Course Clash

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Problem Statement
Studying for classes is an ongoing effort that takes place over the entire duration of a course. Unfortunately, conventional study games are geared more toward having a single, long study session right before a test or quiz, while other games require synchronous real-time play between students who may be operating on different schedules. We want to create a study platform that utilizes correspondence-type games (similar in style to Trivia Crack) that can be used for small bursts of studying each and every day using material specific to the course (like Quizlet). Our platform will be used for frequent, yet short, study sessions between students on different schedules while keeping students engaged and interested through the competitive nature of a game.

Background Information
Audience
1. Students - Students need a platform on which they can study materials created by their professors for their specific class, that also has built in head-to-head competitive games that make the platform, and thus studying, an enjoyable task. There are many platforms for studying, but few of them have head to head games.
2. Teachers / Professors - Teachers and professors need a platform on which they can communicate study materials directly to students, that has features enticing students to engage with the materials they post.

Similar Platforms and Limitations
1. Trivia Crack - a mobile phone game where users compete on knowledge on different topics by answering different questions. It is a turn-based game where users can play at any time whenever it is their turn. The limitations of this app is that you can't create custom topics or questions and lack user customization.
2. Quizlet - A website made for students to study on different subjects. It is designed to be used like flashcards. Users can create their own flashcards sets. Limitations of this platform is that it is not designed to study with other people, our app will encourage competition with other players so students are more motivated to study.

Functional Requirements:

1. [10 hr] As a user, I would like to register for a Course Clash account with an email and password
2. [2 hr] As a user, I would like be able to delete my account
3. [10 hr] As a user, I would like to be able to log in to my Course Clash account
4. [3 hr] As a user, I would like to be able to log out of my Course Clash account
5. [5 hr] As a user, I would like to be able to view my Course Clash account and edit it
6. [5 hr] As a user. I would like to be able to change my password
7. [10 hr] As a user. I would like to be able to recover my account if I forget my password
8. [10 hr] As a user. I would like to upload a profile picture to represent my account
9. [15 hr] As a user, I would like to customize how the website looks, like changing color themes.
10. [10 hr] As a user, I would like to have a brief walkthrough of the app
11. [10 hr] As a user. I would like to keep consecutive streaks I have 'studied' in a course
12. [10 hr] As a user, I would like to be able to create a course
13. [3 hr] As a course creator, I would like to be able to delete my course
14. [15 hr] As a course creator, I would like to be able to add other users to that course by email
15. [10 hr] As a course creator, I would like to be able to remove users from my course
16. [10 hr] As a course creator, I would like to be able to send a 'join' code for other users to join my created course
17. [5 hr] As a course creator, I would like to set how many games one person can be in at once.
18. [5 hr] As a course creator, I would like to be able to use a 'join' code to join a course
19. [10 hr] As a course creator, I would like to be able to add a profile image to my course
20. [5 hr] As a course creator, I would like to change the profile image to my course
21. [10 hr] As a course creator, I would like to create study terms manually through the web UI
22. [15 hr] As a course creator, I would like to upload game questions via CSV
23. [10 hr] As a course creator, I would like to export game questions to a CSV
24. [10 hr] As a course creator, I would like to enter a question set creation session when I create a new question set or edit an existing set.
25. [15 hr] As a course creator, I would like to create multiple game questions through the web UI.
26. [5 hr] As a course creator, I would like to add/change answer choices to each question I create.
27. [15 hr] As a course creator, I would like to add images to questions.
28. [5 hr] As a course creator, I would like to remove questions from my question set.
29. [10 hr] As a course creator, I would like to organize terms/questions into topics/units.
30. [5 hr] As a course creator, I would like to add difficulty tags to the questions.
31. [5 hr] As a course creator, I would like to adjust how many rounds it takes to win in my question set.
32. [5 hr] As a course creator, I would like to include reading/tips for questions I create

33. [10 hr] As a course creator, I would like to publish my question set for users to play in the course.
34. [2 hr] As a course creator, I would like to unpublish my question set.
35. [2 hr] As a course creator, I would like to delete my question set.
36. [10 hr] As a course creator, I would like to edit game questions and study terms through the Web UI after publishing.
37. [10 hr] As a user, I would like for the game to suggest readings/tips related to the question
38. [10 hr] As a user, I would like the option to study specific topics/units as opposed to the entire question/term bank
39. [5 hr] As a user, I would like to choose which question set the game uses
40. [10 hr] As a user, I would like to add feedback to the questions if I think the question needs editing.
41. [10 hr] As a course creator, I would like to be able to see feedback on questions that other users in the course submit
42. [10 hr] As a user, I would like to be able to invite my friends to sign up to the website via email invites
43. [10 hr] As a user. I would like to be able to view other users enrolled in the same course as me
44. [10 hr] As a user, I would like to be able to challenge other random users in my course to a game.
45. [5 hr] As a user, I would like to selectively choose someone not on my friends list to challenge in a game.
46. [15 hr] As a user, I would like to send requests to other people to add to my friends list.
47. [3 hr] As a user, I would like to challenge to a game someone on my friends list
48. [10 hr] As a user, I would like to have a list showcasing all my friends added.
49. [15 hr] As a user, I would like to see friends currently online on the website.
50. [15 hr] As a user, I would like to receive email notifications (if opted in) when I have been challenged to a game
51. [10 hr] As a user, I would like to be able to receive notifications via email (if opted in) when I am added to a course
52. [10 hr] As a user, I would like to be able to see a list of my current games
53. [10 hr] As a course creator, I would like to see an administrator panel that shows every game being played in my course.
54. [10 hr] As a course creator, I would like to see statistics of student usage of the study and game features (# of students playing, # of games played, etc)
55. [10 hr] As a course creator, I would like to see the accuracy statistics for each question I make.
56. [10 hr] As a user, I would like to be able to select any game from my list of active games to see the score/status of each game
57. [5 hr] As a user, I would like to be limited to a certain number of active games at once
58. [10 hr] As a user I would like to be randomly select a topic to start a game using a spinning wheel
59. [15 hr] As a user, I would like to be able to answer a question in a topic when it is my turn

60. [5 hr] As a user, I would like to see whether I get a question right or wrong after answering it, and what the correct answer is
61. [10 hr] As a user, I would like to be able to answer a round of questions when it is my turn and give my turn to my opponent
62. [5 hr] As a user, I would like to see whether I won or lost a round based on if I got more questions right in a round than my opponent
63. [5 hr] As a user, I would like to gain a point for a round if I won the round
64. [5 hr] As a user, I would like to win the game if I win a certain number of rounds before my opponent
65. [3 hr] As a user, if I win or lose a game, I would like to be able to see that I won or lost
66. [10 hr] As a user, I would like to win a game if my opponent does not play for a certain amount of time
67. [5 hr] As a user, I would like to be able to resign/surrender in a game
68. [3 hr] As a user, I would like to be able to rematch other users after a game
69. [10 hr] As a user, I would like to see my game statistics in terms of games won and games played
70. [10 hr] As a user, I would like to be able to see my accuracy for each topic for my course
71. [15 hr] As a user, I would like to see a leaderboard of players in a course
72. [10 hr] As a user, I would like to tab between the rankings of other players based on different statistics like games won, games played, questions answered correctly, etc.
73. [20 hr] As a user, I would like to be able to create and view public posts on a course's discussion board
74. [5 hr] As a user, I would like to be able to upvote posts on a course's discussion board
75. [10 hr] As a user, I would like to be able to comment on posts on a course's discussion board
76. [10 hr] As a course creator, I would like to moderate a course discussion board by removing posts.
77. [5 hr] As a user, when posting to the discussion board, I would like to tag the post as either a Question, PSA, or General post type.
78. [15 hr] As a user, I would like to see detailed progress reports on my performance in different topics and games.
79. [15 hr] As a course creator, I would like to create private courses that can only be accessed by invited users.
80. [15 hr] As a user, I would like to search for courses or users within Course Clash.
81. [10 hr] As a course creator, I would like to add a description to my course to provide more information to potential students.

Non-Functional Requirements:

1. Usability: Course Clash will be available as a website. The application should be able to be used by students seamlessly on a computer or a mobile device. The type of device should not impede the features of the app or user experience of the app for students.
2. Privacy: A game like Course Clash will be responsible for storing student information, course information, and course practice problems. This information should only be

accessible to those with appropriate permissions. This will be regulated by ensuring course owners must approve anyone who joins a course, and allowing coordinators to remove users from a course if need be. Student information like emails and statistics will only be available to the student and course leader.

3. Security: Passwords should be hashed. Users should not be able to access courses that they are not a part of. Students should not be able to access games they are not a part of. User sessions should be authed with JWT tokens to prevent session spoofing and to ensure the integrity of user sign ins. Passwords should only be able to be reset by the email associated with the user's account.

4. Responsiveness: The application should display up to date information about a course at all times, a user should not need to refresh the page. UI elements should be responsive and seamlessly refresh after game events and user events.

5. Scalability: We will use cloud-hosted infrastructure combined with horizontal-scaling design choices to achieve a scalable product. We will use PostgreSQL hosted by AWS RDS (Relational Database Service) for a scalable RDBMS. We will use AWS S3 (Simple Storage Service) as a scalable object-store solution for storing larger artifacts such as images. Our platform will be containerized using Docker for easy deployment and scaling on AWS services such as Lambda or ECS (Elastic Container Service).