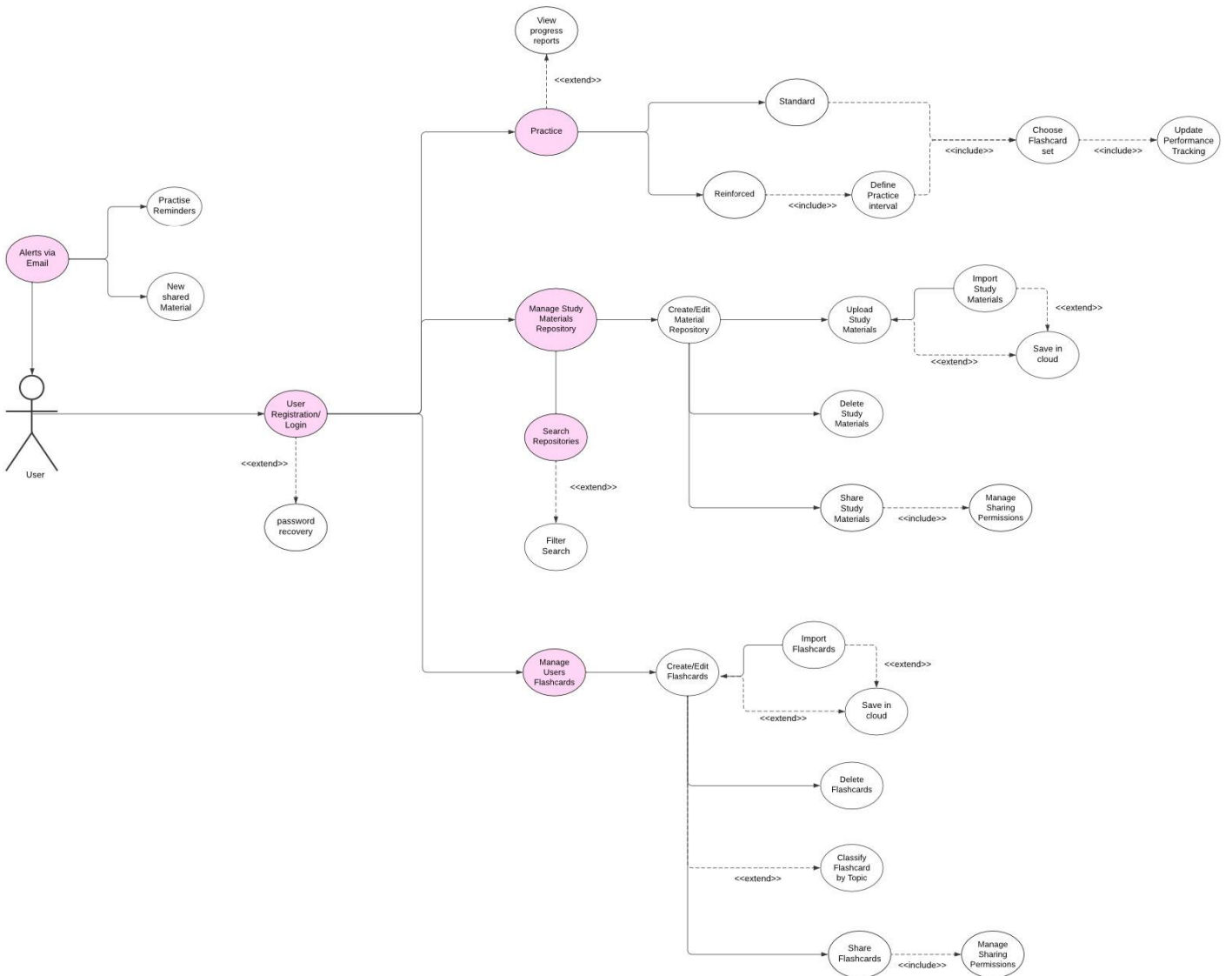**עידן והב 207174202**

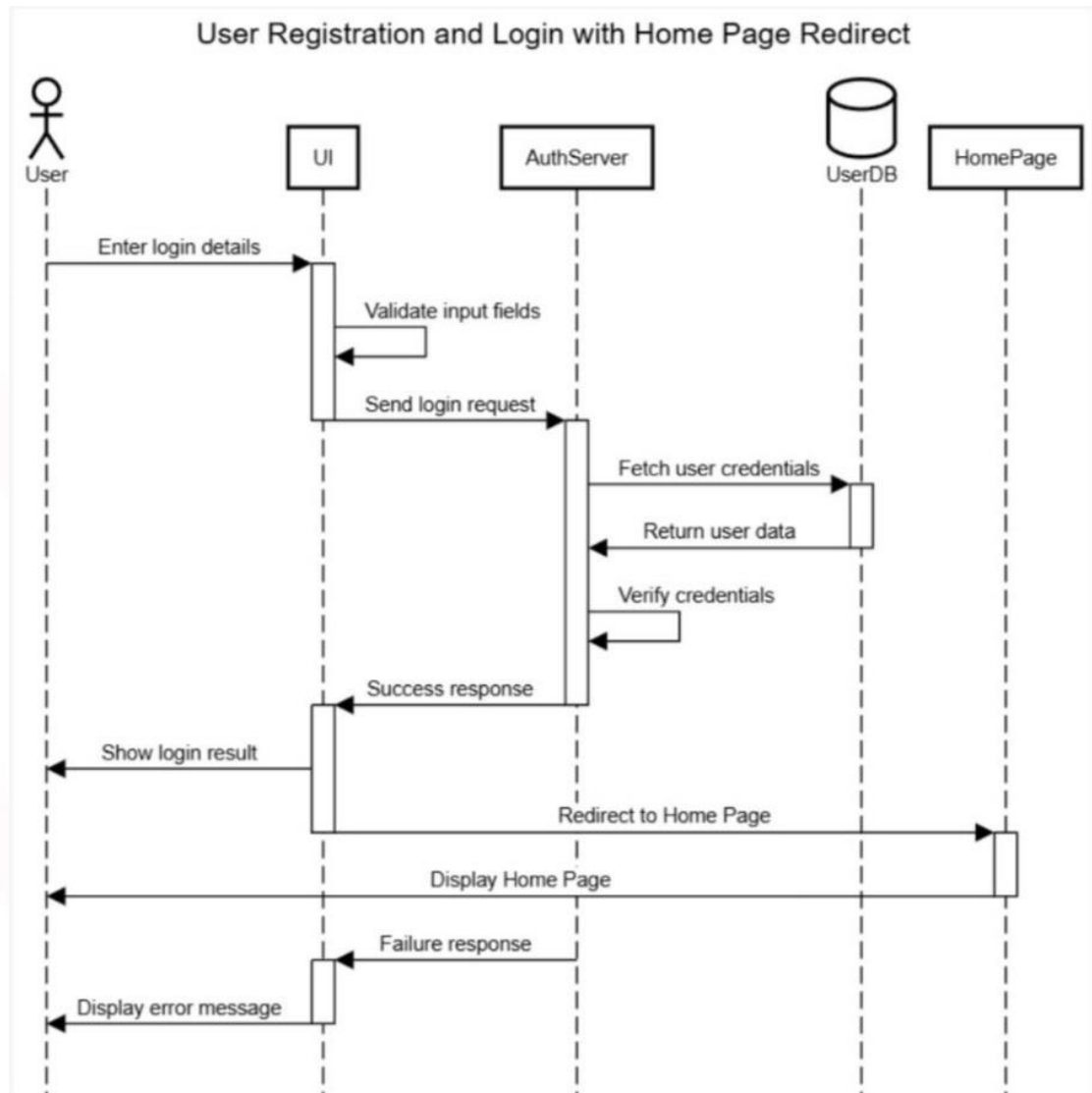**מרצה: ניסים ברמי**

מתרגל: שי שילה

Use -Case Diagram

LearnUp
Tailored learning experiences for everyone

User

- Alerts via Email
  - Practise Reminders
  - New shared Material

- User Registration/ Login
  - <<extend>> password recovery

Practice
- <<extend>> View progress reports
- Standard
- Reinforced
  - <<include>> Define Practice interval
- <<include>> Choose Flashcard set
- <<include>> Update Performance Tracking

Manage Study Materials Repository
- Create/Edit Material Repository
  - Upload Study Materials
    - Import Study Materials <<extend>>
    - Save in cloud <<extend>>
  - Delete Study Materials
  - Share Study Materials
    - <<include>> Manage Sharing Permissions
- Search Repositories
  - <<extend>> Filter Search

Manage Users Flashcards
- Create/Edit Flashcards
  - Import Flashcards <<extend>>
  - Save in cloud <<extend>>
  - Delete Flashcards
  - Classify Flashcard by Topic <<extend>>
  - Share Flashcards
    - <<include>> Manage Sharing Permissions

Sequence Diagrams

User Registration and Login with Home Page Redirect

```
title User Registration and Login with Home Page
Redirect

actor User
participant UI
participant AuthServer
database UserDB
participant HomePage

User -> UI: Enter login details
activate UI

UI -> UI: Validate input fields
UI -> AuthServer: Send login request
deactivate UI
activate AuthServer

AuthServer -> UserDB: Fetch user credentials
activate UserDB
UserDB -> AuthServer: Return user data
deactivate UserDB

AuthServer -> AuthServer: Verify credentials
    AuthServer -> UI: Success response
    deactivate AuthServer
    activate UI
    UI -> User: Show login result
    UI -> HomePage: Redirect to Home Page
    deactivate UI
    activate HomePage
    HomePage -> User: Display Home Page
    deactivate HomePage
else Credentials invalid
    AuthServer -> UI: Failure response
    deactivate AuthServer
    activate UI
    UI -> User: Display error message
    deactivate UI
end
```
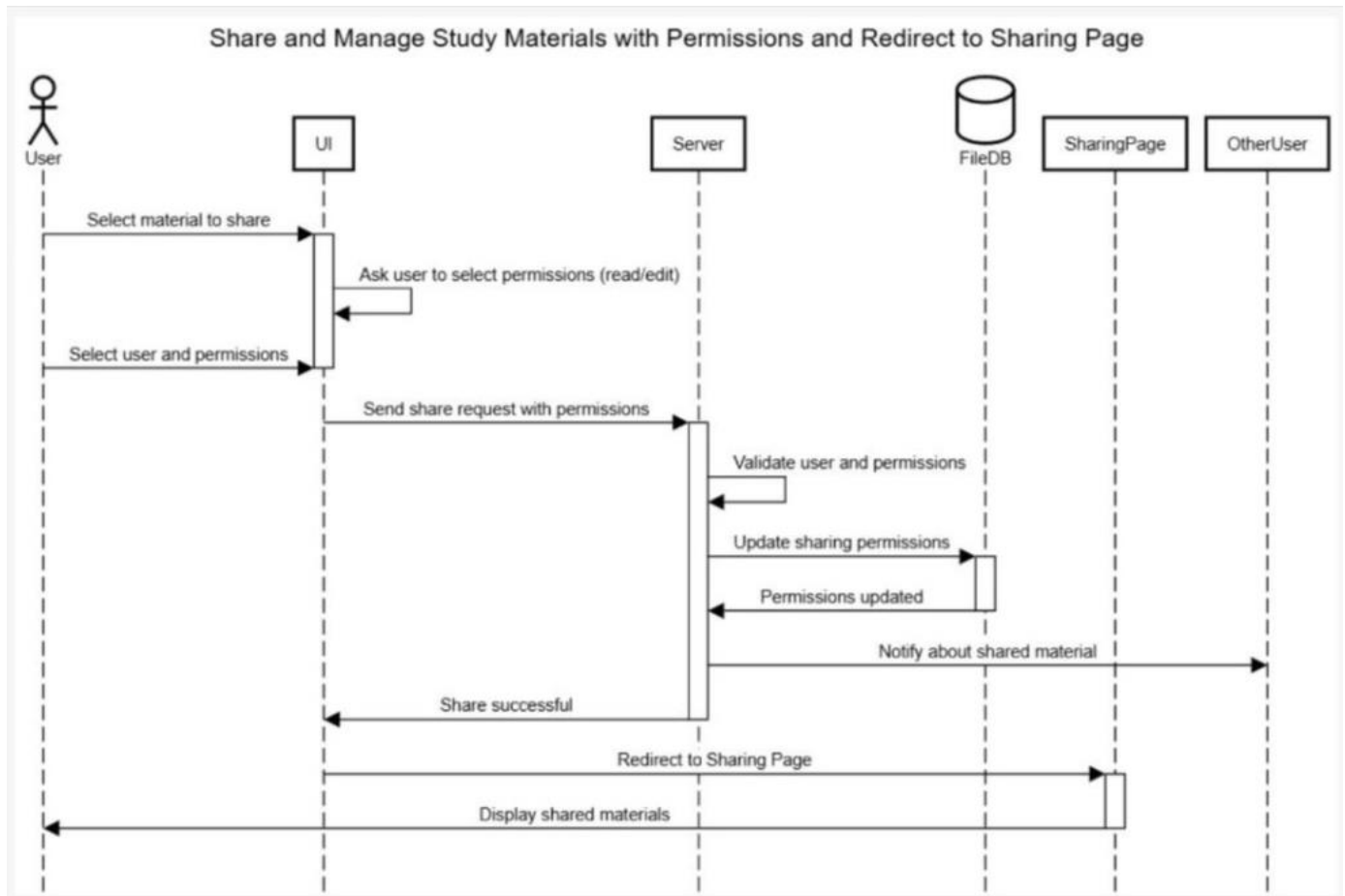
Share and Manage Study Materials with Permissions and Redirect to Sharing Page


```
title Share and Manage Study Materials with Permissions
and Redirect to Sharing Page

actor User
participant UI
participant Server
database FileDB
participant SharingPage
participant OtherUser

User -> UI: Select material to share
activate UI

UI -> UI: Ask user to select permissions (read/edit)
User -> UI: Select user and permissions
deactivate UI

UI -> Server: Send share request with permissions
activate Server

Server -> Server: Validate user and permissions
Server -> FileDB: Update sharing permissions
activate FileDB
FileDB -> Server: Permissions updated
deactivate FileDB

Server -> OtherUser: Notify about shared material
Server -> UI: Share successful
deactivate Server

UI -> SharingPage: Redirect to Sharing Page
activate SharingPage
SharingPage -> User: Display shared materials
deactivate SharingPage
```

Upload Study Materials with Folder Selection and Redirect to Files Page
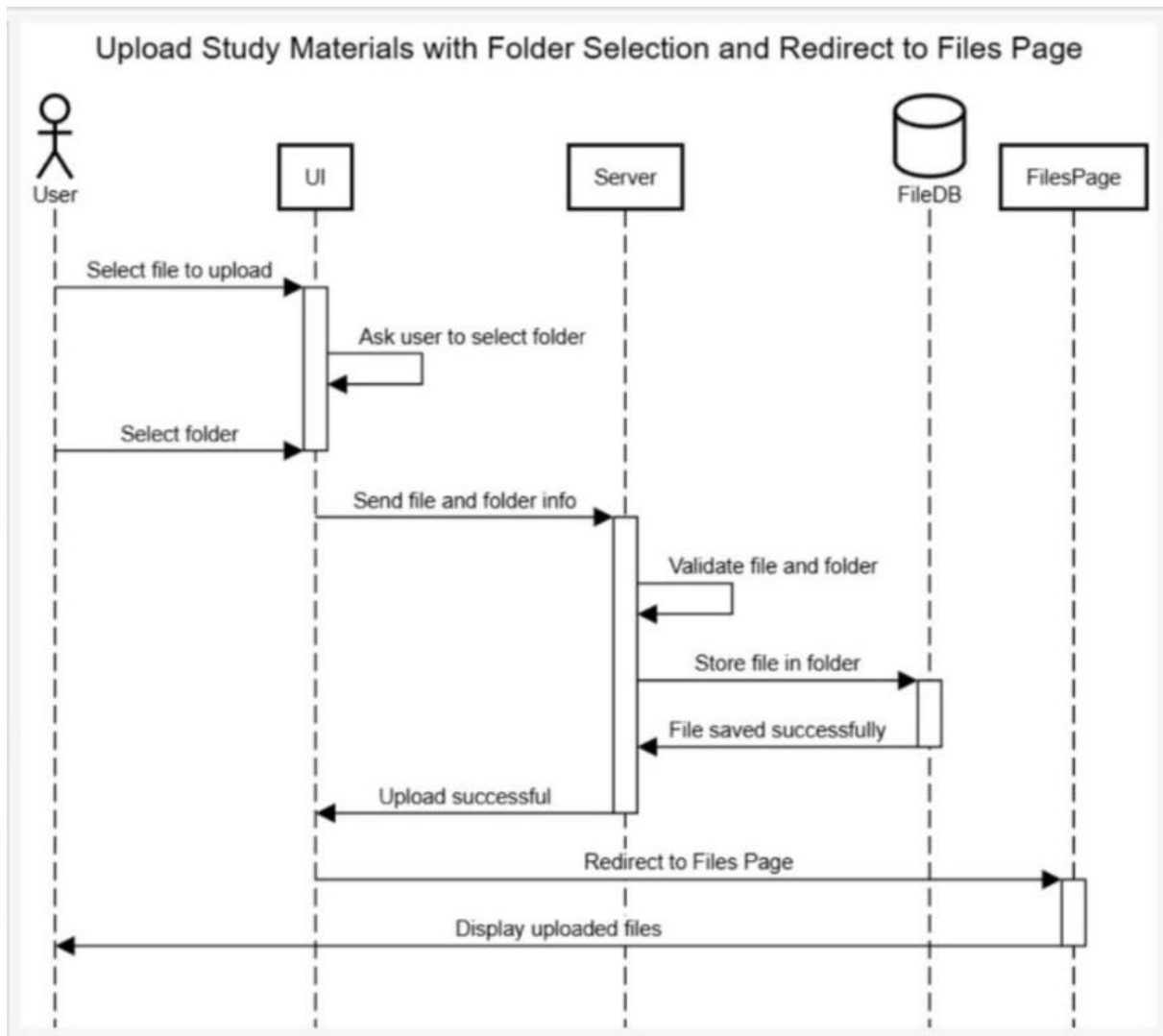

```
title Upload Study Materials with Folder Selection and
Redirect to Files Page

actor User
participant UI
participant Server
database FileDB
participant FilesPage

User -> UI: Select file to upload
activate UI

UI -> UI: Ask user to select folder
User -> UI: Select folder
deactivate UI

UI -> Server: Send file and folder info
activate Server

Server -> Server: Validate file and folder
Server -> FileDB: Store file in folder
activate FileDB
FileDB -> Server: File saved successfully
deactivate FileDB

Server -> UI: Upload successful
deactivate Server

UI -> FilesPage: Redirect to Files Page
activate FilesPage
FilesPage -> User: Display uploaded files
deactivate FilesPage
```
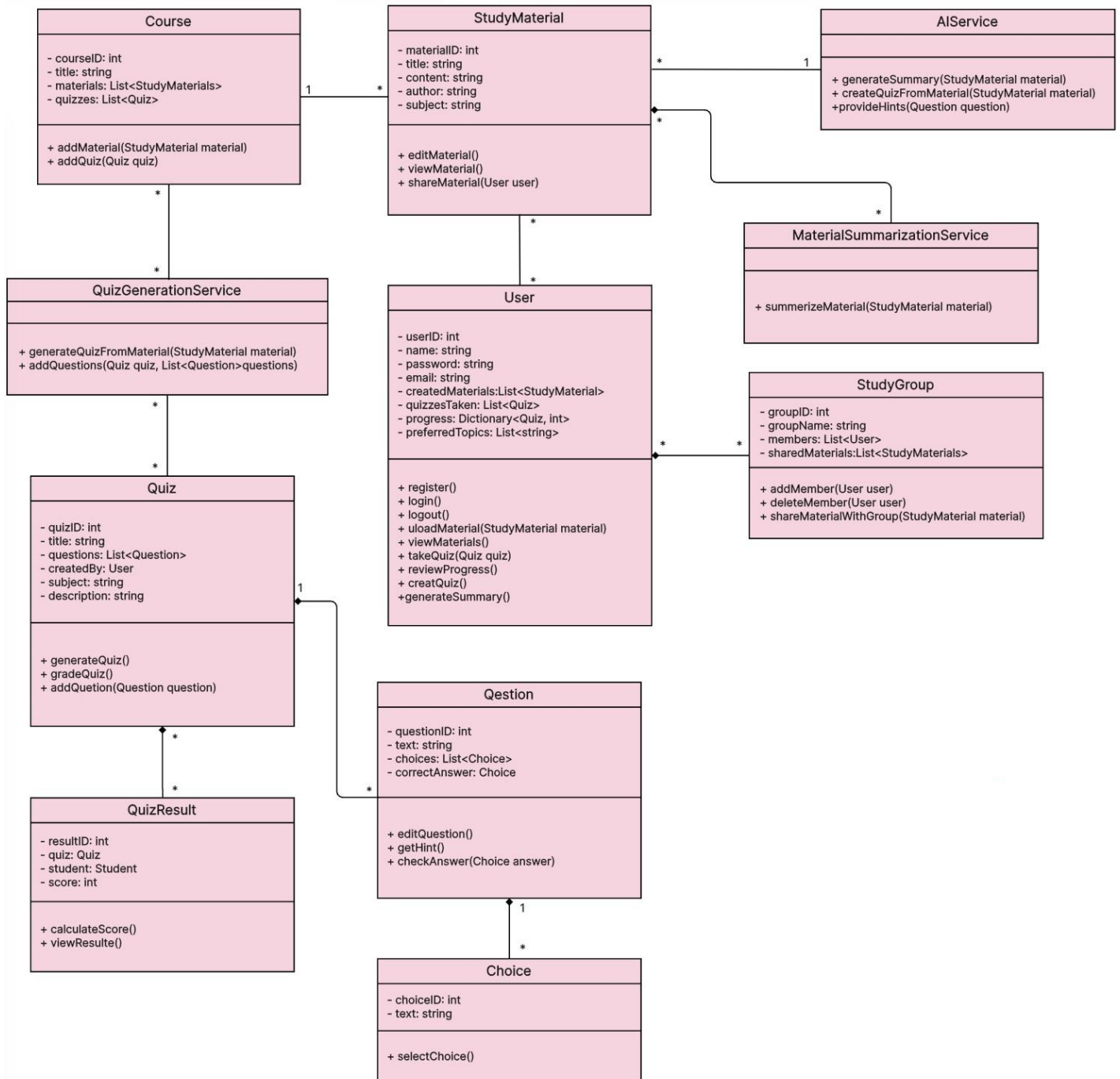
Class Diagram

Course

- courseID: int
- title: string
- materials: List<StudyMaterials>
- quizzes: List<Quiz>

+ addMaterial(StudyMaterial material)
+ addQuiz(Quiz quiz)

StudyMaterial

- materialID: int
- title: string
- content: string
- author: string
- subject: string

+ editMaterial()
+ viewMaterial()
+ shareMaterial(User user)

AIService

+ generateSummary(StudyMaterial material)
+ createQuizFromMaterial(StudyMaterial material)
+provideHints(Question question)

QuizGenerationService

+ generateQuizFromMaterial(StudyMaterial material)
+ addQuestions(Quiz quiz, List<Question>questions)

MaterialSummarizationService

+ summerizeMaterial(StudyMaterial material)

User

- userID: int
- name: string
- password: string
- email: string
- createdMaterials:List<StudyMaterial>
- quizzesTaken: List<Quiz>
- progress: Dictionary<Quiz, int>
- preferredTopics: List<string>

+ register()
+ login()
+ logout()
+ uloadMaterial(StudyMaterial material)
+ viewMaterials()
+ takeQuiz(Quiz quiz)
+ reviewProgress()
+ creatQuiz()
+generateSummary()

StudyGroup

- groupID: int
- groupName: string
- members: List<User>
- sharedMaterials:List<StudyMaterials>

+ addMember(User user)
+ deleteMember(User user)
+ shareMaterialWithGroup(StudyMaterial material)

Quiz

- quizID: int
- title: string
- questions: List<Question>
- createdBy: User
- subject: string
- description: string

+ generateQuiz()
+ gradeQuiz()
+ addQuetion(Question question)

Qestion

- questionID: int
- text: string
- choices: List<Choice>
- correctAnswer: Choice

+ editQuestion()
+ getHint()
+ checkAnswer(Choice answer)

QuizResult

- resultID: int
- quiz: Quiz
- student: Student
- score: int

+ calculateScore()
+ viewResulte()

Choice

- choiceID: int
- text: string

+ selectChoice()

MVC Architectural Diagram

Controller

StudyMaterialController
QuizConroller
UserController
TestController

User actions

Updates

Updates

Controller changes

View

StudyMaterialView
QuizView
UserProfileView
TestResultView

Model

User
StudyMaterial
Quiz
Question
TestResulte