Ms in Software Engineering

SWE 573 – Software Development Practice

Project Report

Instructor: Suzan Üsküdarlı

Project Name : coLearn Web Application

Git Repository : https://github.com/ilterisdkc/SWE573-Spring22

Version : v0.9

Deployment URI : http://ec2co-ecsel-nawigh3cri0k-1943058164.us-east-1.elb.amazonaws.com:8000/

Date: 31.05.2022

HONOR CODE

Related to the submission of all the project deliverables for the Swe573 2022 Spring semester project reported in this report, I, İlteriş Deniz Kağan Civelek, declare that:

- I am a student in the Software Engineering MS program at Bogazici University and am registered for Swe573 course during the 2022 Spring semester.

- All the material that I am submitting related to my project (including but not limited to the project repository, the final project report, and supplementary documents) have been exclusively prepared by myself.

- I have prepared this material individually without the assistance of anyone else with the exception of permitted peer assistance which I have explicitly disclosed in this report.

İlteriş Deniz Kağan Civelek

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Overview

This report aims to present technical documents for a web application which allows co-learning functionalities. The information in this report belongs to **coLearn App-v0.9**.

coLearn App-v0.9 includes a web application called coLearn that hosts some of the interactive learning tools.

coLearn has a user management feature that allows new users to be created and logged in. Users have profile screens where they can edit the profile they have created and share brief information about themselves with other coLearners.

Users who are logged in can create new *Learning Spaces* and edit existing _Learning Spaces_ in the coLearn application.

Users can be *coLearners* of *Learning Spaces* created by others. In this way, they can benefit from and/or contribute to the *Learning Spaces* they are interested in.

Users can create questions and include them in time-limited online *quizzes* to be solved by other users.

Similarly, users can include the _quizzes_ they have created or previously created by others in the *Learning Space* they deem relevant to reach *coLearners*.

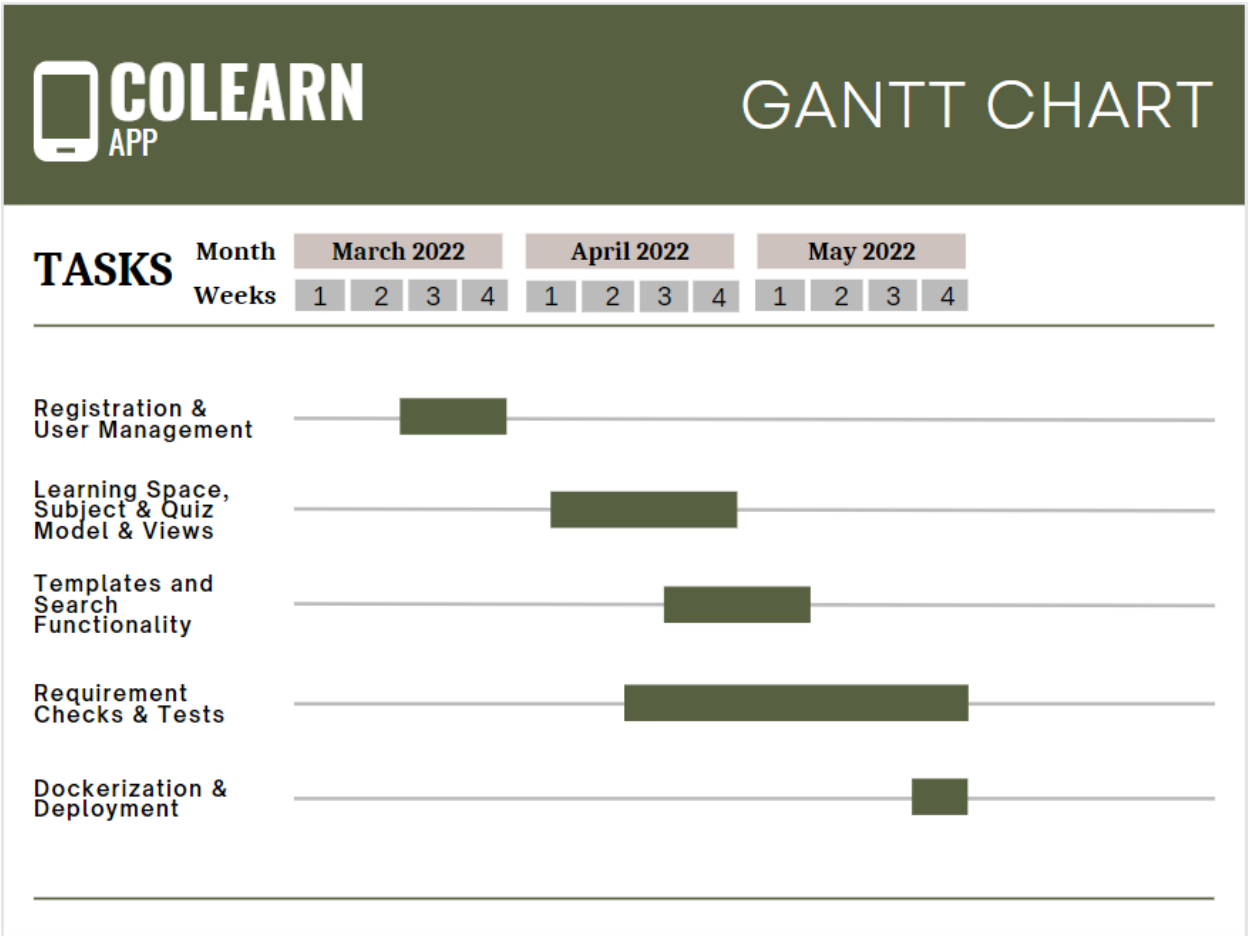
Users can create new content named *subject* and include these contents under the *Learning Space* they deem relevant. In this way, Learning Space coLearners can access these *subjects*.

Test User Credentials

username : frank

password : wasd1234

Project Plan



Requirements

The functional requirements for coLearn Web Application is listed as user stories:

1. As an unregistered user, I need to see existing Learning Spaces with their titles and description so that I can browse the environments that I am interested in.
2. As an unregistered user, I need to sign up with my name, surname, username, email and password so that I get my own credentials to login.
3. As a signed-up user, I need to login by using my username and password so that I can discover learning spaces and/or contribute them.
4. As a logged in user, I need to view the details of the existing Learning Spaces so that I can browse the quizzes and subjects created under the Learning Spaces.

5. As a user, I need to update my profile so that I can change my name, surname and add a bio to introduce myself to other users.
6. As a user, I need to join (be a coLearner) to the existing Learning Space so that I can contribute to the Learning Space which I am interested in.
7. As a user, I need to create new Learning Spaces so that other coLearners who are also interested in can contribute my Learning Space.
8. As a user, I need to edit Learning Space so that my contributions would support the collective learning functions.
9. As a user I need to create questions so that I can challenge other users and lead them to learn new issues.
10. As a user I need to list the existing questions so that I can add choices to the questions or edit them.
11. As a user, I need to add choices to questions so that I can assign them to the existing questions to be evaluated.
12. As a user I need to create a quiz with a description so that other users can find quizzes about their interests.
13. As a user, I need to add the existing multiple-choice questions to the quizzes so that a quiz can be filled up with questions and other users can challenge themselves.
14. As a user, I need to solve the existing quizzes so that I can challenge myself with my knowledge.
15. As a user I need to add a time limit so that I can challenge other users and motivate them to learn.
16. As a user I need to delete questions so that wrong or deprecated questions can be eliminated from the Learning Spaces.
17. As a user I need to create new Subjects so that I can share contents with other users.
18. As a user I can edit the existing subjects so that I can add my opinions about the subject and contribute with my knowledge.
19. As a user I can delete the existing subjects so that wrong or deprecated information can be eliminated from the learning space.
20. As a user, I can add files to the subjects so that other users in the learning space can make use of them and share knowledge via documents.
21. As a user I need to see the details of the Learning Spaces with the existing quizzes and subjects to decide to contribute as a coLearner or not.
22. As a user, I need to see the coLearners in the Learning Space so that I can see the necessity of the learning space
23. As a user, I need to navigate to Learning Spaces, Quizzes and Subjects to create, update and delete so that I can reflect my contribution to the contents.
24. As a user, I need to search for learning spaces from the existing ones, so that I can find my interests and join others.
25. As a user, I need to log out so that I can comfortably leave my session.

Mock Ups

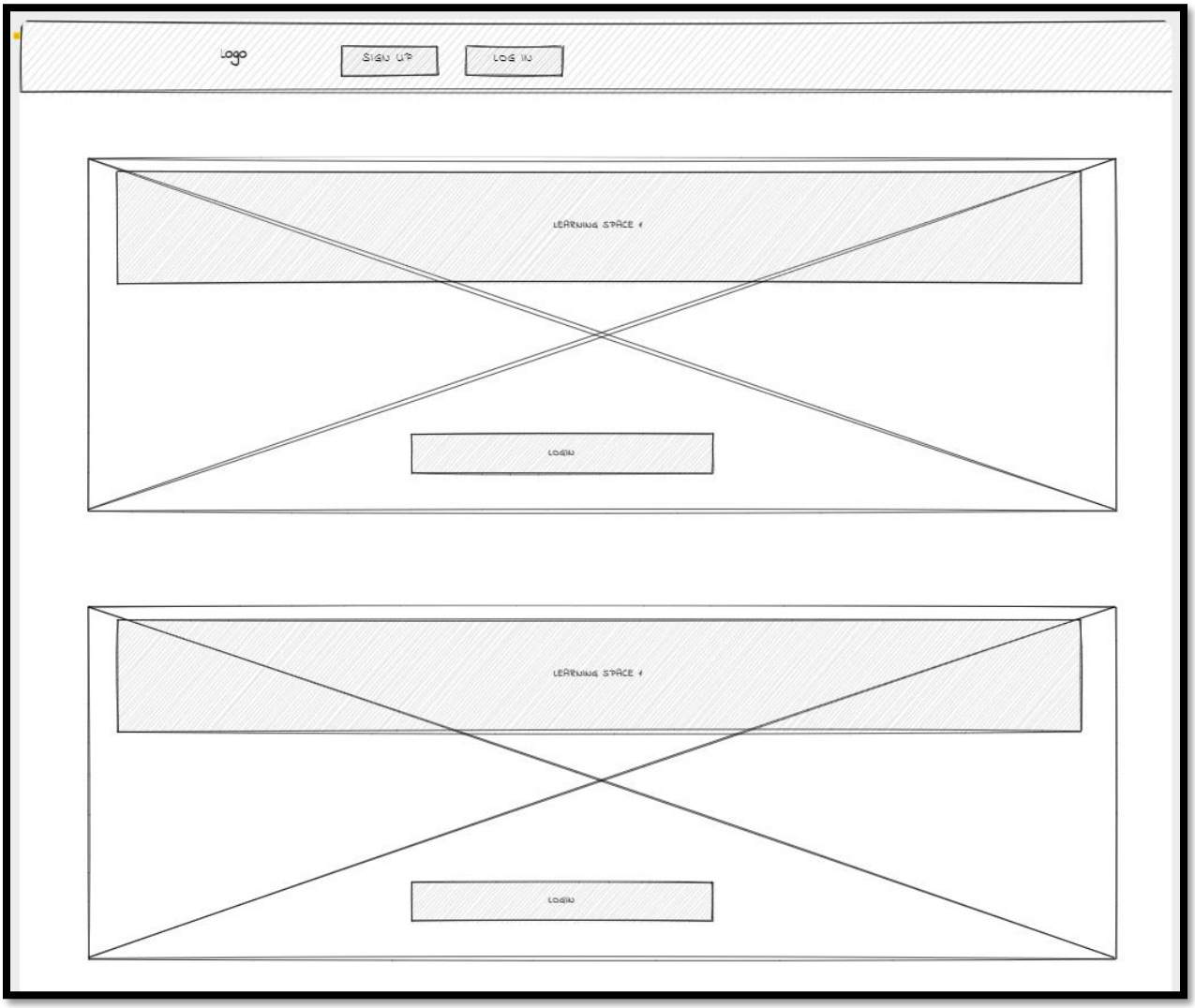


Figure 1: Unauthorized Homepage

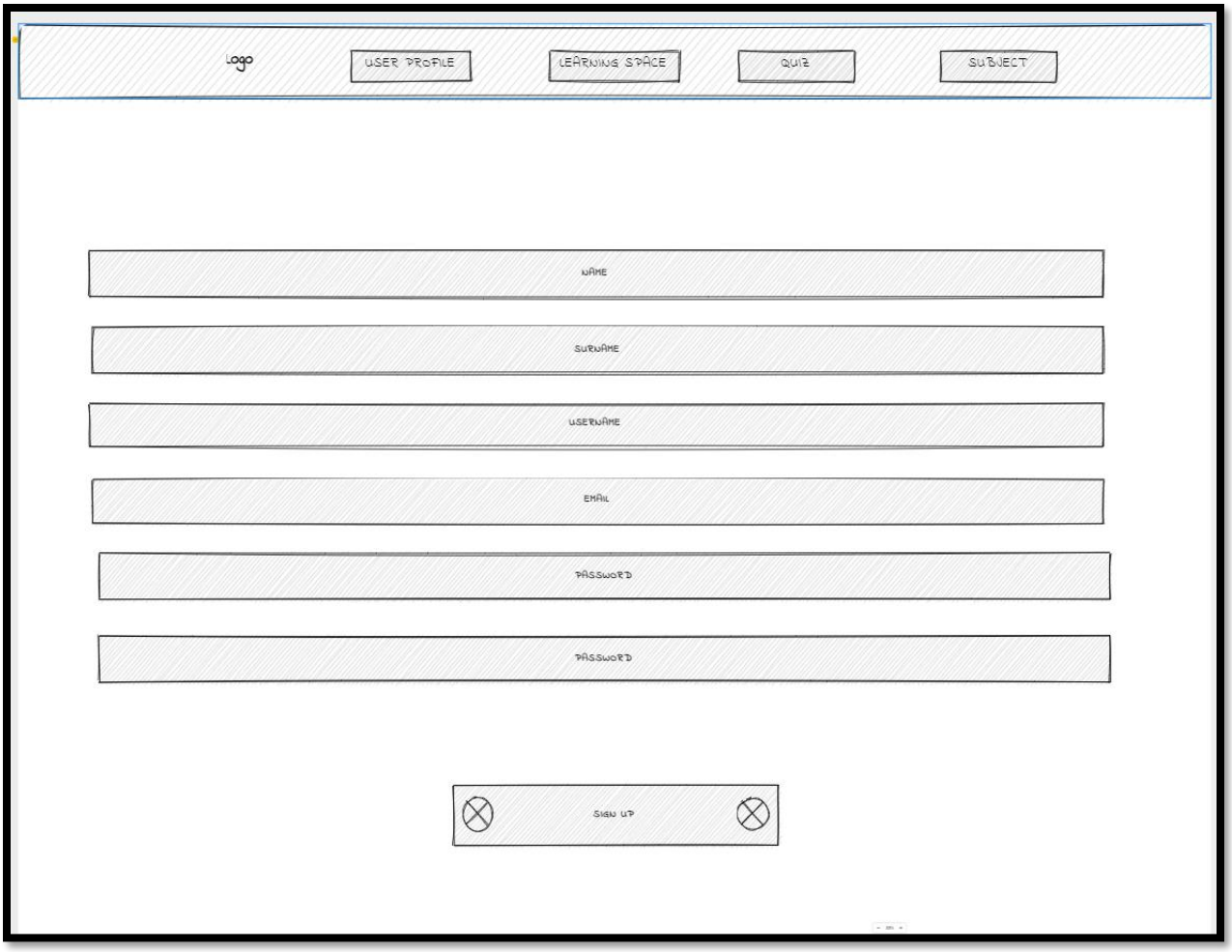


Figure 2: Sign Up Page

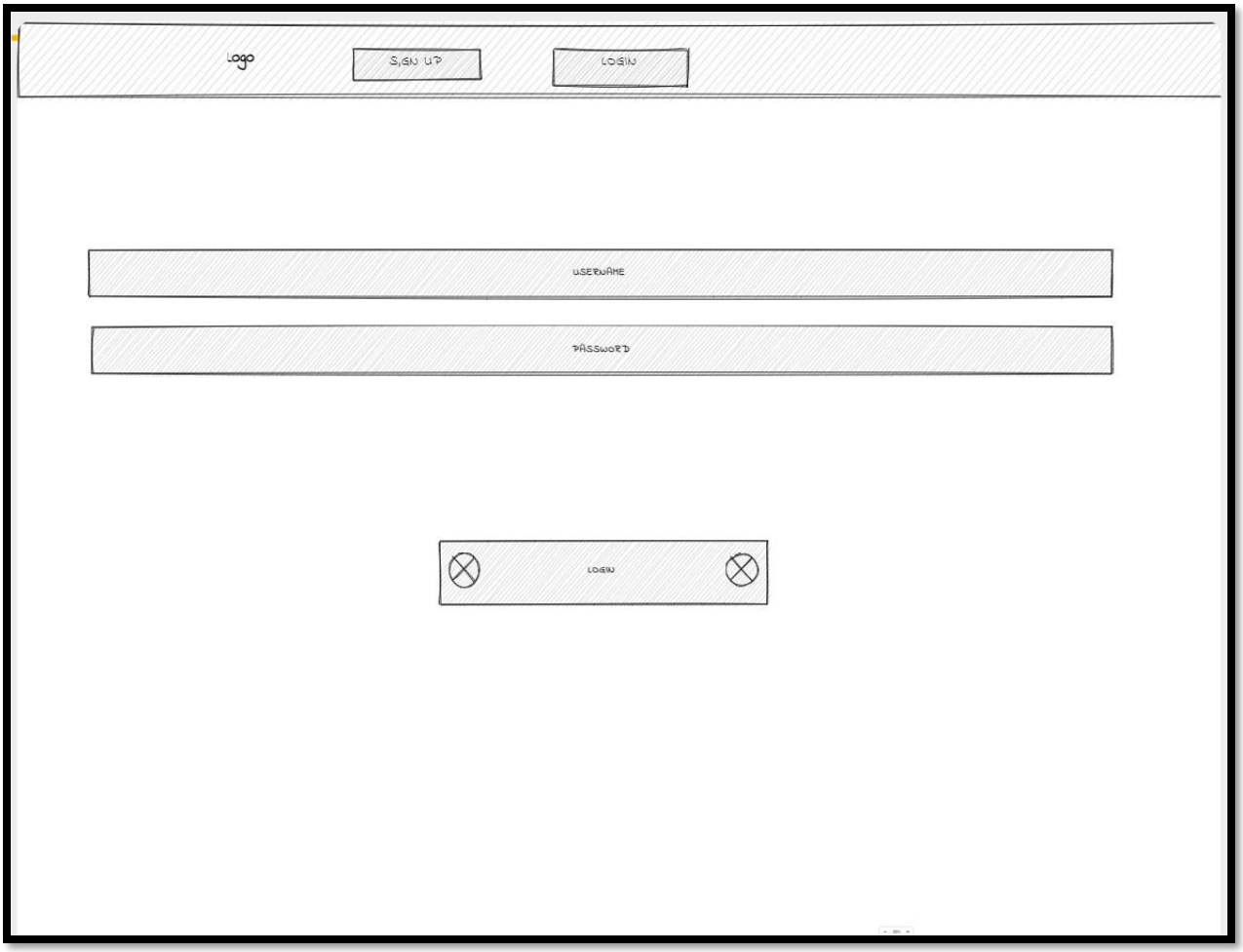


Figure 3: Login Page

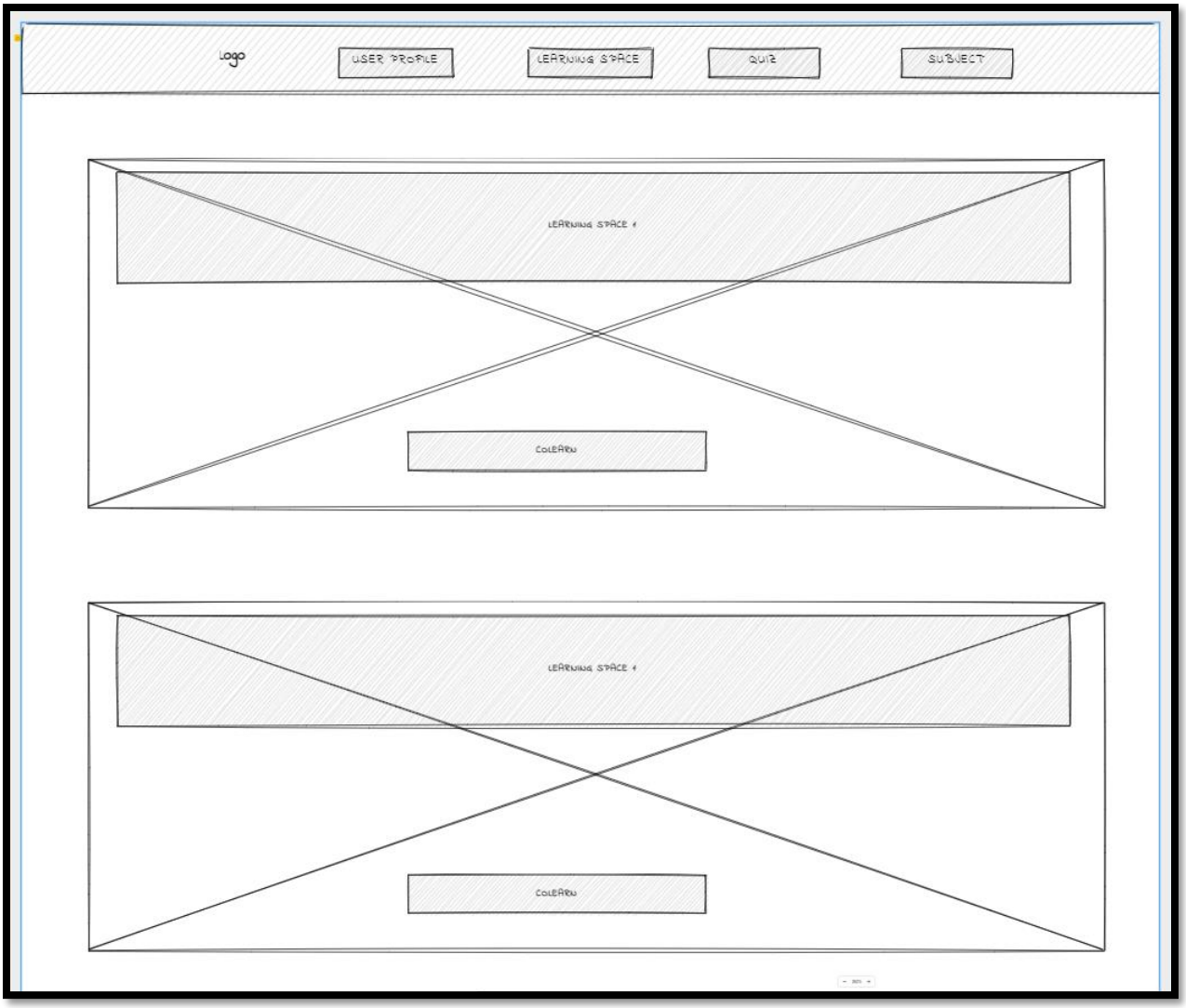


Figure 4: Learning Space List View

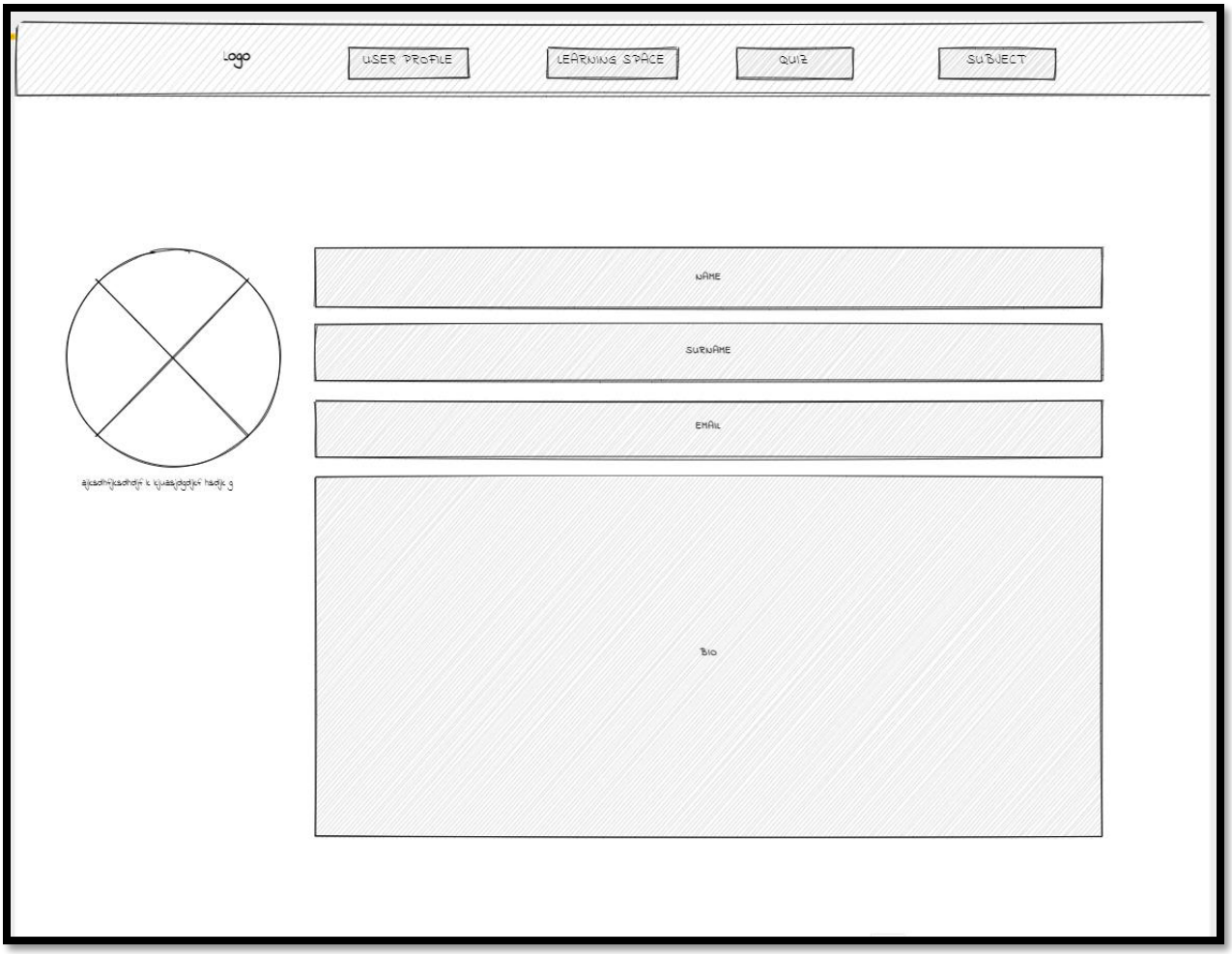


Figure 5: Profile Page

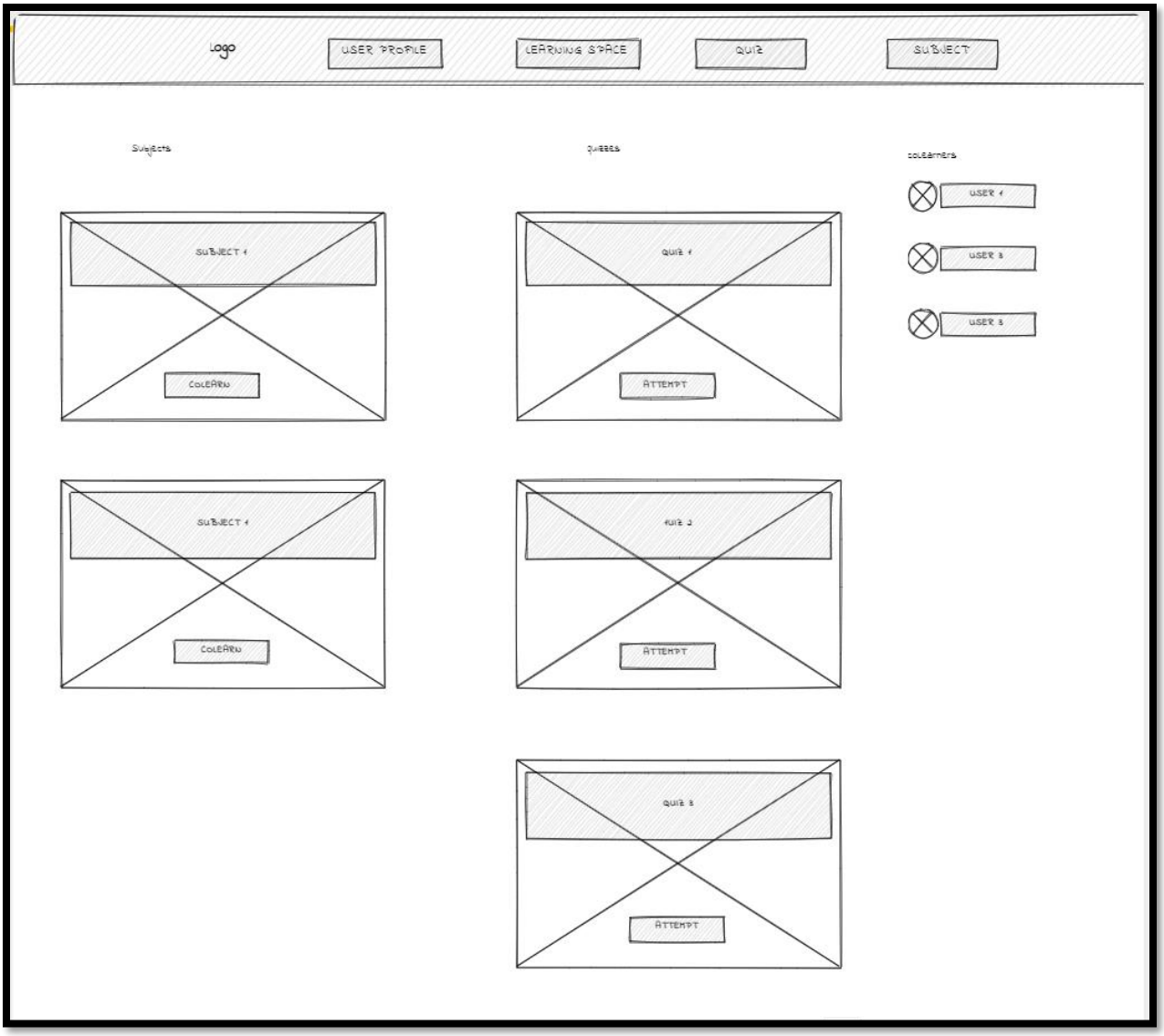


Figure 6: Learning Space Detail View

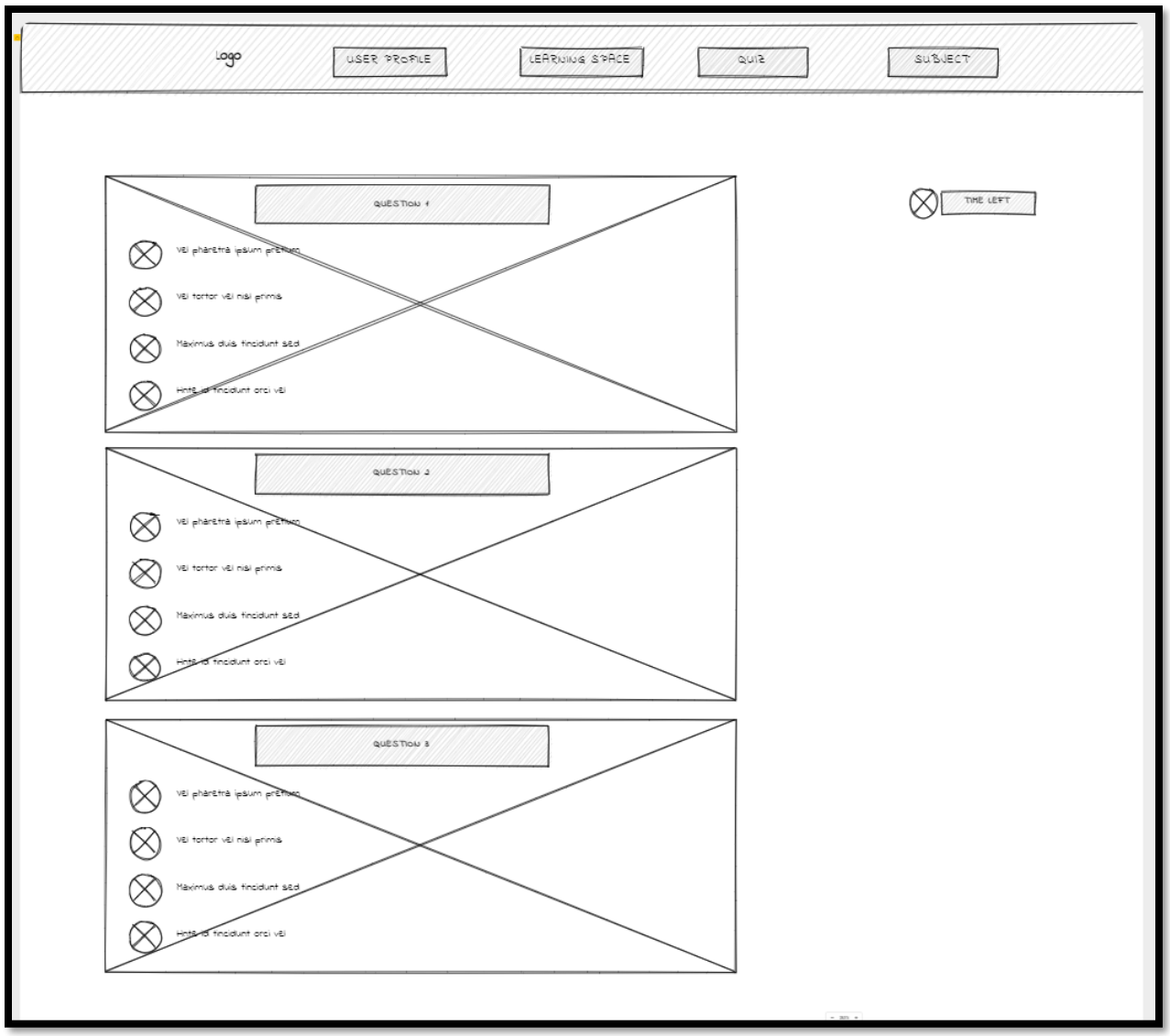


Figure 7: Solve Quiz Page

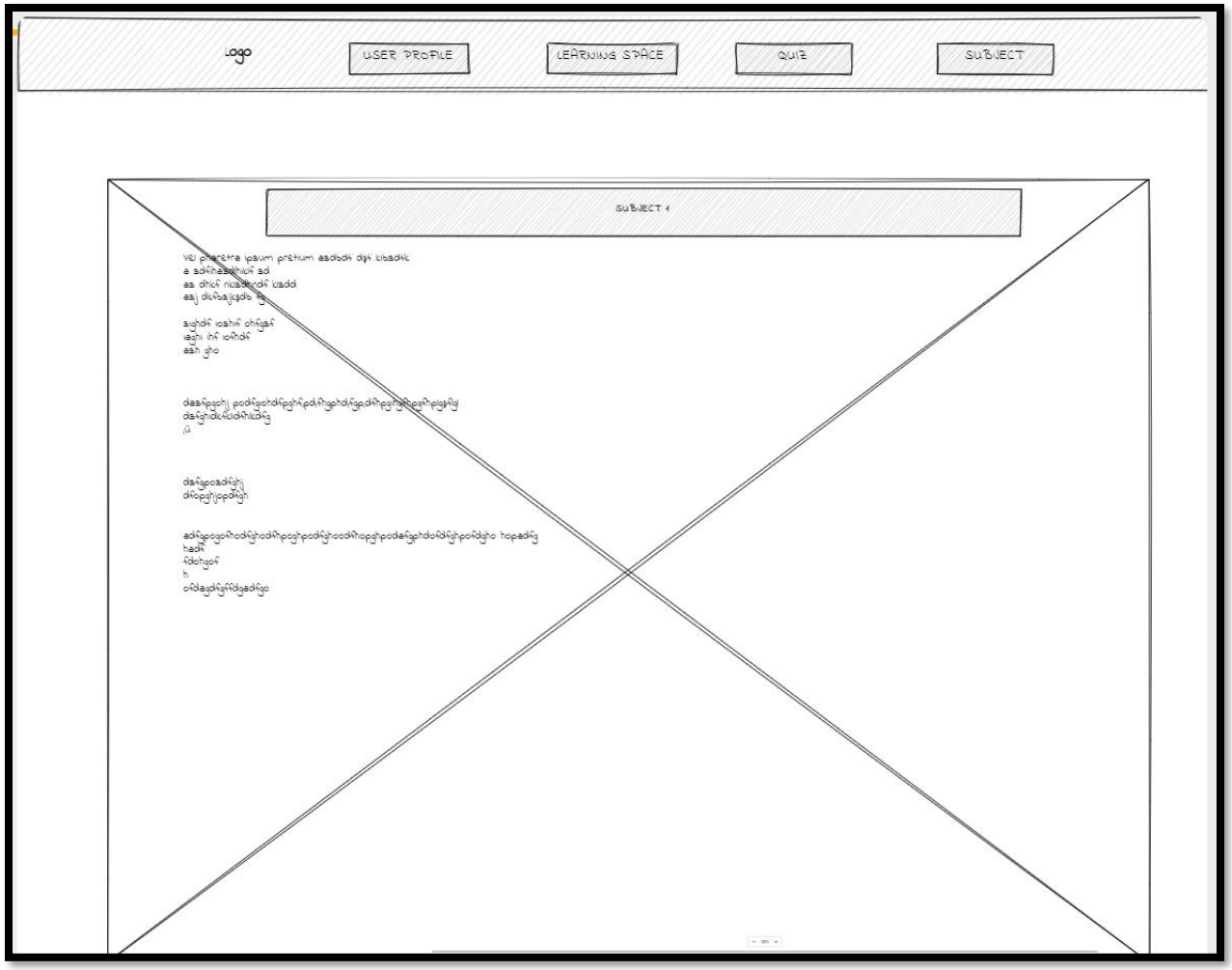


Figure 8: Subject Detail Page

Design Diagrams

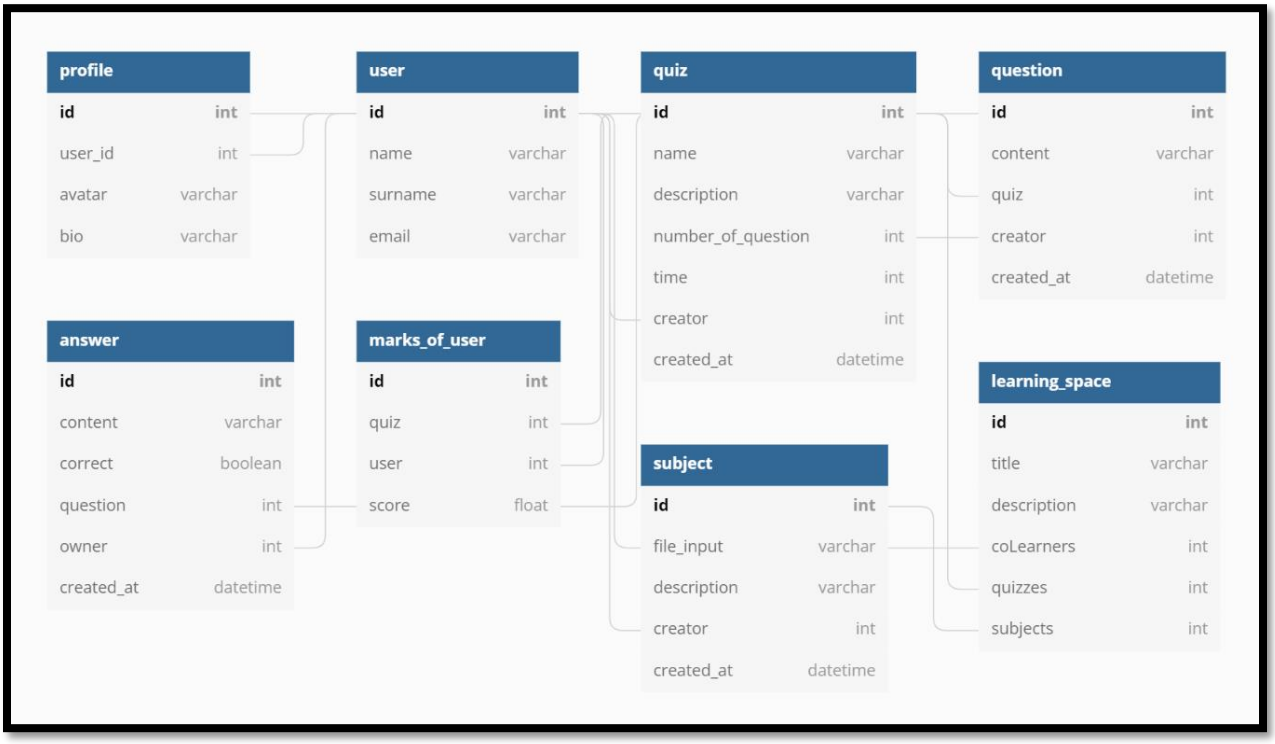


Figure 9: Class Diagram

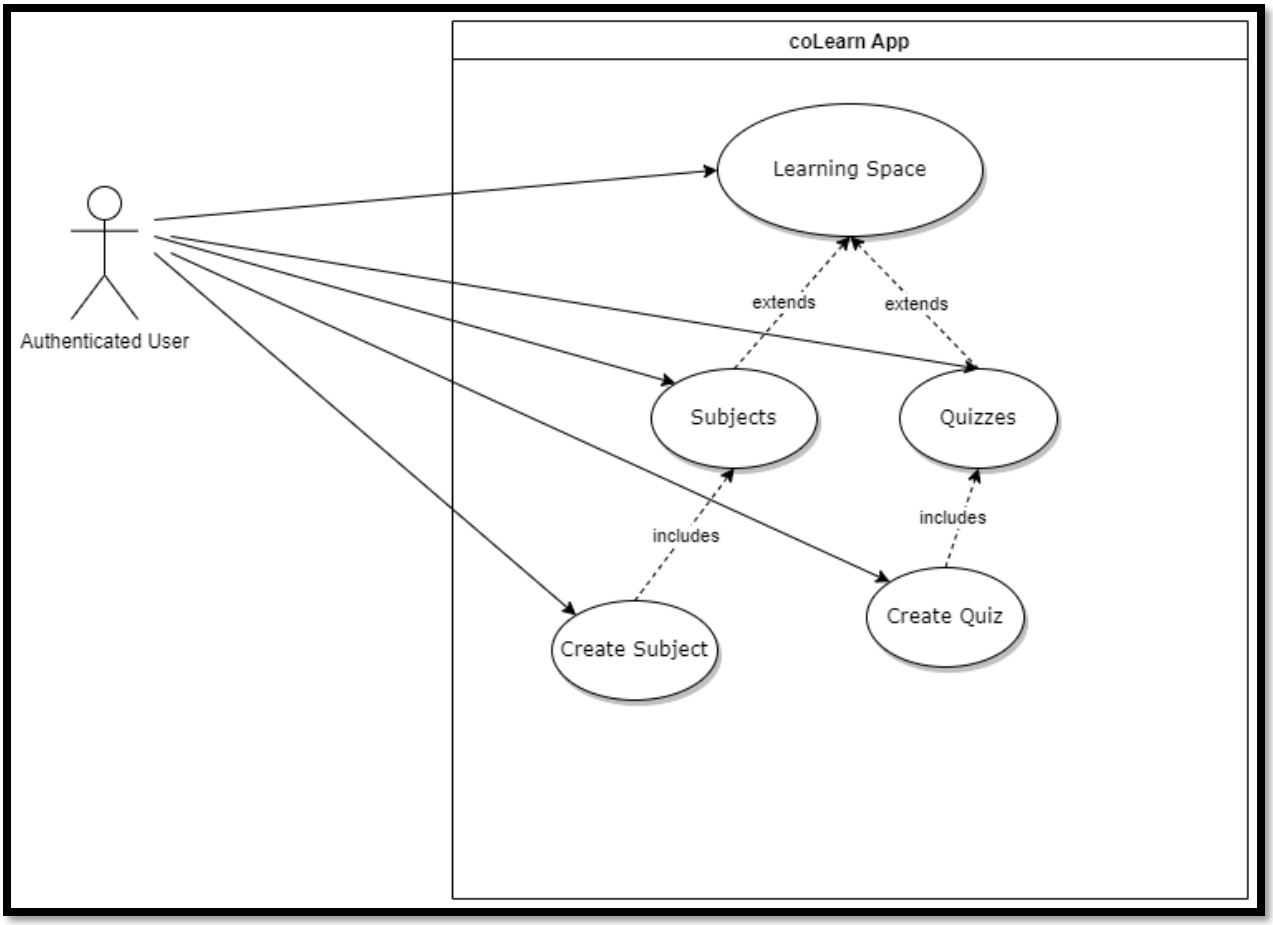


Figure 10: Use Case Diagram

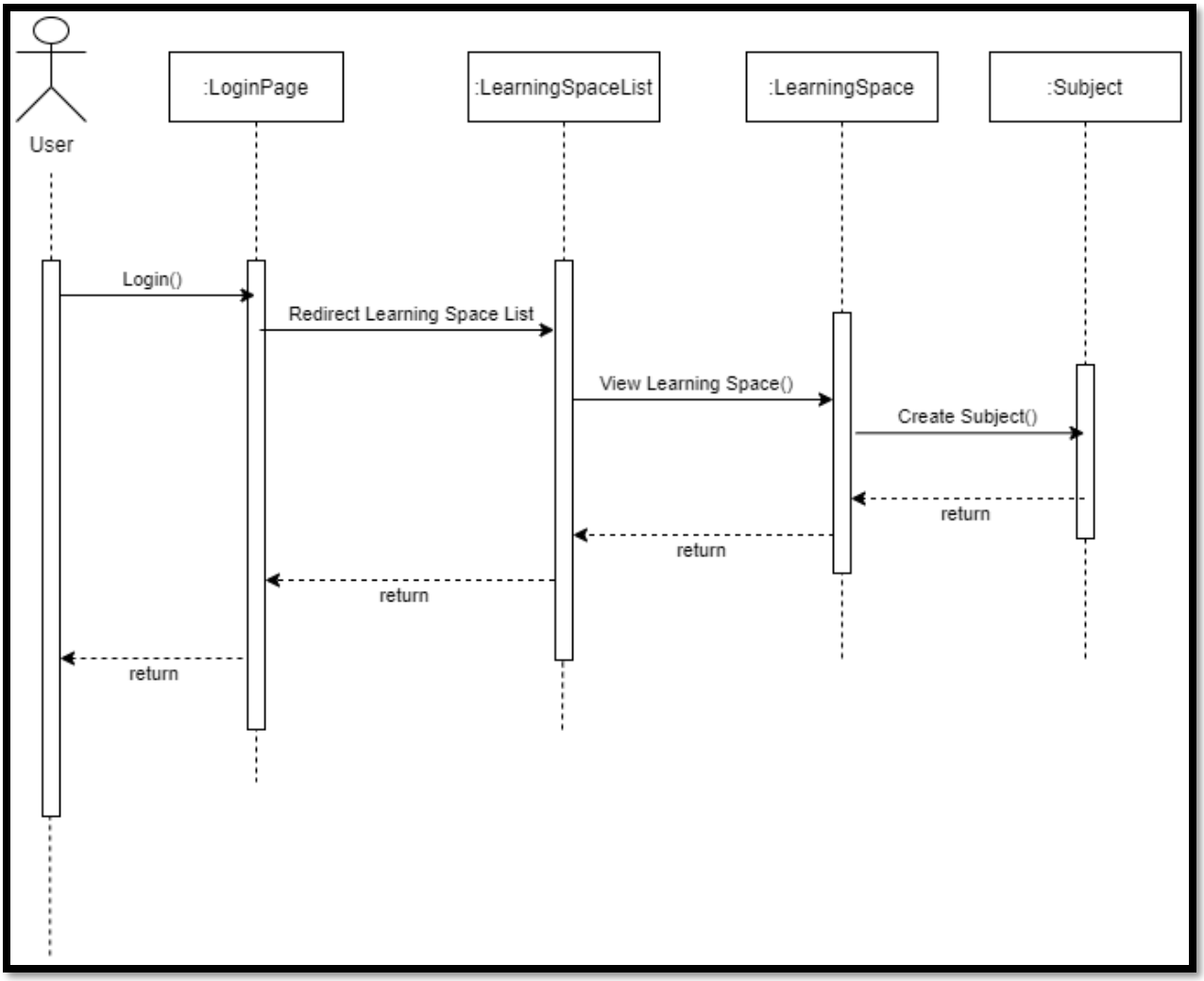


Figure 11: Sequence Diagram - Create Subject

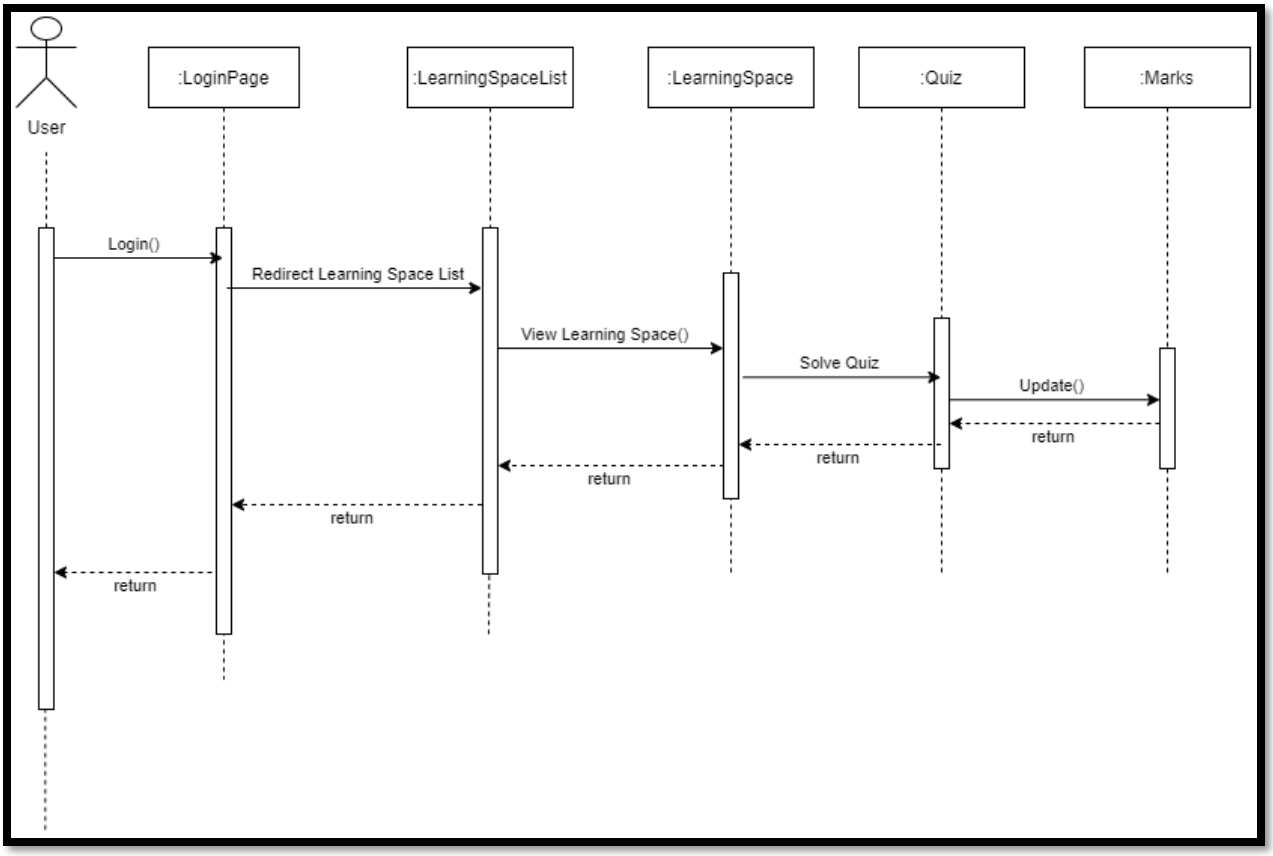


Figure 12: Sequence Diagram - Solve Quiz

Status of The Project

The project status is completed and ready for the initial release. The initial release version is v0.9.

The user stories that are given in the Requirements part of this document is successfully implemented.

Status of Deployment

The application is dockerized and deployed on the cloud Amazon Web Services.

The application is dockerized by implementing a docker file in the project root directory.

The application is running on AWS servers (us-east-1) right now and it can be accessible through the deployment URI: http://ec2co-ecsel-nawigh3cri0k-1943058164.us-east-1.elb.amazonaws.com:8000/

System Manual

- Requirements: Docker

To run the application on your local, you are only required to download Docker from the Docker website.

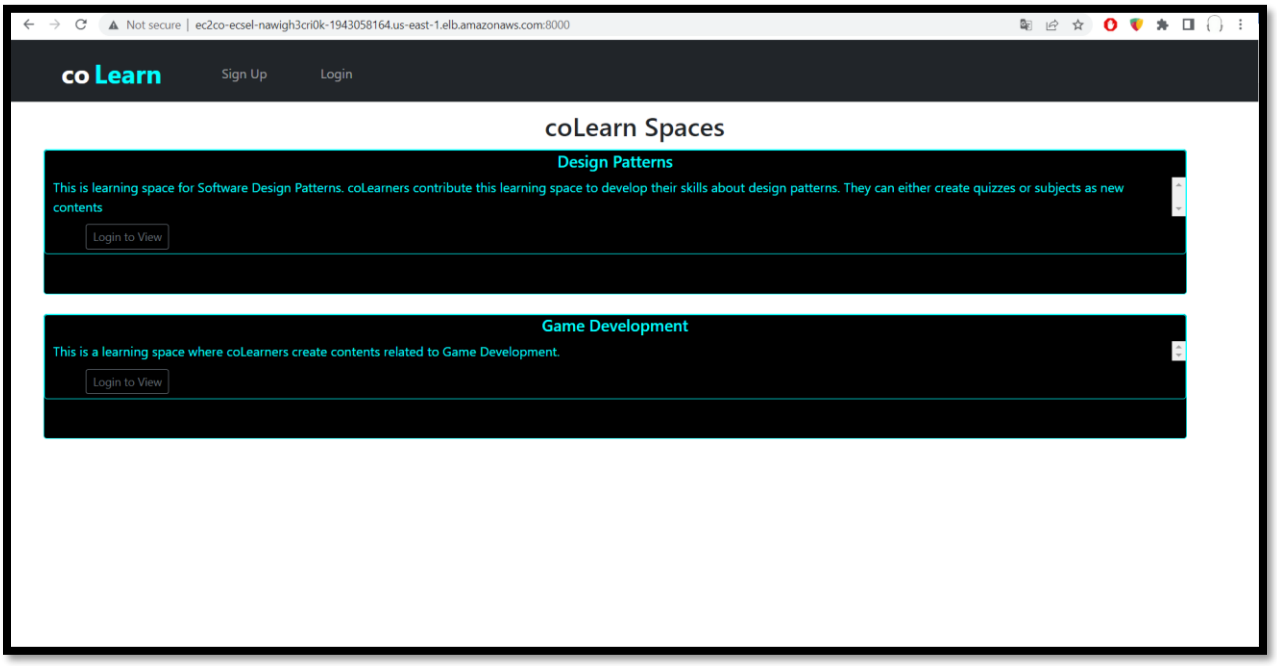
- After installing the Docker, you can use these commands via terminal to run the Docker container:

docker build -t '<username>/<tagname>' .
docker run '<username>/<tagname>'

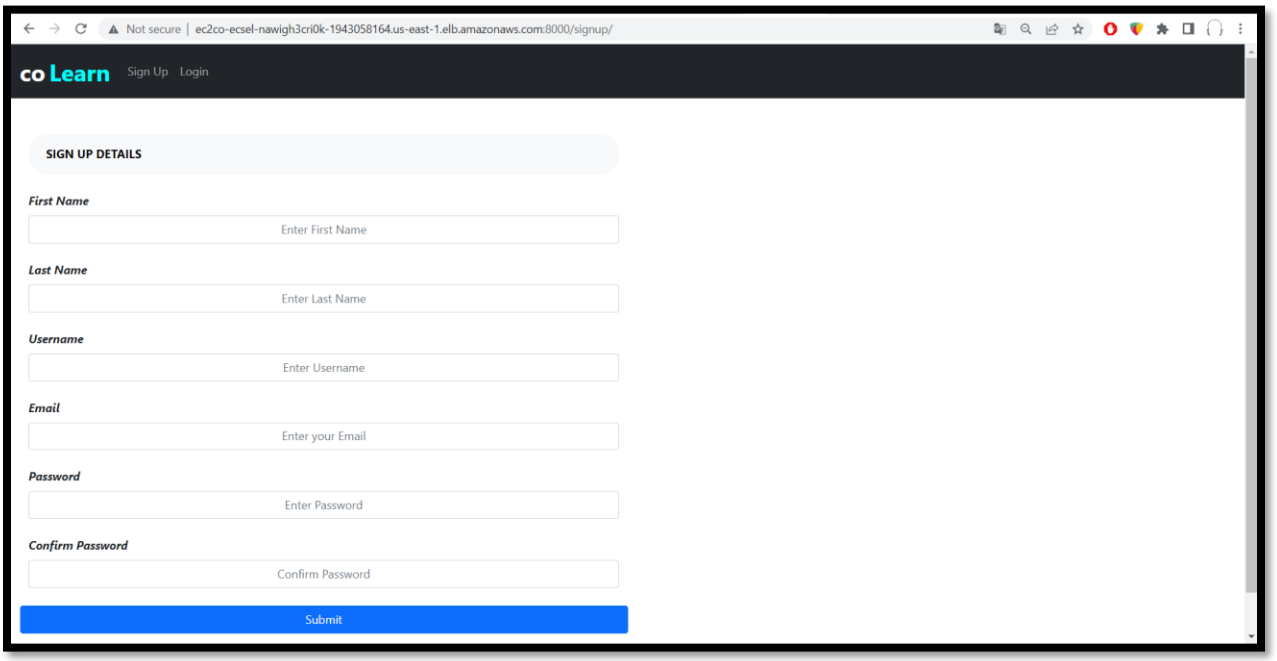
User Manual

Registration, Login & Profile Management

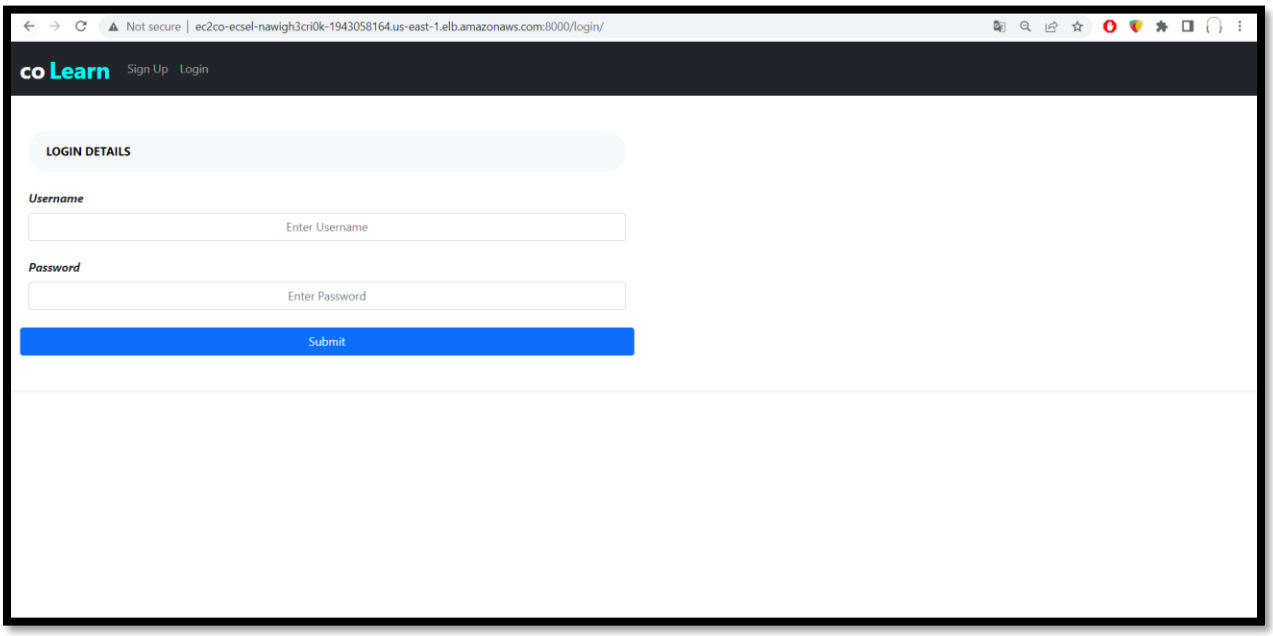
When an unregistered user comes to the web application, the user can see the existing learning spaces with their titles and descriptions. This is the landing page when unregistered user faces to:



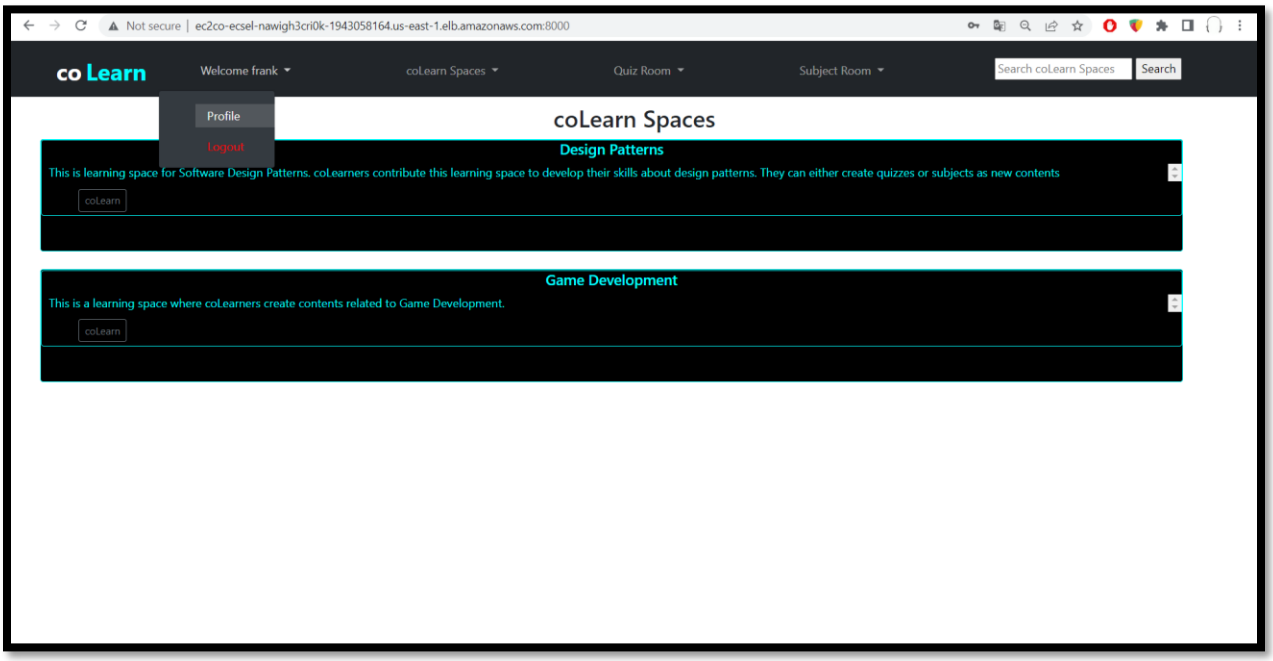
The user should sign up to create account and login with the created credentials to view the details of the learning spaces:

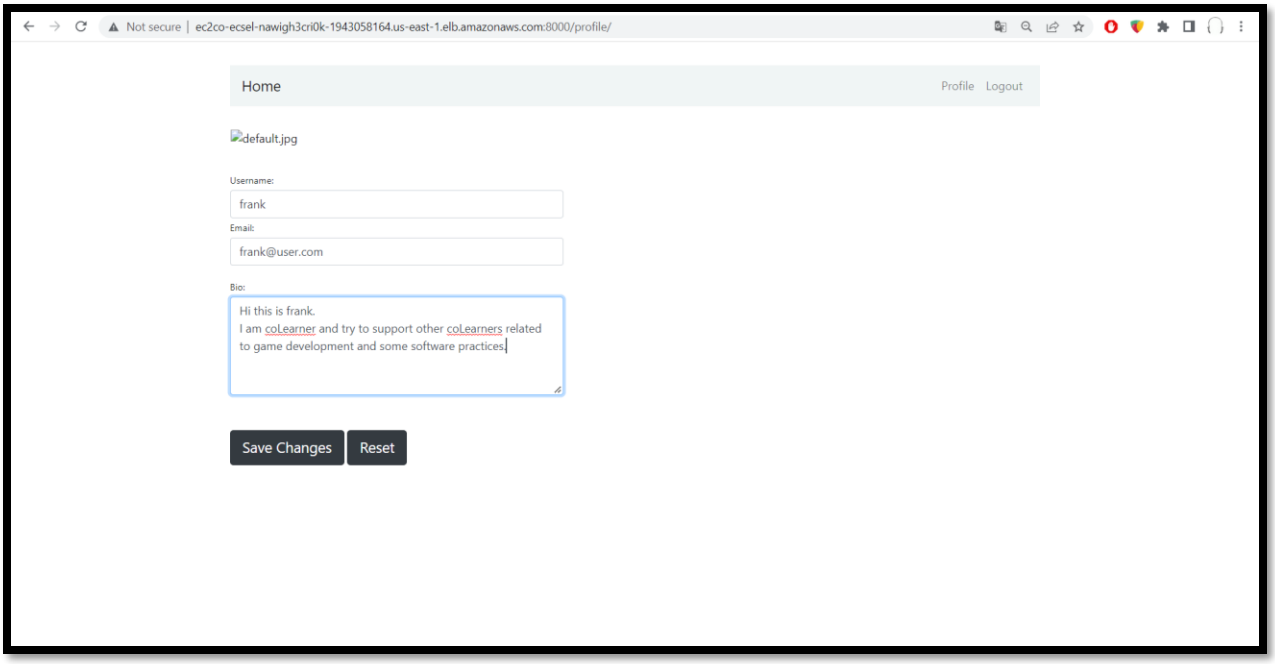


If regular information is filled on the form, ‘Submit’ button will create a new account and redirect to the login page:



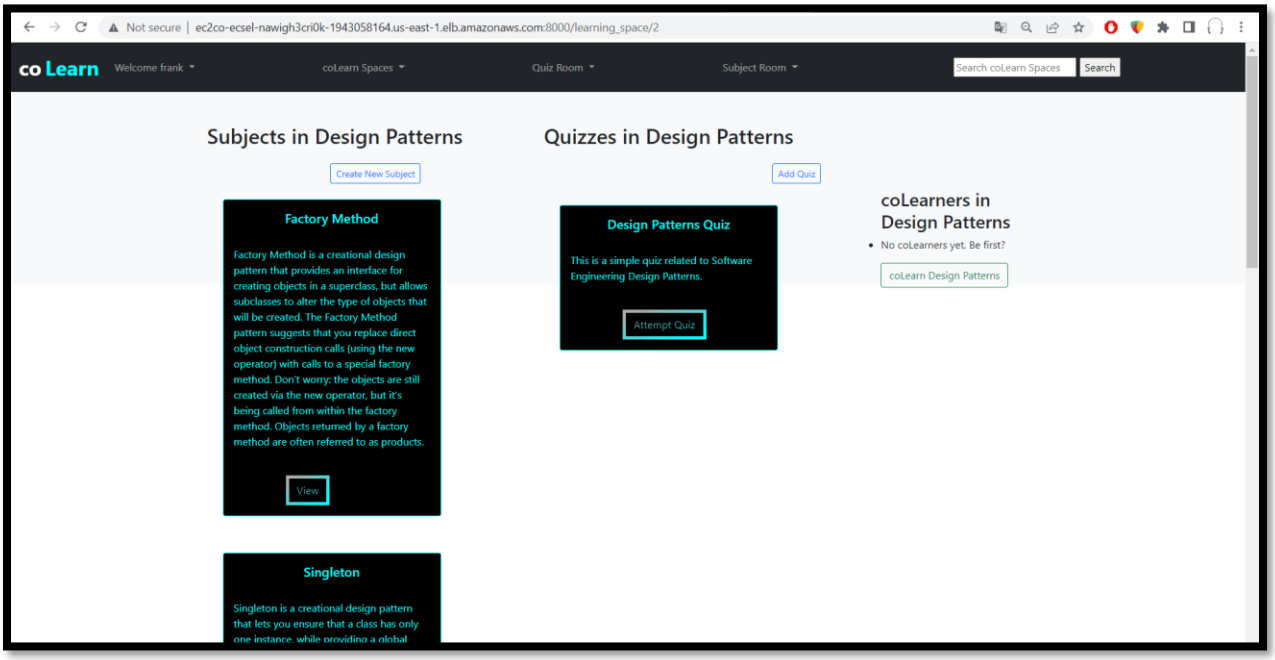
After the user logged in, the user can update the Profile by clicking the “Welcome” button and redirect to the Profile page:



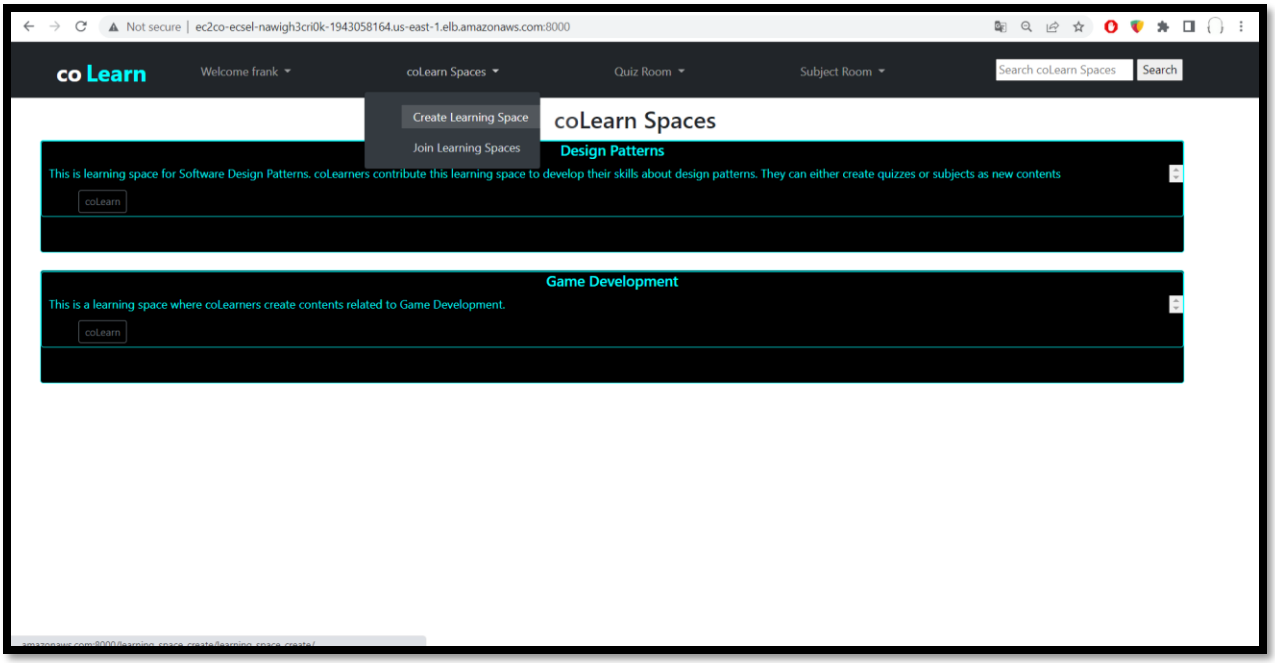


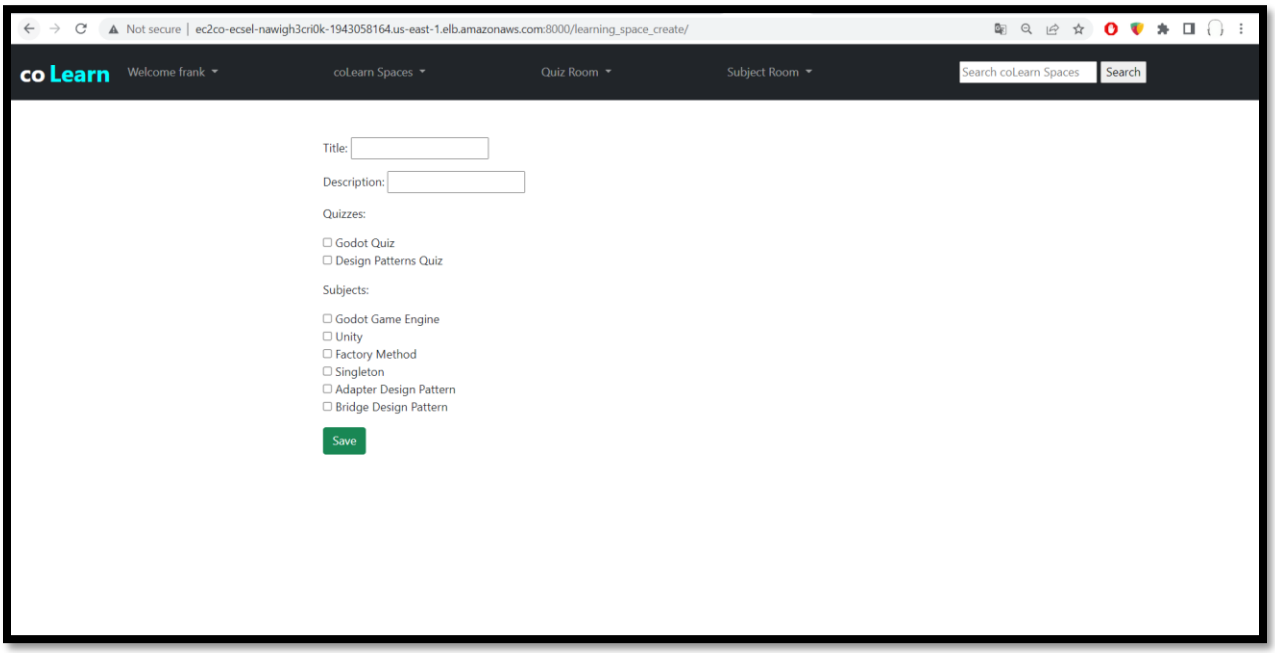
Learning Spaces – Join, Create

A registered user can join any learning spaces by clicking coLearn buttons in the Homepage and "coLearn Learning Space" button in the right part of the Learning Space Page:



The registered user can create a new Learning Space and use the existing subjects and quizzes to include them in the learning space:


Not secure | ec2co-ecsel-nawigh3cri0k-1943058164.us-east-1.elb.amazonaws.com:8000
co Learn
Welcome frank
coLearn Spaces
Quiz Room
Subject Room
Search coLearn Spaces
Search
Create Learning Space
Join Learning Spaces
coLearn Spaces
Design Patterns
This is learning space for Software Design Patterns. coLearners contribute this learning space to develop their skills about design patterns. They can either create quizzes or subjects as new contents
coLearn
Game Development
This is a learning space where coLearners create contents related to Game Development.
coLearn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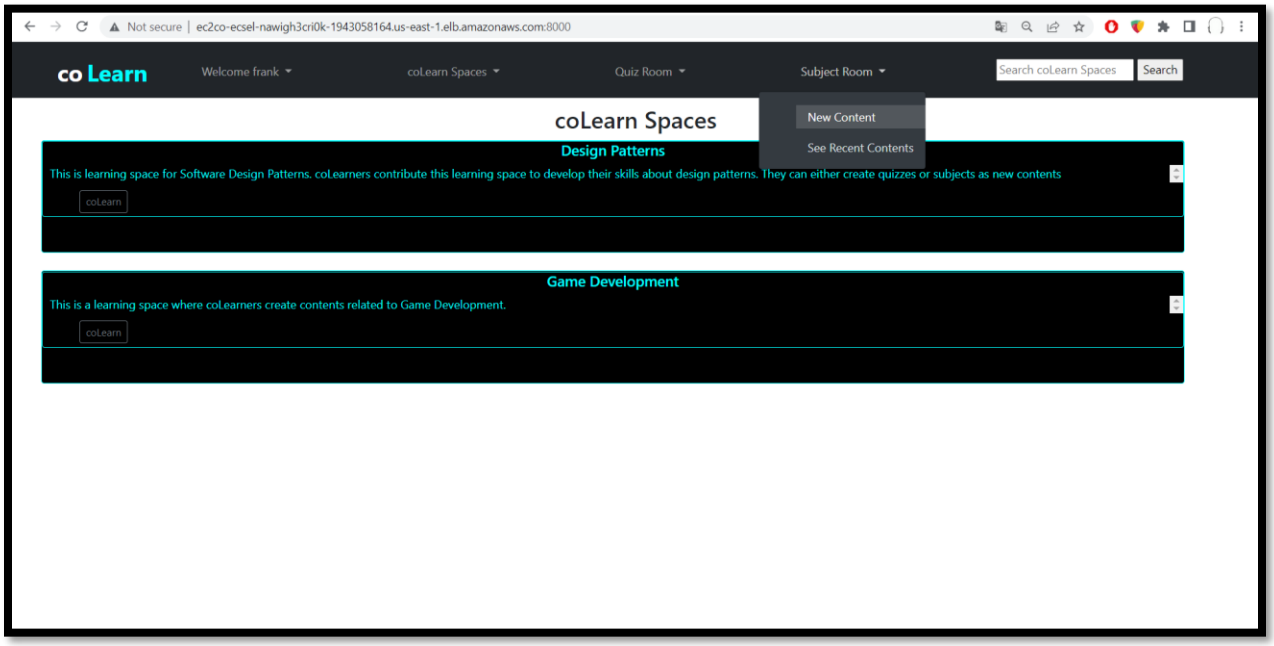
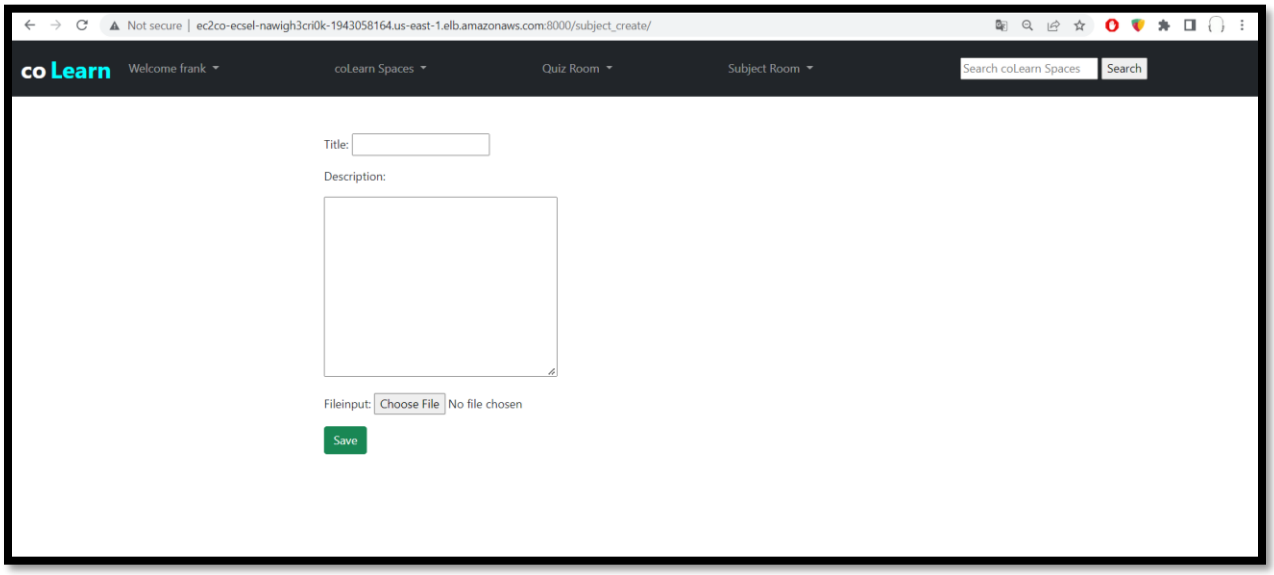
co Learn
Welcome frank
coLearn Spaces
Quiz Room
Subject Room
Search coLearn Spaces
Search
Title:
Description:
Quizzes:
Godot Quiz
Design Patterns Quiz
Subjects:
Godot Game Engine
Unity
Factory Method
Singleton
Adapter Design Pattern
Bridge Design Pattern
Save

Subjects – Create

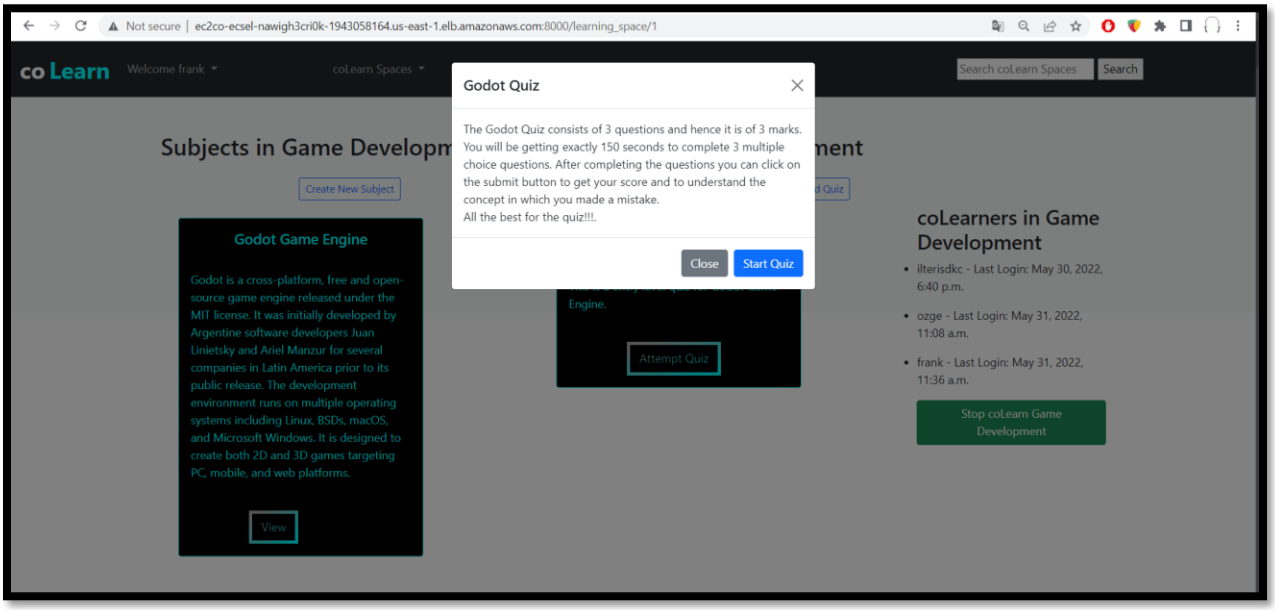
A user can create a new subject by using homepage redirection to the New Subject Form:

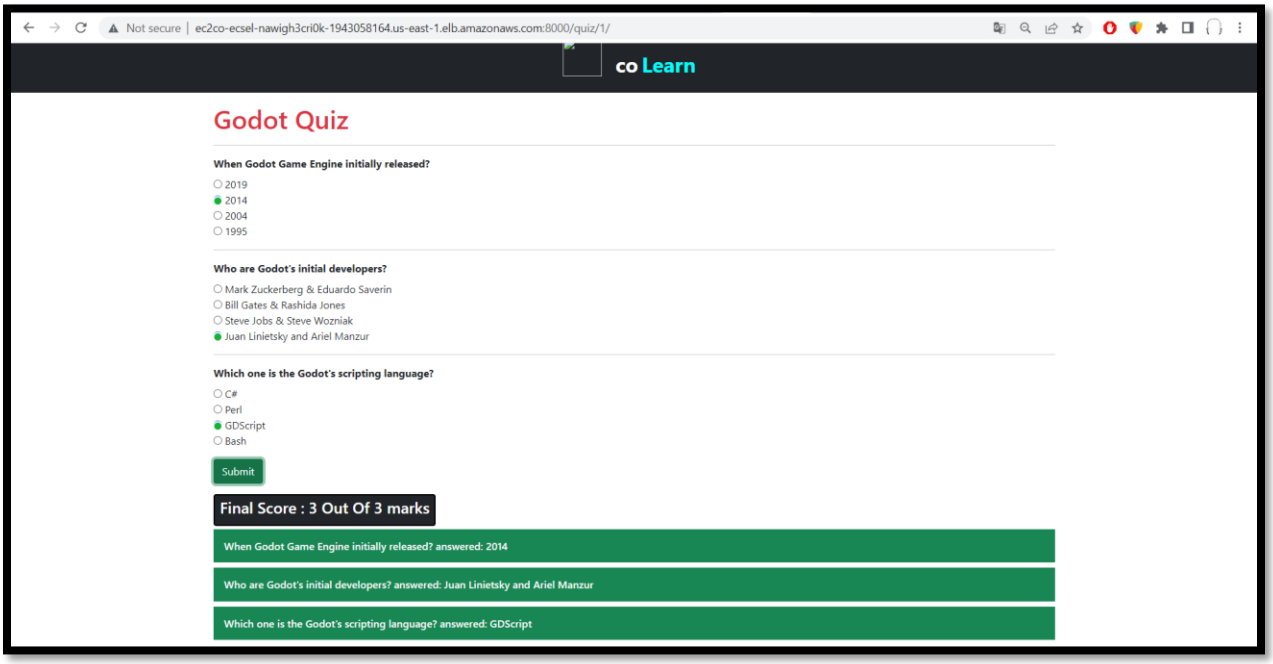




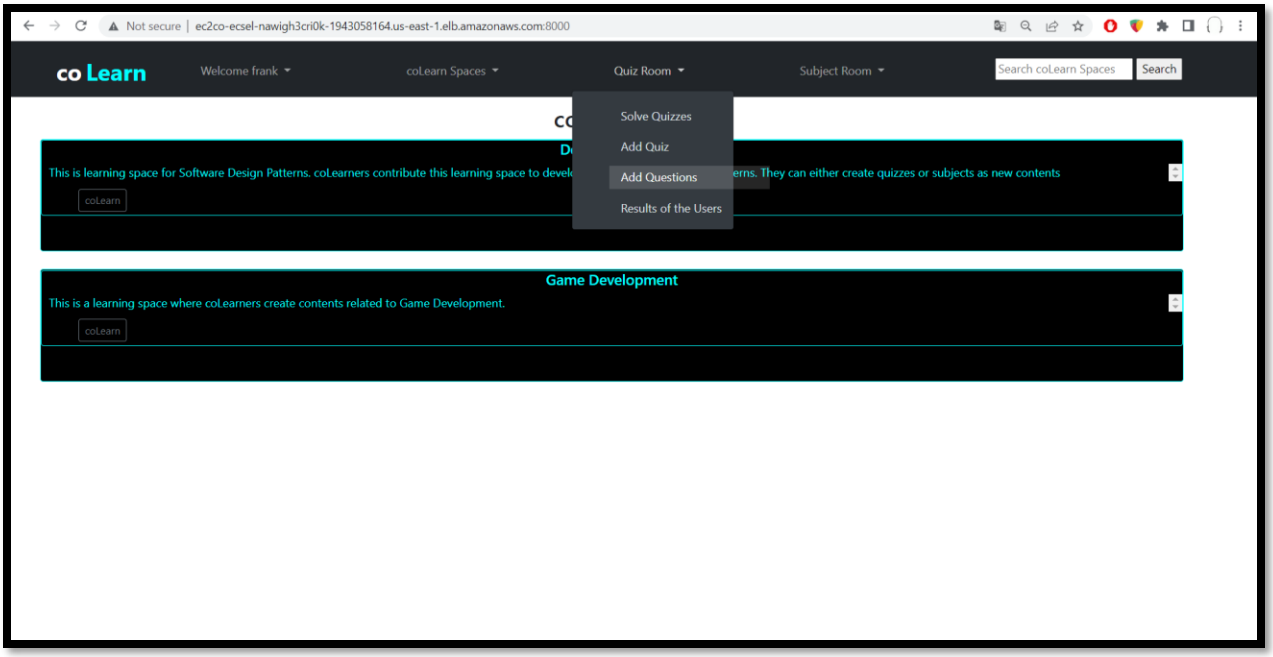
Quiz – Solve, Create

A user can solve existing quizzes by attempting from the Learning Space detail view page or a redrection from the homepage navigation bar:





A user may create new quizzes by using existing questions from the question pool or creating new questions. A user can create a new questions: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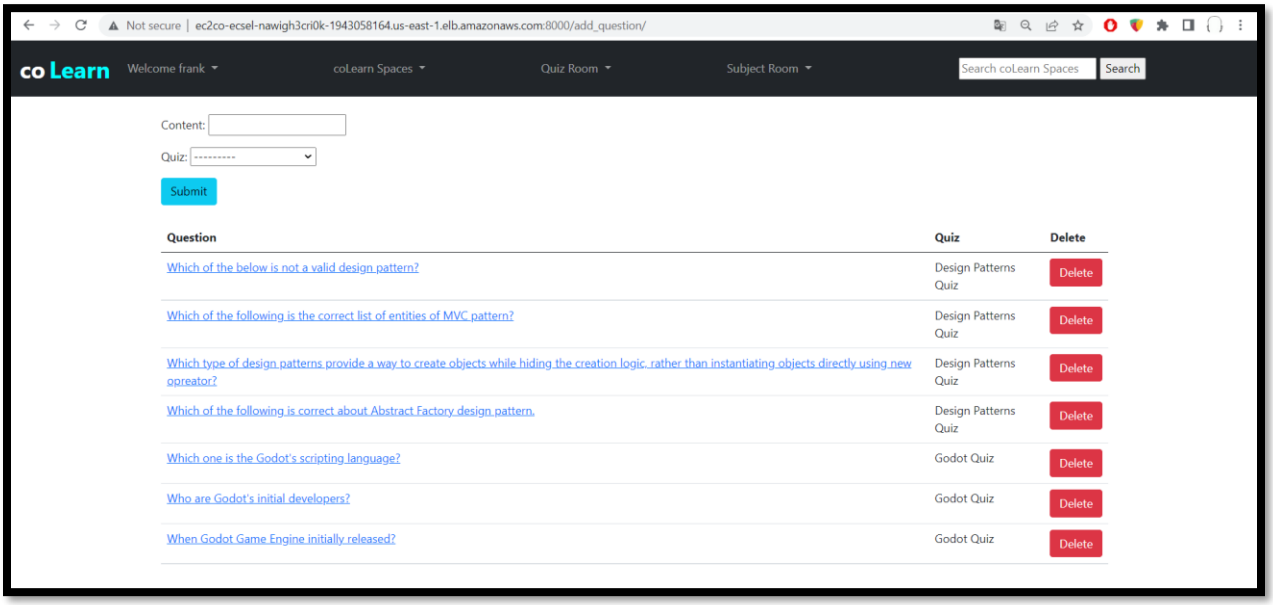
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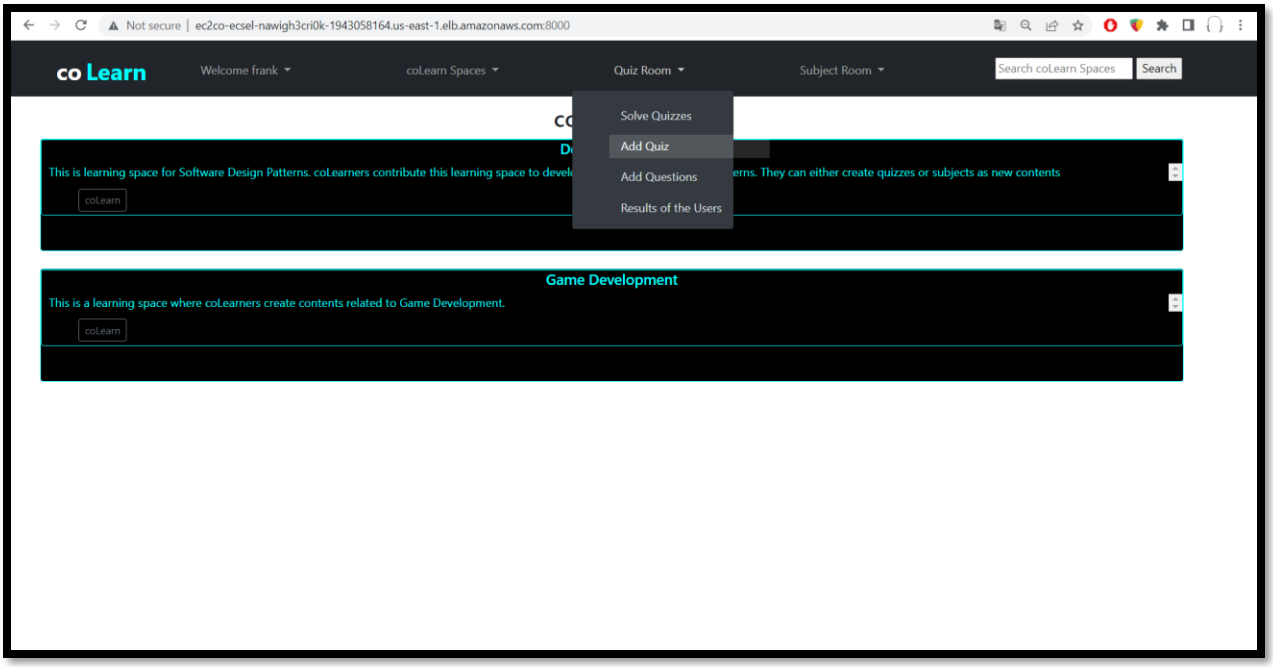
co Learn
Welcome frank
coLearn Spaces
Quiz Room
Subject Room
Search coLearn Spaces
Search
Content:
Quiz: ---------
Submit
Question
Quiz
Delete
Which of the below is not a valid design pattern?
Design Patterns Quiz
Delete
Which of the following is the correct list of entities of MVC pattern?
Design Patterns Quiz
Delete
Which type of design patterns provide a way to create objects while hiding the creation logic, rather than instantiating objects directly using new opreator?
Design Patterns Quiz
Delete
Which of the following is correct about Abstract Factory design pattern.
Design Patterns Quiz
Delete
Which one is the Godot's scripting language?
Godot Quiz
Delete
Who are Godot's initial developers?
Godot Quiz
Delete
When Godot Game Engine initially released?
Godot Quiz
Delete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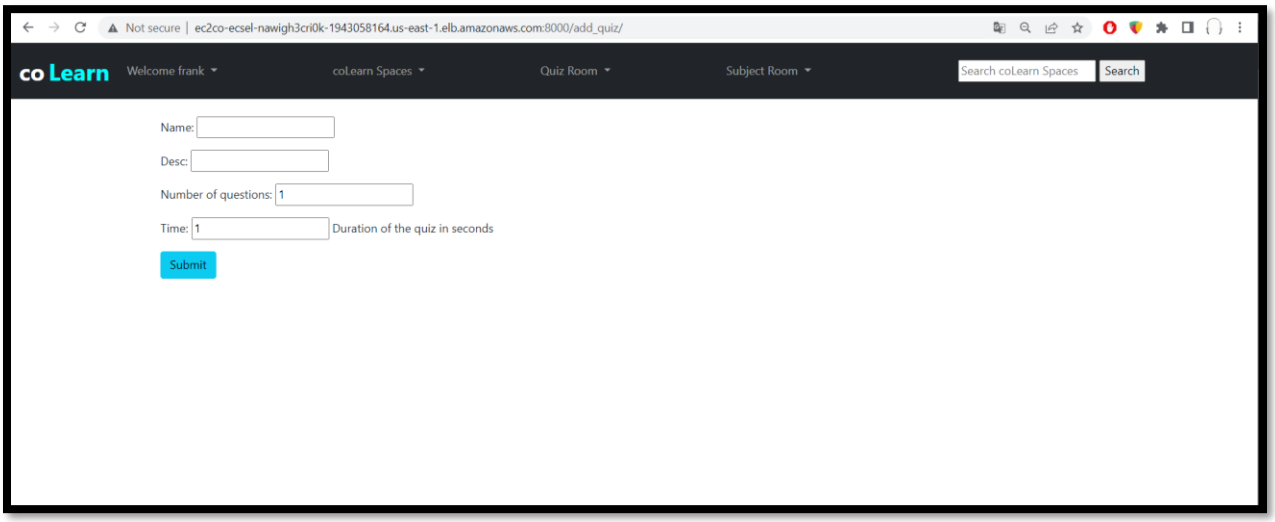
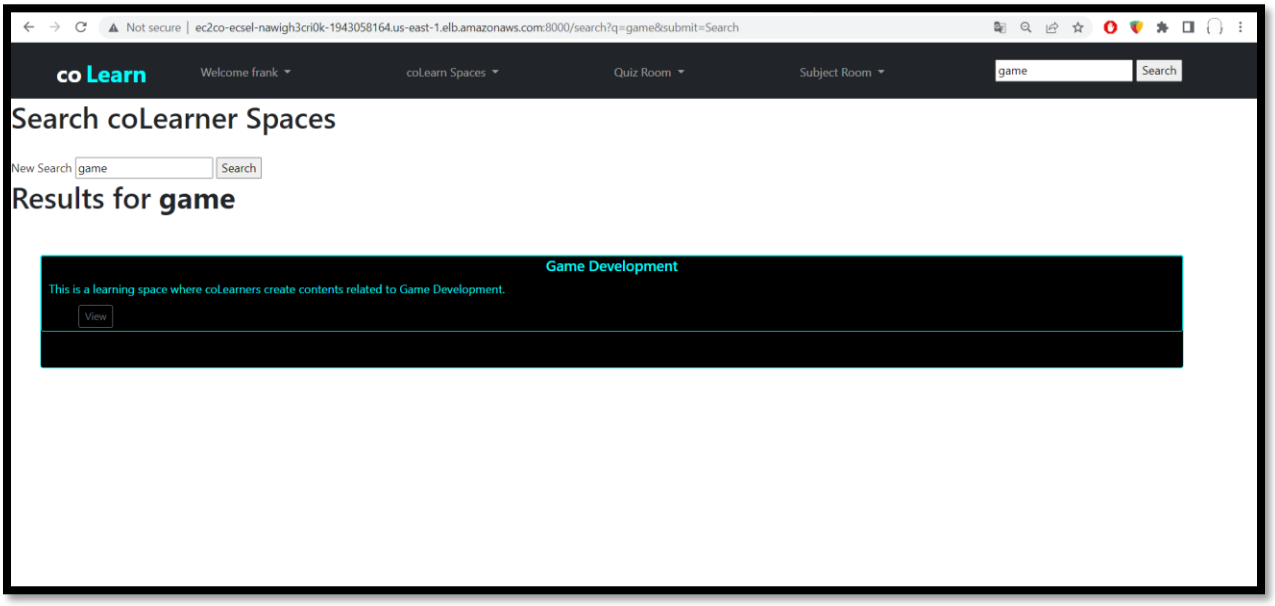

Not secure | ec2co-ecsel-nawigh3cri0k-1943058164.us-east-1.elb.amazonaws.com:8000/add_quiz/
co Learn
Welcome frank
coLearn Spaces
Quiz Room
Subject Room
Search coLearn Spaces
Search
Name:
Desc:
Number of questions: 1
Time: 1
Duration of the quiz in seconds
Submit

Search

Users can search for learning spaces from the existing ones. They can use the Search area in the navigation bar to see the search results:



Test Results

- Unit Tests:

The project code in the github repository consists of 6 test cases where 3 of them is about user login scenarios and check whether users can login with worng username/password or not. Tests results are successful, and the system is evaluated as consistent in terms of registration and login processes.

- Manuel Tests:

Manuel test are done both on the local environment and on the deployed environment. Test scenarios are evaluated in terms of forms. Manuel test scenarios were generally about creating new models by using forms generated in the application. The forms are evaluated as successfully implemented after the manuel tests. On the other side, when the test are done in the deployment environment (on cloud) there are some failing tests about button redirections. A Failed Result is occurred on the Start Quiz button when attempting to the quiz to solve. It is evaluated as a design fallacy while a new feature is implementing to the application. When Learning Space model is implementing on the top of subjects and quizzes some urls are changed and there occurred a bug in the quiz modal. It is issued and solved. The solution will be pushed to the production environment as a hotfix.