THREE SINGLE PAGE APPLICATIONS

The Quizzer actually consists of three SPAs:

1. **The Team app**

   This SPA runs on the smart phones of the teams and can do two things:
   - Apply as a team for the Quizz Night.
     Part of the application process is providing a team name. Your team then needs to be approved by the Quizz Master.
   - Display the current question and allow the team to enter and submit an answer.

2. **The Quizz Master app**

   This app runs on the Quizz Master's tablet. With it, he or she can perform these tasks:
   - Start the Quizz Night and open it for applications.
     Approve or reject team applications.
   - Start the Quizz with all the teams that have applied.
   - Start a Quizz Round (that has twelve questions) by selecting three categories (out of a list) and pressing the "Start Round" button, for example.
   - After a Quizz Round, decide whether to play another round or to end the Quizz Night.
   - Select the next question. This is an interesting screen that will be expanded upon under the *User Interface* header.
   - *Start* the selected question by pressing a button. Only then will it show on the Score Board and each Team's app. From that moment on, teams can submit their answers until the Quizz Master closes the question, again by pressing a button.
   - Read the answers that the teams have submitted. This way the Quizz Master can decide whether he or she allows an answer that has a spelling mistake, for example.

3. **The Score Board app**

   This app does not have any interaction, but shows in real time:

- The progress: how many rounds have been played, how many questions we're into a round.
- The team names with their scores in 'Round Points' and the number of correctly answered questions per round.
  Round Points are awarded like this: After each round of twelve questions, the team that has the most correct answers is awarded 4 Round Points (RPs). The next best team is awarded 2 RPs and the third best team is awarded 1 RP. All other teams are awarded 0.1 RPs for their effort and company.
- When a question is in progress (it has been started and is not yet closed, teams can still submit answers) the following information:
    - the question;
    - the category of that question;
    - which teams have submitted an answer, but not the answer itself.
- When a question is closed, all the team answers are displayed. As soon as an answer is approved or rejected, this is also displayed and the team scores are updated.

TECHNICAL

The Quizzer will use Mongo, Express, React and Node (MERN stack), supplemented with the WebSocket protocol (the use of Redux is optional, and will result in a higher grade). All three Single Page Applications will be served by the same Node.js/Express server.

They are web apps that run in a phone or tablet's browser. They are not to be native Android or iOS apps that could be distributed through the Google Play Store or the App Store.

The three SPAs use web sockets to communicate in real-time. Examples of this real-time communication are:

- when the Quizz Master *starts* a question, it immediately appears on the team phones and the score board;
- when a team submits an answer it will immediately be displayed on the Quizz Master's tablet, and the score board will show that that team has submitted an answer.

- When the Quizz Master approves an answer, the score shown on the score board will immediately be updated.

The server can support multiple simultaneous Quizz Nights that might be held in different pubs, for example. To prevent teams from applying with the wrong Quizz Night (being held in a different pub) the teams need to enter a simple password in the application process provided by the Quizz Master

SMALL REQUIREMENTS

This is the incomplete list of small requirements:

1. Any question can appear only once per Quizz Night. When a question is done, it will not appear in the suggestions for the Quizz Master again.
   (Categories *can* appear more than once per Quizz Night.)
2. Team names must be unique; no two teams can have the same name in one Quizz Night. Team names can not be empty.
3. After a team has submitted an answer, they can change their mind and submit another answer, providing the Quizz Master hasn't closed the question yet. The answer submitted last counts.
4. Empty answers will be ignored. If a team inadvertently submits an empty answer, it will not show on the score board or for the Quizz Master's.
5. When the Quizz Master rounds up the Quizz Night, the score board will show the teams that placed first, second and third, measured by the amount of Round Points. This final screen heavily emphasises the team that places first.

TECHNICAL REQUIREMENTS

Your code base should include the following:
- Appropriate data validations in your Mongoose models;
- Unit tests for Mongoose models;
- API tests for Express routes.

You are not required to write any end to end tests.