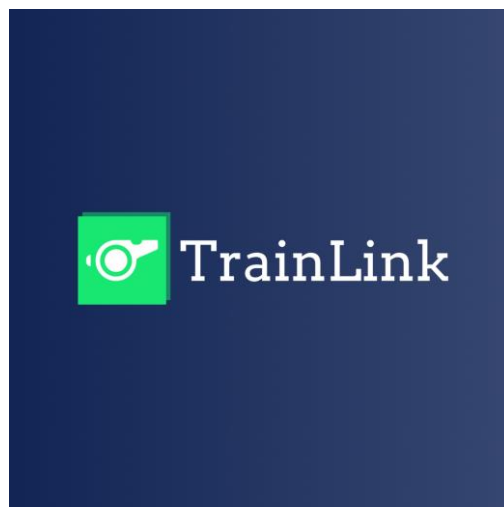


**Human-Computer Interaction**  
**2023/2024**

# **TrainLink**

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## Stage 6: Evaluation results



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## After the Evaluation

The **TrainLink** project was assessed by group 12 as heuristic evaluators to provide feedback over the application's usability. With it came the possibility to construct a list of the identified problems, which would now be used to propose more sound solutions and justify the team's design decisions. To avoid the mess of information that a general list may generate, it was decided to split said list into categorized tables, targeted at describing the observed issues with the same level of severity, according to the referred heuristic evaluation.

**Note:** The mentions of "Fields" in the following tables point to the app's field feature rather than a form's text fields. The latter will be referred to as "Text Boxes".

Severity Level 4 – Usability Catastrophe (Must be Revised)	
Nº	Problem
1	The "Edit Profile" interface may confuse the user to fill out all the presented text box options due to their hint labels.
2	It is not possible to delete or edit fields when creating a training.
3	It is not possible to delete or edit trainings.
4	It is not possible to delete or edit teams.

**Problem 1** is a very valid and justified observation, as the presence of hint labels rather than the user's current information in the text boxes comprises a confusing approach. This issue would be solved by displaying the user's information, as suggested, and could potentially lessen the impact of **problem 12**.

**Problems 2, 3 and 4** are also valid and their role in providing a better user experience is acknowledged. The only reason the corresponding functionalities were cut from the computational prototype is due to lack of time, which led the TrainLink team to shift focus to other parts of the system, with these being considered of higher priority. The same can be said about the identified **issue 14** a bit further ahead.

Severity Level 3 – Major Usability Problem (High Priority)	
Nº	Problem
5	Canceled training attendance is not visually represented.

The only major usability problem identified by the evaluator group relates to the lack of a visual representation for canceled attendances. The feature was initially planned to change the color of the respective training for the remainder of the week, but this was absent from the delivered computational prototype due to, once again, lack of time. This problem would be resolved by the addition of a red icon that symbolizes the training sessions which the player won't attend.

Severity Level 2 – Minor Usability Problem (Low Priority)	
Nº	Problem
6	The “Home” interface displays the same label for users that are not part of any teams, alluding to the possibility of creating one, which is exclusive to Coach users.
7	“Login” and “Sign Up” interfaces include text box warnings that may be hard to read due to the color contrast.
8	“Login” and “Sign Up” interfaces include a vague text box warning for weak passwords.
9	It is possible to schedule training sessions before creating any teams or trainings.
10	Player users cannot see (in the app) who the team’s coach is.
11	The “Schedule Training” interface could benefit from saving input locations so that these can be suggested for future use rather than having to type them repetitively.
12	The “Edit Profile” interface should display which parameters are unchanged when attempting to edit the user’s profile.
13	The “Edit Profile” interface does not correctly warn the user that the phone number must have a 9-digit format when attempting to edit the user’s profile.
14	There is no way for users to leave a team.

**Problem 6** and **9** are cases of little details that go under the radar when adapting code but can be easily fixed with a validation function.

The **7<sup>th</sup> problem** was already expected, as the team did not figure out how to change the corresponding warning color. **Problem 8** is somewhat related to this but relates to the interpretation of the warning itself. The reason the password warning sounds vague is because the team wanted to simulate the notion of weak and strong passwords without restricting the user excessively in the context of a functional prototype. In retrospect, it should have been explained that a single-character password is considered “weak”.

**Problem 10** highlights an oversight on the TrainLink team’s part in not including the identification of a team’s coach during development. This information could be added to the “Team Menu” interface.

The team appreciates **observation 11**. The suggestion to use entered locations as options for future schedules could be considered to further improve the app’s usability. Admittedly, the TrainLink team did not think of this approach before because the implemented schedule feature was meant as a day-to-day routine, implying that coaches would not need to perform the action so frequently.

The **12<sup>th</sup>** and **13<sup>th</sup> problems** (and even **15**) are closely related in the context of error reporting and point out the lack of clarity in some of the app’s warnings. The best approach to solving these issues would be to adapt the warning texts to the different text boxes in the forms, including validators such as those present in the “Login” screen to assess more specific mistakes. Initially, these warnings were left the way they currently are because there was concern about including too much information (what is wrong and how to rectify it) in a warning that is only very briefly on screen. Above all else, the experienced lack of time led the team’s members to implement code in different ways, despite any attempts to standardize development.

Severity Level 1 – Cosmetic Problem Only	
Nº	Problem
15	The “Schedule Training” interface should display an error message indicating which parameters are missing when attempting to schedule a training session.
16	When cancelling training attendance, the error message is incorrectly displayed as a green bar.
17	There is no option to undo an action in the “Field Preparation” interface.
18	Cancelling attendance results in the display of a message that may cause Player users to believe they cancelled the corresponding training instead.
19	The interactive “Field Preparation” interface could benefit from having a zoom feature.

Similarly to numbers 6 and 9, **problems 16 and 18** represent little errors that can be fixed by changing a parameter in the code.

The identified **problem 17** is a clear example of functionalities hindered by rushed development. The team’s intention was to provide users with the ability to reselect and drag icons out of the field to undo an action. Additionally, fields were intended to include a drawing feature for sketches, enhancing the feature, but the team was stuck trying to solve inconvenient exceptions and could not deliver on these two key ideas.

Like number 11, the **19<sup>th</sup> problem** is much more of a suggestion rather than a usability issue. Despite the team not seeing as much value in this suggestion however, it is still a valuable contender for improving the user experience in a future version of the TrainLink app.

## What was Fixed

For the final phase of the project, a decision was made to fix an assortment of problems identified by the TrainLink group. These fixes are the following:

- Training end times on the calendar were always 1 hour after the start, but have been corrected to the right time, considering the duration of the respective training;
- The user's profile picture is now displayed on the "Edit Profile" screen;
- An error only allowed hardcoded "default" accounts to be logged into, so the application now accepts signing in with registered accounts as well.

The remaining changes are related to the aforementioned heuristic evaluation and focus on suggestions and issues that were considered feasible and more easily solvable, respectively. Some of these are connected to higher levels of severity, while others were labeled at lower levels but were considered of higher priority by the TrainLink team. Some problems were fixed, identified by their number and how they were resolved:

- (1) When entering the "Edit Profile" screen, the user's current information is displayed instead of empty fields;
- (5) Incomplete fields when creating a workout are indicated with a message below explaining what is wrong;
- (6) The label on Player users' home screen has been changed, removing the label that indicated the possibility of creating a team;
- (7) After discussion, red is still considered as the better color for warnings hence, to improve the readability of these messages, their font was enlarged, and a lighter tone of red was used to reduce reading efforts;
- (8) The feedback from a password that is not strong enough has been changed to the indication that it must contain at least 2 characters;
- (9) The button for scheduling trainings is only enabled (green button) if the coach is on a team and has created training sessions, otherwise the option is disabled (colored gray instead);
- (10) The team menu shows the name of the respective team's coach;
- (12) By placing the user's current data in the text box placeholders on the "Edit Profile" screen, the user can see what their current information is;
- (13) An error message has been added to warn users about their given phone number not containing 9 digits in the "Edit Profile" screen;
- (15) The "Schedule Training" screen now includes form validators alike the "Login" and "Sign Up" interfaces;
- (16) When cancelling training attendance, the error message is now correctly displayed in a red bar;
- (17) An "undo" button was added to revert the last change made to the field;
- (18) The pop-up has been renamed to "canceled attendance";

Out of the 19 identified problems, 13 were resolved to a certain degree for a respectable 68% rate in rectifications. Some of the remaining problems were not achievable due to time constraints and also because a few of these involved completely new functionalities for the application.

## Conclusions

In conclusion, it is evident that there is a lot of potential in enhancing the usability of TrainLink. The team faced a few challenges understanding and putting the Flutter framework to fruition, given that only one of the team's members had prior experience with it.

Most of the evaluator group's criticism originated from incomplete functionalities, which was to be expected due to the larger scope of the TrainLink concept, the absence of a backend and the limited development time. The increased number of screens as well as two types of users needed to fully implement an interactable and functional prototype meant that the team could not dive as deep as the project required for its intended functionalities.

Lastly, the team would like to thank the colleagues from the evaluator group of stage 5 for their constructive criticism, providing different points of view that allowed further improvements for the project.