ReadUp.

Solution Prototype Documentation

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1. Overview

The ReadUp. solution is a mobile application, which runs in any web-browser environment (developed and tested in Google Chrome Version 87.0.4280.88 or above).

For the background of the project, please see all other supporting documents (i.e. Storyboard, Press Release). This document describes the technical architecture of the solution and introduces all developed screens with detailed descriptions. Last of all, those further ideas and concepts are described, which have not been developed, but as the project team spent a considerable time with the ideation and the design of these solutions, they form a vital part of the whole prototype.
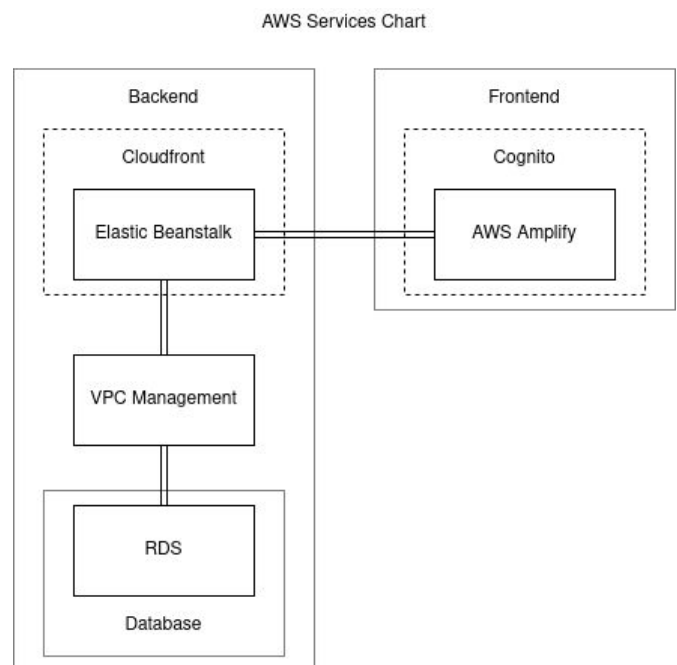
2. Technical Architecture Description

The ReadUp. application uses several AWS services in the current prototype phase to be able to deliver a functional online demo version online. These AWS solutions are listed below:

- Amazon RDS:
  https://aws.amazon.com/rds/
- Amazon Virtual Private Cloud:
  https://aws.amazon.com/vpc/
- AWS Elastic Beanstalk:

AWS Services Chart

  https://aws.amazon.com/elasticbeanstalk/
- Amazon Cloudfront: https://aws.amazon.com/cloudfront/
- AWS Amplify: https://aws.amazon.com/amplify/
- Amazon Cognito: https://aws.amazon.com/cognito/

Backend

The backend consists of two main parts: the database and the backend software. For the database, the team is using the Amazon Relational Database Service (RDS), where an instance of a MySQL database is running. As a backend software, Java Spring Boot is being run in the Elastic Beanstalk. This Elastic Beanstalk is in turn wrapped inside the CloudFront service to obfuscate its URL and to secure it with HTTPS URL. Amazon Virtual Private Cloud is used to enable the traffic between the database and the backend. By default, any traffic from outside domains is blocked.

Frontend

Regarding the frontend, the AWS Amplify service is used to host a React web app. The app in turn uses Amazon Cognito service for authentication. Cognito is configured to work with the Amazon instance and with the localhost development environment.

3. Solution Prototype Description

In this section, all the developed screenshots are displayed and described thoroughly. The order of the screens represents a custom user journey for better and easier understanding. It is also possible for anyone to use the application via https://devel.douemn5tq1der.amplifyapp.com/. For the best experience, using a smartphone and Google Chrome browser are recommended.

3.1. Landing screen

The landing screen welcomes visitors with a short text, making people interested in the application. The top half of the screen is an image placeholder.

The arrow button at the bottom of the screen takes the user to the Login screen.
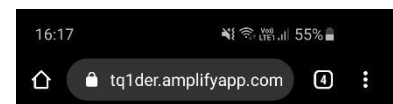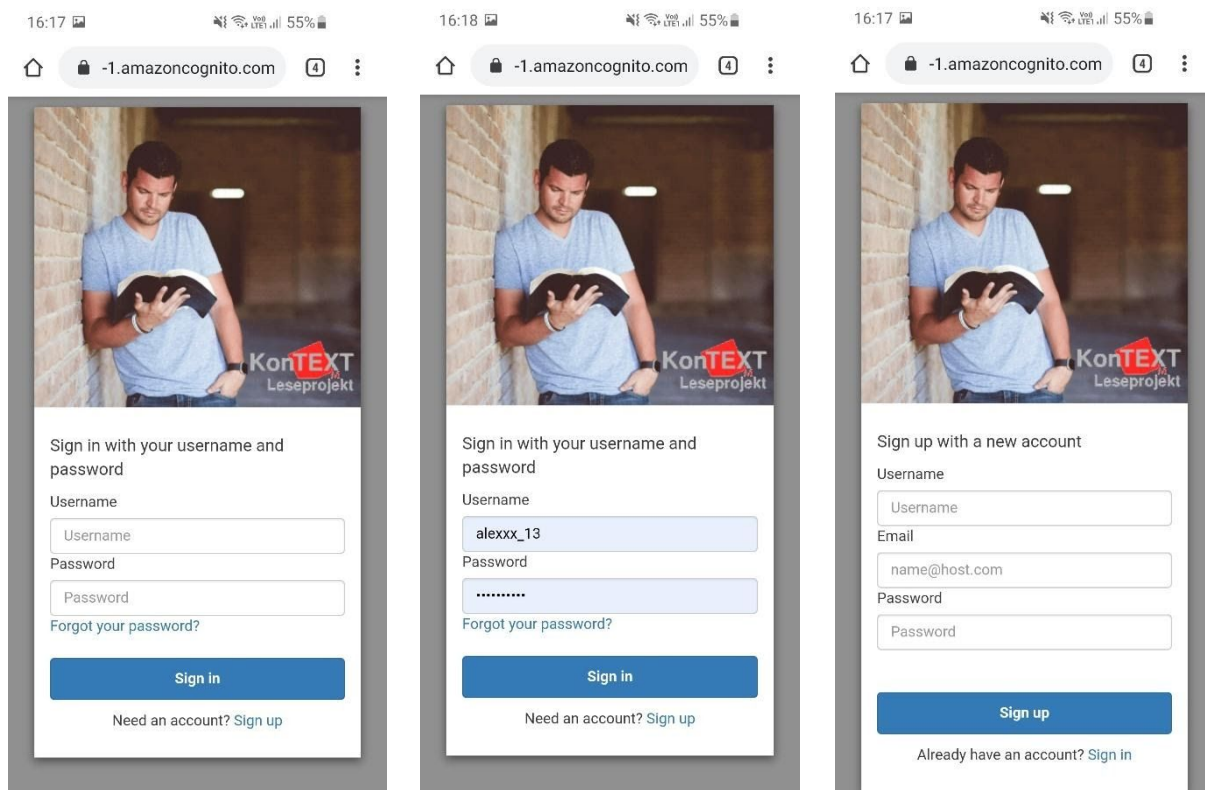
3.2. Login and Registration Screens

The first screen shows the login screen, where the user must type in the username-password combination. In case the password is forgotten, a reminder email will be sent to the user. The second screen shows the same screen, when the user – alexxx_13 – filled out the fields with his credentials.

In case the website visitor does not have an account yet, then with the help of the Sign up link at the bottom, the user can create a new account. This can be seen on the third screen. The user must create a custom username, has to define a password and must type in his/her email address. After the sign up button is selected, an email will be sent to the above email address. This email contains the verification link, which must be selected to complete the sign up process.

3.3. My Profile

After the user signs in, the My Profile page opens.

The username can be seen at the top of the page, along with a placeholder image for a profile picture. This function has not been developed so far.

The My Embodier, the My Progress on Action and the My Account Settings buttons are currently placeholders and have no functions. The My Embodier concept is detailed in Chapter 4.1.

The My Books button takes the user to the screen, where the book that the user reads can be selected. This screen is detailed further in Chapter 3.4.

The My Statistics page shows some statistics about the reading progress of the user. This screen is detailed further in Chapter 3.8.
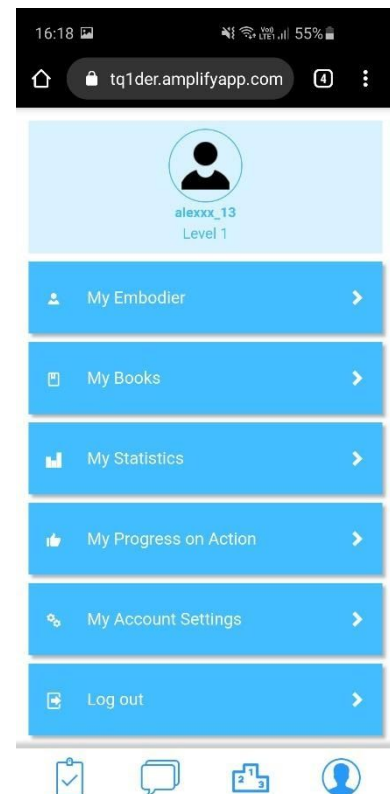
The Log out button logs the user out of the system and redirects to the Login page.

The navigation bar at the bottom consists of 4 buttons. These buttons are always visible, allowing users to navigate to any screen (any main functionality) easily.

The first one takes the user to the page from where the certain tasks can be done (e.g. quiz, listening to podcasts). This screen is detailed further in Chapter 3.9.

The second button takes the user to the chatbot. Since it is currently being developed by KonTEXT, that screen is currently only a placeholder.

The third button takes the user to the Leaderboard, where the progress of the user and the progress of other candidates can be seen. This screen is detailed further in Chapter 3.10.

The fourth button is the My Profile page, which is being described in the current chapter.
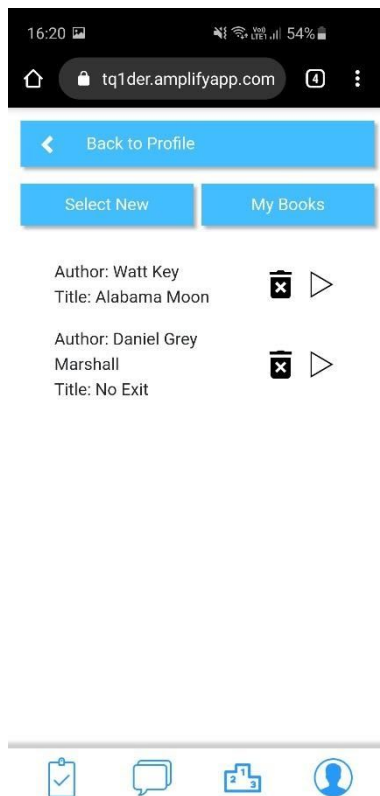
3.4. My Books -Select new

The My Books page has two views. The first is Select New, and the second is the actual My Books view.
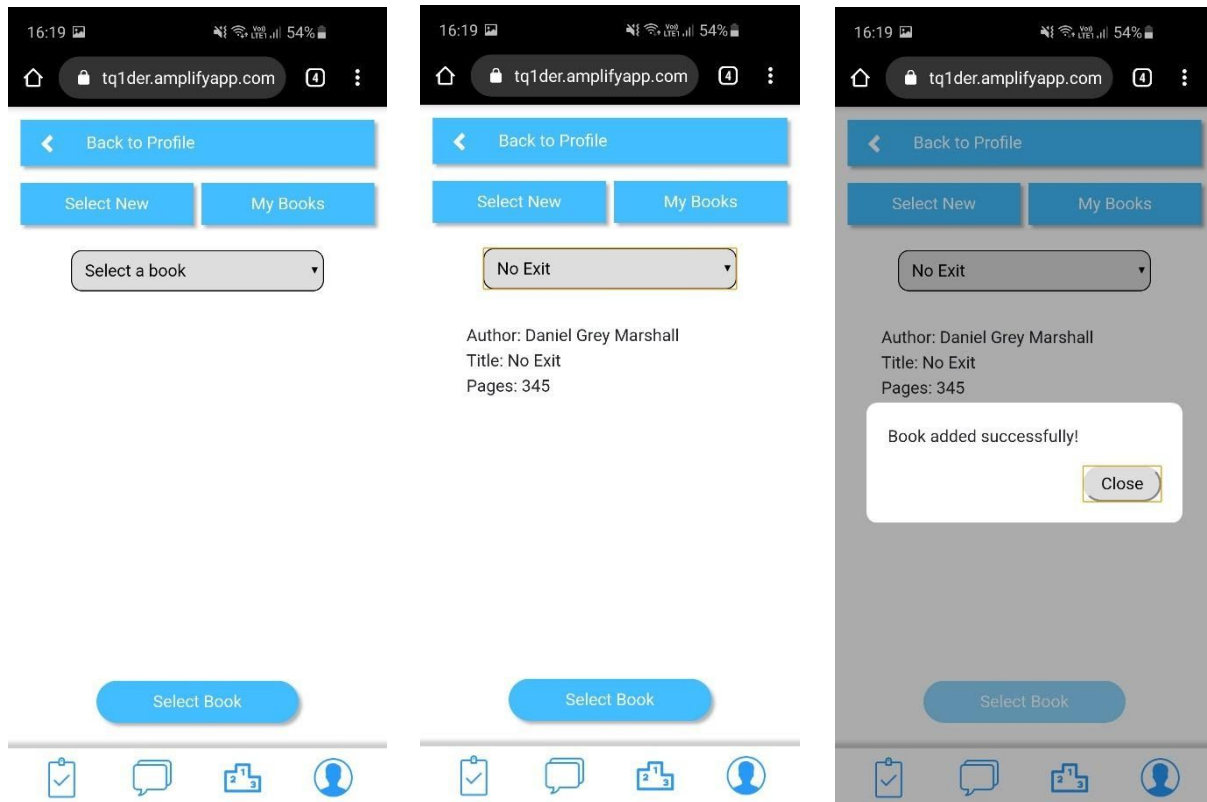
On the Select New view, the user finds a dropdown list, which includes all the books that are in the database. The second screen shows that when a book is selected (in this case: *No Exit*), the author, the title and the number of pages of the specific book appears. By selecting the Select Book button, a pop-up message appears that can be seen on the third screen. It is a confirmation message that the book was added to the book list of the user.

3.5. My Books - Book list

The other view of the My Books screen includes the books that the user has added in the previous step, on the Select New screen.

Here, the user can not only see the books that he/she added, but from this screen two other functionalities can be initiated.

The first is the Record Progress feature, which can have a separate screen and it allows the user to see and record the number of read pages of the given book. It can be opened with the help of the Triangle icon, and this screen is detailed further in Chapter 3.6.

The second one is the Delete Books feature, which can be done by selecting the trash bin icon. In case it is tapped by the user, the specific book will disappear from the book list and the user will not be able to record her/his progress anymore – unless the book is re-added to the list. Upon successful deletion, the user can see a short confirmation pop-up message.

3.6. Record Progress

The Record Progress screen is one of the most important screens in the application, since the user can record her/his progress here.
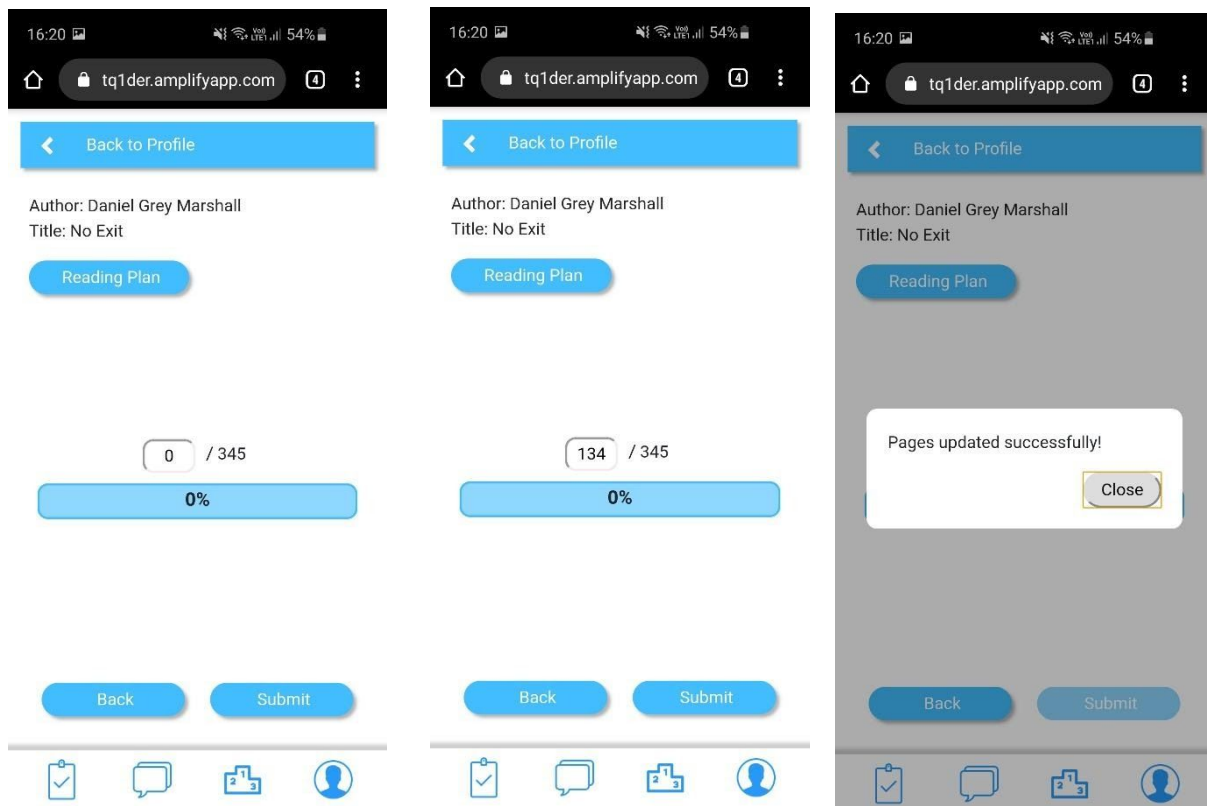

To make sure that the user records the number to the correct book, the author and the title information are shown again.

Below that, the Reading Plan button can be seen, which helps the user to create a daily reading plan. This functionality is detailed further in Chapter 3.7.

In the middle of the page, a number box and the total page number of the book can be seen, separated by a "/" sign. The user must type into the number box on which page of the book she/he is currently. This status can be seen on the second screen. According to this, the user has read 134 pages of the book. After the Submit button at the bottom is selected, a pop-up page confirms that the pages were added successfully, and the progress bar refreshes.

3.7. Reading Plan

In case the user would like to record a plan for a specific book, it can be done easily with the help of the Reading Plan screen.
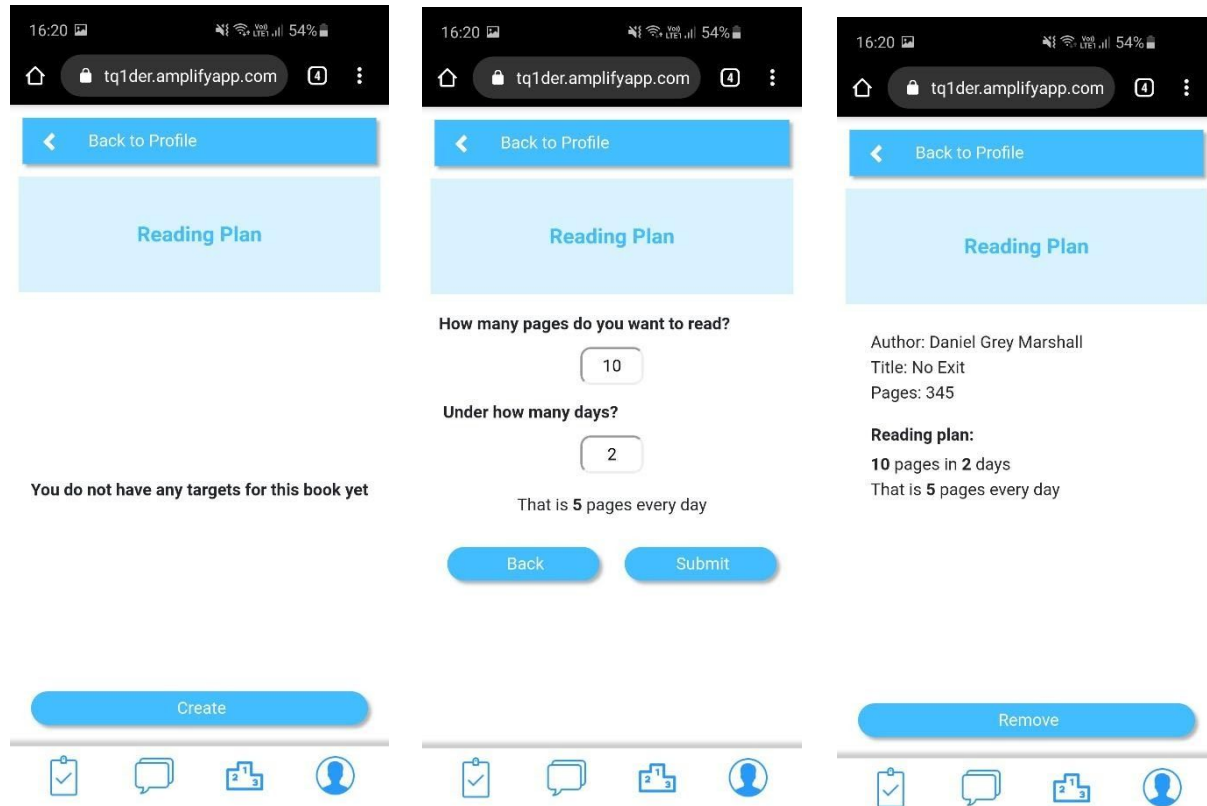
By default, no targets are set for the books, which is shown on the first screen. When the user selects the "Create" button, the planner screen appears. Here, the user can record two information into two number boxes. The first is that how many pages she/he would like to read, and the second is that in how many days would she/he like to achieve this. The daily target number below the number boxes is calculated automatically. If the user selects the Submit button, the first screen reopens again, but now it includes every target information that has been defined at the previous step. This can be seen on the third picture. Here, the user can delete this target by selecting the Remove button.

NOTE: this functionality is not yet fully developed. It means that the above described steps can be done, but the data is not saved into the database. Hence, in case the user goes back to any other screen, the Reading Plan will be lost.

3.8. My Statistics

The My Statistics page includes two measures at the moment.

The first one is the My Books progress chart, which shows how many pages the user has read altogether compared to the total number of pages of the books that are currently in her/his Book list. Below the "My Books" chart title, a "Description" placeholder can be seen.

The second one is the My Challenges progress tracker, which shows on which level the user currently is, and how much was completed from the current level. Below the "My Challenges" chart title, a "Description" placeholder can be seen. This chart is currently not functional, but a placeholder. It will show how much progress the user has made in certain tasks (quiz, podcasts, etc.).

3.9. Selection of Themes

This screen lists all the predefined themes that the users can (or must) get to know. By selecting one of the themes, the user will be redirected to the screen, where it can be selected whether a quiz, a podcast, or another task would be done. This functionality is not yet developed, and a thorough description can be found in Chapter 4.2.
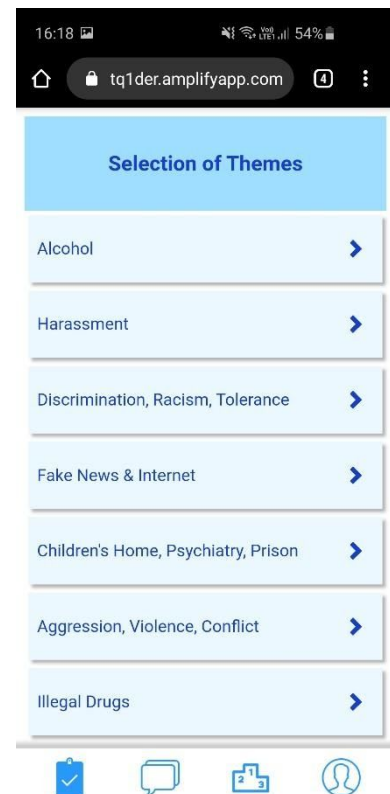
3.10.Leaderboard

The Leaderboard shows the top ten users who read the most. There is a Total and a Weekly Leaderboard, which can be selected in the top row of the screen. Although only the top 5 users can be seen at first glance, the list can be scrolled down to see the next 5 people.

Below the table a dynamically changing text shows that where the logged-in user is ranked on the specific list.
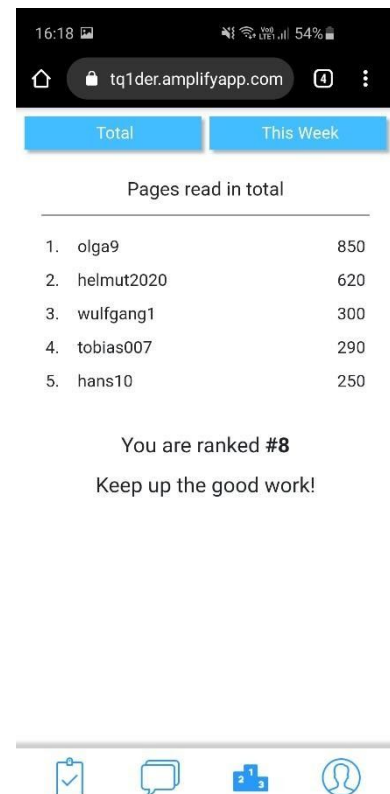
4. Further Concepts Description

In this chapter, those concepts are described that form an important part of the solution and that were required by our Client. The main goal of this feature is to bring in gamification elements to the solution that would motivate users to read more. Due to the lack of time and experience, developing these features would have been not possible or they would have been developed at not a sufficient standard.

4.1. My Embodier

The My Embodier feature (also called as Personal Avatar) is a function that motivates students to learn and to do more and more tasks. By doing these activities, users get points from the system that can be used to power up the avatar. Powering up means that the avatar will be cooler and it can obtain multiple accessories.
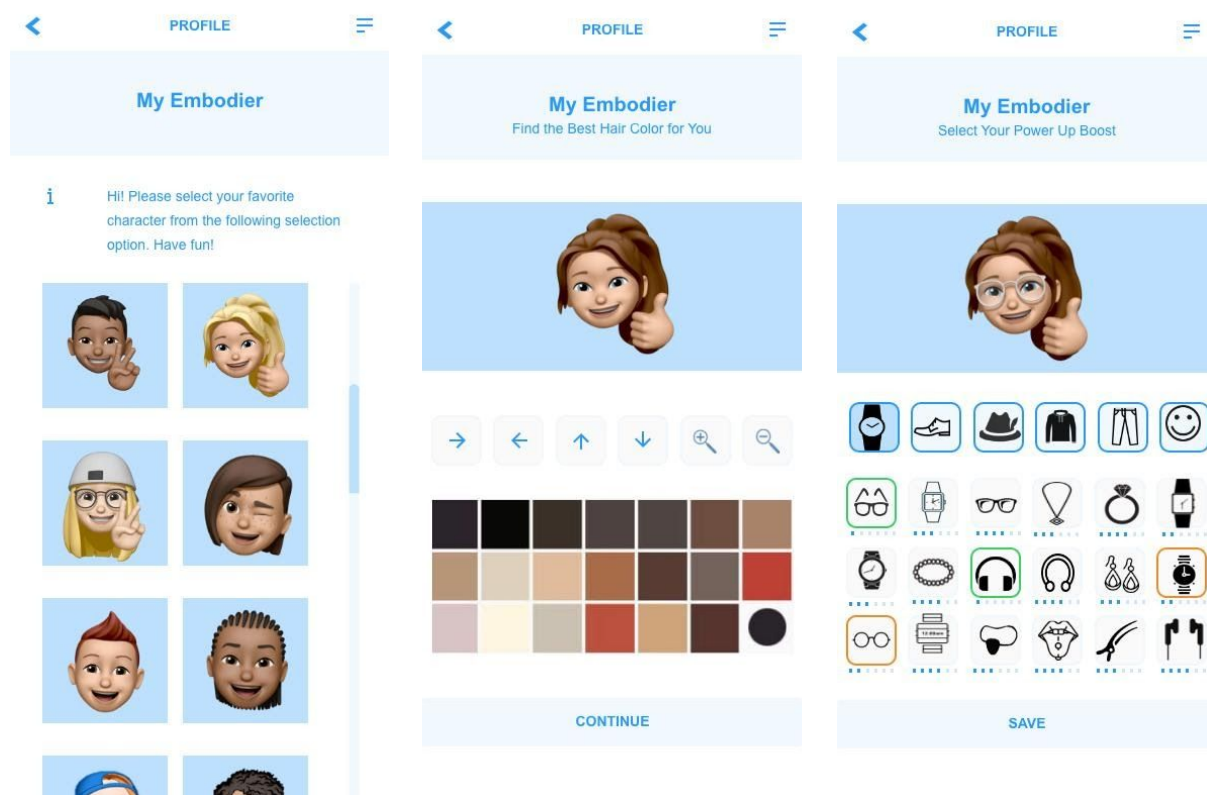
The first screen shows the first step in the My Embodier feature, namely the selection of the avatar. The user can select from about 20 different, pre-defined avatars. The next step is to customize the avatar a bit more. Our suggestion is the possibility to change the hair color of

the avatar. This is shown on the second screen. After the right hair color is selected, the user can see how the avatar can be boosted, which can be seen on the third picture.

Our idea is to have a range of items or accessories that the user can select. The items that are available for selection are marked with a green frame. This indicates that the user has enough points (the user on the appropriate level) to get that item for the avatar. An orange frame signals those items that can be obtained if the user gets to the next level.

There are two ways to get to higher levels. The first one is to read books and register the process, and the second one is to complete tasks. This feature is introduced in the next chapter.

4.2. Tasks and the game

As mentioned in Chapter 3.9, after a theme is selected from the list of themes, the user can begin to complete the tasks related to the specific topic. The first step is to select from predefined options what the user would like to do. It can be a quiz, or listening to a podcast, watching a video, writing a few sentences (small essay) about a question, etc.

When this is selected, the game begins. Here, the project team proposed 3 different game ideas and we suggest having a separate game idea for all tasks to keep the game diverse and exciting. Another idea – this was included in the designs – is to build these mini-games around the topic itself (e.g. if the topic is about tolerance and racism then have a lot of different characters in the specific game).

After the game starts, the user will arrive at an obstacle. At that point, the user can solve the problem by completing an activity.

If Quiz was selected as an activity, then the user must take a quiz on the topic selected. One quiz can involve multiple questions, and the user must have a right answer for every question, before moving to the next one. In all cases, a short description is provided to help the user to answer the question and to provide some additional knowledge on the topic.

When all questions in the quiz are answered correctly, the user returns automatically to the game, where the character will solve the in-game challenge as well, and the user completes the task.
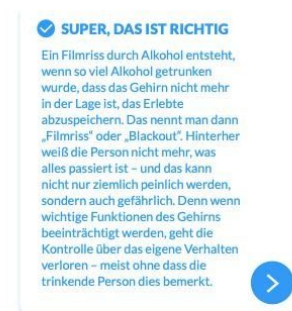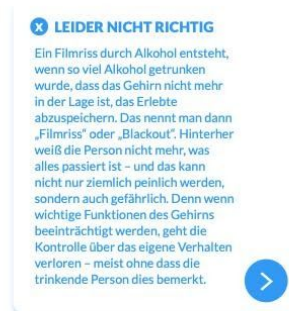
After this, the user can select another activity from the same topic or select another topic from the themes list.

The below screens show our ideas for the above described games.