Web Application Proposal
LINQUIZTICS: Language Learning App

N.B. Features whose implementation is optional are marked with the following tag: **[OPTIONAL]**.

Meanwhile, optional features that were implemented for Phase 3 are marked with a blue optional tag: **[OPTIONAL].**

FEATURES
The features of the proposed language learning web application can be grouped into four general categories:
- Account-related
- Quiz-related
- Leaderboard-related
- Administrator-related

The following definitions of terms are used throughout this document:
- **Display language**: the language in which a quiz is written
- **Subject language**: the language the quiz is about

A quiz written in English and focusing on Japanese greetings has English and Japanese as its display and subject languages, respectively.

Account-Related Features
Register
A visitor is required to register to use all the quiz- and leaderboard-related web application features. Upon registration, the visitor is prompted to enter the following details:

- Username *(at least 1 character)*
- Name *(at least 1 character)*
- Password *(8 to 128 characters, with at least one special character, one number, and one capital letter)*
- Email address *(an email will be sent to this email address to inform the user of the account registration)*
- Preferred display language/s
- Profile picture *(optional)*

Meanwhile, an unregistered visitor can only access a limited set of quiz-related features (namely, searching for quizzes and taking them).

Log in
After account creation, a visitor can log in and use all the quiz- and leaderboard-features of the application.

Log out
A user can log out from the application, thus clearing all session-related data.

View account details
A user can view his/her account details:
- *Personal:* username, profile picture, email address, and preferred display languages
- *Quiz-related:* quizzes created, quizzes published, and a log of quizzes taken (along with the scores obtained)
- *Leaderboard-related:* total number of experience points, current streak, current league, and position within the league

Edit account details
A user can edit his/her account details. Since these details have varying degrees of significance and sensitivity, editing them falls into the following tiers:
- *Profile picture and preferred display languages:* no additional action is required after editing
- *Name and email address:* the user will be prompted to enter the current password
- *Password:* the user will be asked to enter the current password and an email will be sent to the his/her registered email address to inform the user of the password change

Delete account
A user can delete his/her account. This action irreversibly removes all the personal, quiz-related, and leaderboard-related data that are associated with this account from the database.

Moreover, this action removes all the quizzes made by the user.

View another user's profile
When a user clicks on another user's username, he/she can view these details constituting this user's *public* profile:
- *Personal:* username, name, profile picture, preferred display languages
- *Quiz-related:* quizzes taken
- *Leaderboard-related:* total experience points, current league, and current position within the league

From this page, the user can also view and take the quizzes taken by the user whose profile he/she viewed.

Report user
A user can report another user for violation of the terms and conditions. This action notifies the administrators, who will investigate the complaint and delete the reported user's account should the claim be deemed substantial.

Quiz-Related Features
View featured quizzes
For an unregistered visitor, the featured quizzes section of the home page displays the three most recently published quizzes and the three top-rated quizzes (irrespective of the display language).

A registered visitor is entitled to a more customized display. Aside from the three most recently published quizzes, the three top-rated quizzes are matched with his/her preferred display languages.

Create quiz
A user can create a quiz by specifying the following details:
- Title and short description
- Tags
- Quiz items *(1 to 50 items)*
- Time limit per item **[OPTIONAL]**
- Answers *(required)*
- Explanations *(optional)*
- Display and subject languages

A quiz must have exactly one display language (i.e., it must be written in only one predominant language). However, it may cover multiple subject languages.

Items are required to be in multiple-choice format, with exactly four choices. The user also has the option to integrate audio, image, and video files into the questions and/or the choices.

By default, upon the creation of a quiz, it is unpublished, i.e., only the user who created it is allowed to view it.

View quiz
A user can view a quiz published by another user, displaying the following:
- *Content-related details:* title, short description, date published, display and subject languages, and number of items
- *Feedback-related details:* comments on the quiz itself, the average quiz rating, and average accuracy of quiz takers

The actual items are withheld from view unless the user decides to take the quiz, which is a separate action.

A user can also view any of the quizzes that he/she created. Since the user is the creator, he/she is also authorized to view the items alongside the answers and explanations without taking them.

Edit quiz
A user can edit any of the quizzes that he/she created.

If a quiz previously taken is edited by its creator, it is not removed from the user's log of quizzes taken.

Experience points gained from taking it, current streak, and leaderboard-related ratings are also retained.

Publish quiz
A user can publish a quiz that he/she created, setting its visibility to public.

Hence, other users are allowed to view it, take it, comment on its items, comment on the quiz itself, rate it, and report it for suspected violation of the application's terms and conditions.

Unpublish quiz
A user can unpublish any of the quizzes that he/she created, setting its visibility to unlisted.

This action, thus, disallows other users from performing the actions specific to published quizzes (as enumerated in the second paragraph of *Publish quiz*).

If a quiz previously taken is unpublished by its creator, it is not removed from the user's log of quizzes taken *(View account details)* in the interest of completeness*;* it will only be marked as "unpublished."

Experience points gained from taking it, current streak, and leaderboard-related ratings are also retained.

Delete quiz
A user can delete any of the quizzes that he/she created. This action irreversibly deletes all the data associated with the quiz from the database.

If a quiz previously taken is deleted by its creator, it is not removed from the user's log of quizzes taken *(View account details)* in the interest of completeness*;* it will only be marked as "deleted."

Experience points gained from taking it, current streak, and leaderboard-related ratings are also retained.

Take quiz
A user can take a quiz published by other users or one that he/she created.

The quiz items are displayed one at a time, and the correct answer (as well as the explanation) is revealed immediately after each item. Therefore, a user is not allowed to return to or change his/her answer to previous items.

Each item in the quiz is worth 50 points, and bonuses are given for answering items quickly **[OPTIONAL]**. The total score obtained after completing the quiz is then added to the user's current experience points.

Moreover, if the quiz is the user's first quiz of the day (regardless of whether the user has previously taken it), completing this quiz increments his/her current streak. However, if the user does not take any quizzes within the day, his/her streak is broken and reset to zero.

View performance summary
At the end of the quiz, a user can view a summary of his/her performance in the quiz, which consists of the following details:
- Total score *(inclusive of bonuses from answering items quickly* **[OPTIONAL]***)*
- High score *(if the user has already taken the quiz previously)*
- Accuracy *(ratio of the number of correct to incorrect answers)*
- Correctly answered items
- Incorrectly answered items *(along with the answers and explanations)*

If the quiz taker is also logged in, then the following details are also included in the performance summary:
- Current number of experience points
- Current streak
- Current league and position within the league

Comment on quiz item [OPTIONAL]
A user can comment on a quiz item after the correct answer to this item is shown and before proceeding to the next item.

This feature is encouraged to be used as an avenue to point out possible errors in the item or suggest some improvements.

View quiz item comment [OPTIONAL]
A user can view his/her comment, as well as the comments written by other users, on the quiz item that he/she is currently on, provided that this is done before moving on to the next item.

This action also displays the name of the commenter and the date on which the comment was most recently edited (or created, if the comment is unedited).

Edit quiz item comment [OPTIONAL]
A user can edit his/her comment on a quiz item provided that this is done before moving on to the next item.

Delete quiz item comment [OPTIONAL]
A user can delete his/her comment on a quiz item provided that this is done before moving on to the next item. This action irreversibly deletes all the data associated with it from the database.

Comment on quiz
A user can comment on the quiz itself after completing it. Note that this action is not available to users who have not completed the quiz.

This feature is encouraged to be used as an avenue to provide feedback on the quiz per se rather than on specific items. The latter must be coursed through the *Comment on quiz item* feature.

View quiz comment
A user can view his/her quiz comment, as well as the quiz comments written by other users. Technically, this is a subset of the *View quiz* feature.

This action also displays the name of the commenter and the date on which the comment was most recently edited (or created, if the comment is unedited). Note that these can be viewed by all the visitors of the application, regardless of whether they are registered users.

Edit quiz comment
A user can edit a quiz comment that he/she previously created.

Delete comment
A user can delete a quiz comment that he/she previously created.

Rate quiz
After taking a quiz, a user can rate the quiz from zero to five stars (increments of one). This feature is encouraged to be used as an avenue to describe the overall quality of the quiz.

View quiz ratings
A user can view a rating that he/she previously gave, along with the average rating of a quiz. Technically, this is a subset of the *View quiz* feature.

Edit rating
A user can edit a rating that he/she previously gave. This results in the recomputation of the average rating of the pertinent quiz.

Delete rating
A user can delete a rating that he/she previously gave. This results in the recomputation of the average rating of the pertinent quiz.

View quiz feedback and statistics
A user can view a consolidated summary of other users' feedback on any of the quizzes he/she has created:
- Comments on each of the quiz items
- Comments on the quiz itself
- Individual ratings

Moreover, the web application also gives some statistics related to the quiz:

- Number of times it was taken *(can be toggled to restrict to a certain period [e.g., over the last 7 days, over the last month, and so on]* **[OPTIONAL]***)*
- Average rating
- Average accuracy of quiz takers

Search for quiz
A user can search for a published quiz by specifying the following details:
- Quiz name
- Quiz creator
- Quiz tags

This action results in all the published quizzes matching the specified search query (i.e., its name, creator, or tags match the input query) to appear.

The user also has the option to arrange the search results in three ways:
- Alphabetical or reverse alphabetical order (based on the quiz names, creators, or tags)
- Chronological or reverse chronological order (based on the dates published)
- Ascending or descending order (based on the average ratings)

Report quiz item comment
[OPTIONAL]
A user can report a quiz item comment by another user for violation of the terms and conditions. This action notifies the administrators, who will investigate the complaint and delete the reported user's quiz item comment should the claim be deemed substantial.

Report quiz comment
A user can report a quiz comment by another user for violation of the terms and conditions. This action notifies the administrators, who will investigate the complaint and delete the reported user's quiz comment should the claim be deemed substantial.

Report quiz
A user can report a quiz created by another user for violation of the terms and conditions. This action notifies the administrators, who will investigate the complaint and unpublish the reported user's quiz should the claim be deemed substantial.

Leaderboard-Related Feature
Update league positions
A user is automatically ranked on a leaderboard based on the number of experience points. The leaderboard is further split into different tiers, termed "leagues."

There are five leagues (Diamond, Platinum, Gold, Silver, and Bronze), and the first four leagues accommodate five users each. Thus, the five users with the highest total experience points are placed in the Diamond league, the succeeding five users are placed in the Platinum league, and so on. After the top twenty slots have been filled, all other users are placed in the Bronze league.

View league positions
A user can view his/her total experience points, current league, and current position within the league. Technically, this is a subset of the *View account details* function.

By accessing the leaderboard of the web application, he/she can also view these details of the global top three users and the users at every league.

Administrator-Related Features
The web application features two tiers of administrators:

- **Master administrator**: developers of the web application
- **Regular administrators**: associates who are in charge of managing the application **[OPTIONAL]**

Add regular administrator account
[OPTIONAL]
The master administrator is the only person who is authorized to add a regular administrator. In the creation of a regular administrator account, the following details must be supplied:
- Username *(at least 1 character)*
- Password *(8 to 128 characters, with at least one special character, one number, and one capital letter)*
- Email address *(a confirmatory email will be sent to this email address)*
- Profile picture *(optional)*

View administrator account
[OPTIONAL]
An administrator can view his/her account details: username, profile picture, and email address.

Edit administrator account
[OPTIONAL]
An administrator can edit his/her account details. Since these details have varying degrees of significance and sensitivity, editing them falls into the following tiers:
- *Profile picture:* no additional action is required after editing
- *Username and email address:* the user will be prompted to enter the current password
- *Password:* the user will be asked to enter the current password and enter a verification code that will be sent to his/her registered email address to confirm the change

Delete regular administrator account
[OPTIONAL]
A regular administrator can delete his/her account. This action irreversibly removes all the data associated with this account from the database. Note that the master administrator is also authorized to delete the account of any of the regular administrators.

N.B. A master administrator account cannot be deleted since it is requisite to the maintenance of the web application.

Delete user account
Should a report submitted be deemed substantial, an administrator can delete the account of a non-administrator user. This action irreversibly removes all the data associated with this account from the database.

Unpublish quiz
Should a report submitted be deemed substantial, an administrator can unpublish the pertinent quiz, setting its visibility to unlisted and disallowing users from performing the actions specific to published quizzes.

Delete quiz item comment
[OPTIONAL]
Should a report submitted be deemed substantial, an administrator can delete the pertinent quiz item comment. This action irreversibly removes all the data associated with it from the database.

Delete quiz comment
Should a report submitted be deemed substantial, an administrator can delete the pertinent quiz comment. This action irreversibly removes all the data that are associated with it from the database.