TALLINN UNIVERSITY OF TECHNOLOGY

IT Systems Development

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SPORTS-GAMES SCORE-PREDICTOR APP

Proposal

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Author's declaration

I hereby certify that I am the sole author of this thesis. This thesis has not been presented for examination anywhere else.

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Analysis

Having grown up in a family with sports interests, it has become a tradition to organize some sort of score prediction competition whenever any major international football event occurs. Lately this tradition has expanded to my friend group as well.

Until now these have been organized with a single google sheets file containing a table in which individuals write their score predictions in their reserved column. Someone would then enter the actual result of the games and the sheets file would automatically calculate points for everyone based on some scoring logic. Although this approach has always worked, I find that the experience of it could be improved.

In these competitions, it has been an unwritten rule to submit your predictions in before the game's kick-off. However, thus far there's been nothing stopping you of not doing so. While theoretically it would be possible to lock certain table cells based on some timer, it would require an additional backend script logic for every new game, while slowing down table loading time. This also nicely leads us to the next problem.

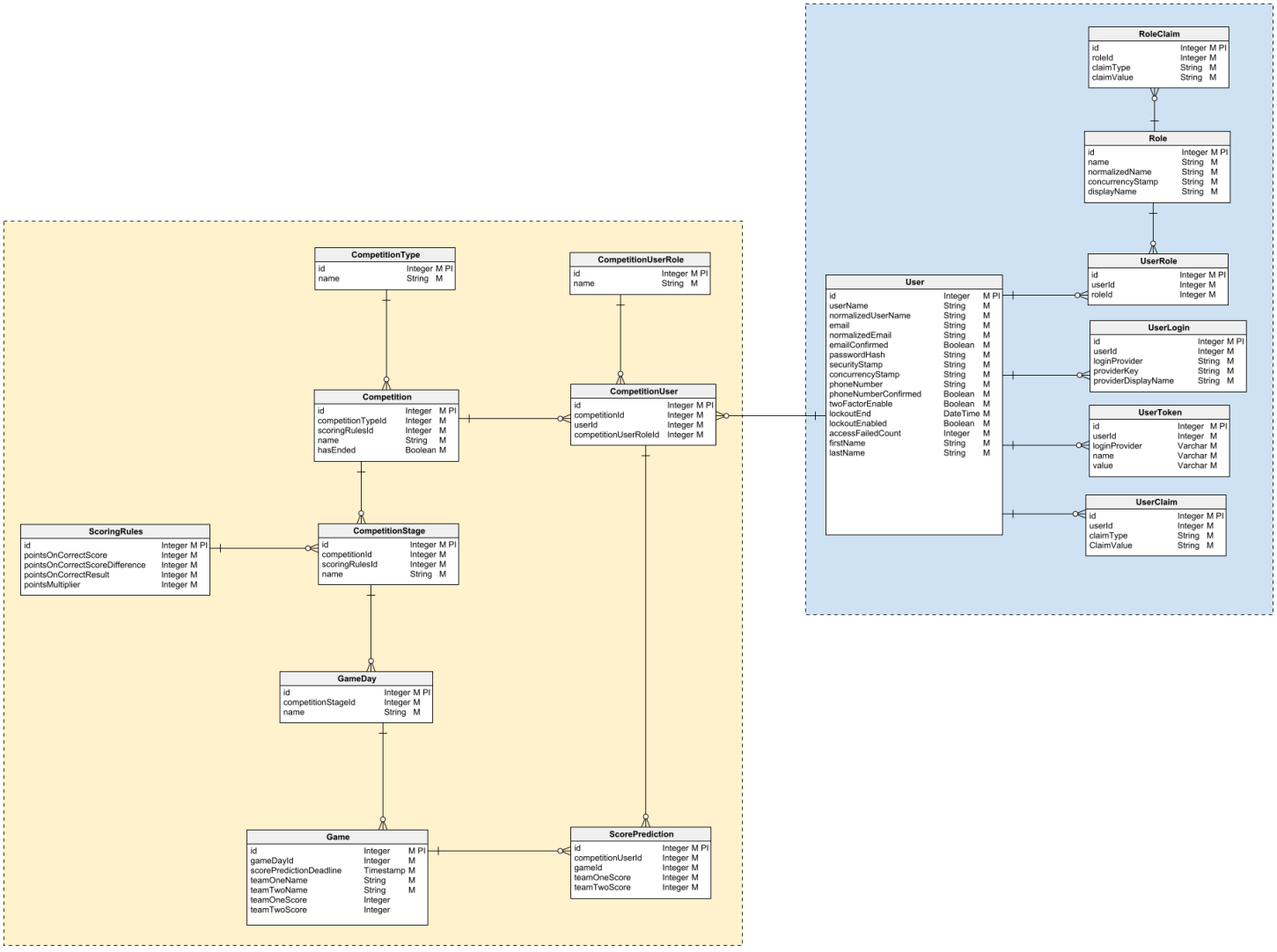
Every time a custom function is used in a spreadsheet, Google Sheets makes a separate call to the Apps Scripts server. So essentially if used in a straight forward manner, the table's point loading would get increasingly slower for every game or participant added. While this can be optimized by using only one script per user or even one script for all users, it has from my personal experience ended up being messy in the backend due to the restrictions of having the returned data be in a specific array format to display the points calculated in the desired rows and columns. Complexity would increase even further whenever participants would decide to alter the scoring rules in further stages of competition.

Having now used this way of predicting games many times, there have also been times where it would be nice to have a way of hiding what other participants have predicted. This has mainly been a problem in instances where two leaders would have a tight point gap with just one game remaining. The leader could then just copy the prediction of someone else to protect his/her lead.

So this leads us to what I'm trying to achieve. The goal is to make a website which avoids all those problems and thus helps running these competitions. Since scores can be predicted in more sports than just football, it would be applicable to any score based 1v1 sport. Or even any score-based discipline in general.

ERD

User tables provided by the framework have been visually separated from the rest.

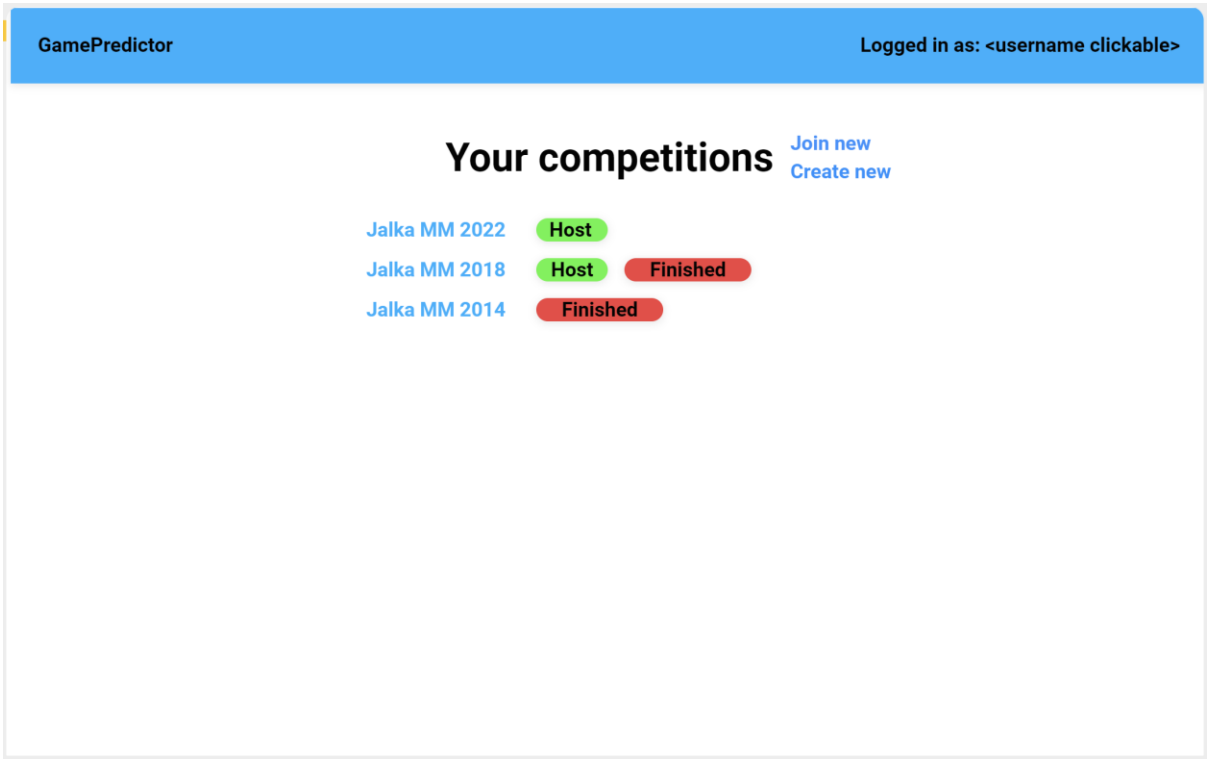


Vertabelo

Screen sketches

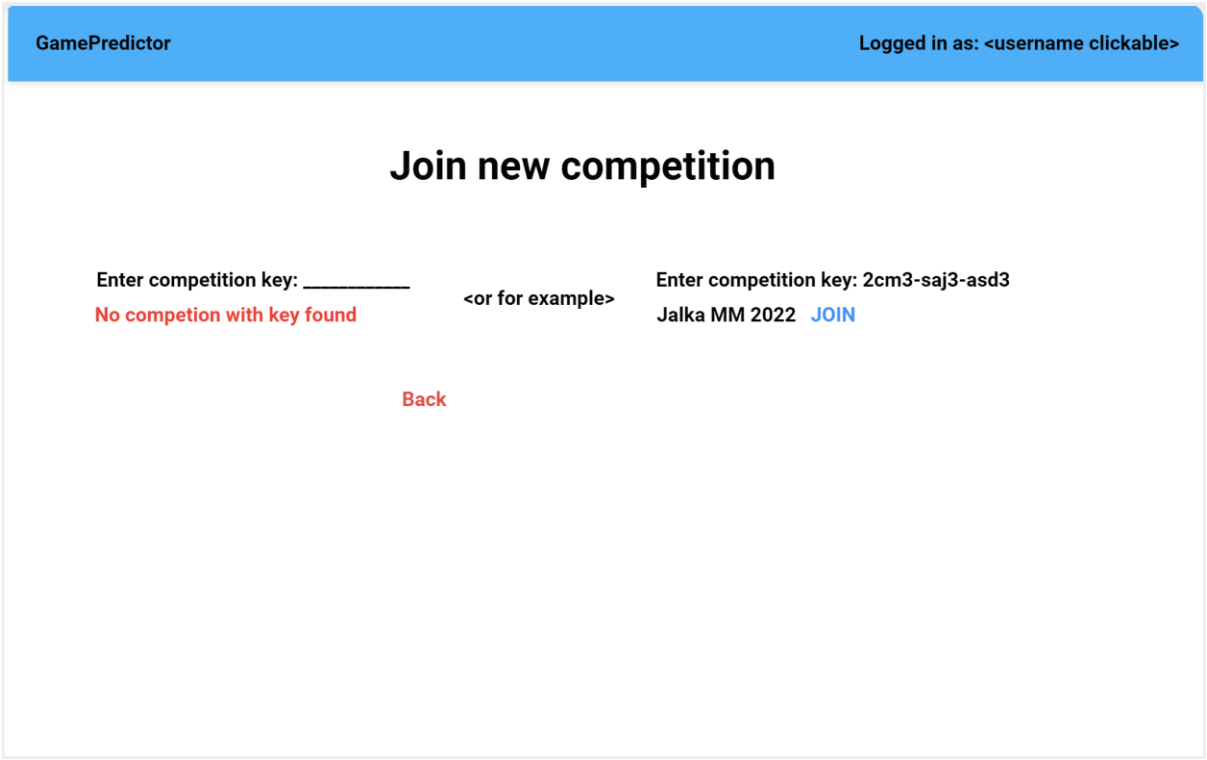
To help us visualize and for me to further explain the project I've provided some screen sketches of the most important bits. However, these are subject to change and may not fully represent the final product.

Provided that the user has logged in, I'm imagining the so-called user's home page to look something like this:



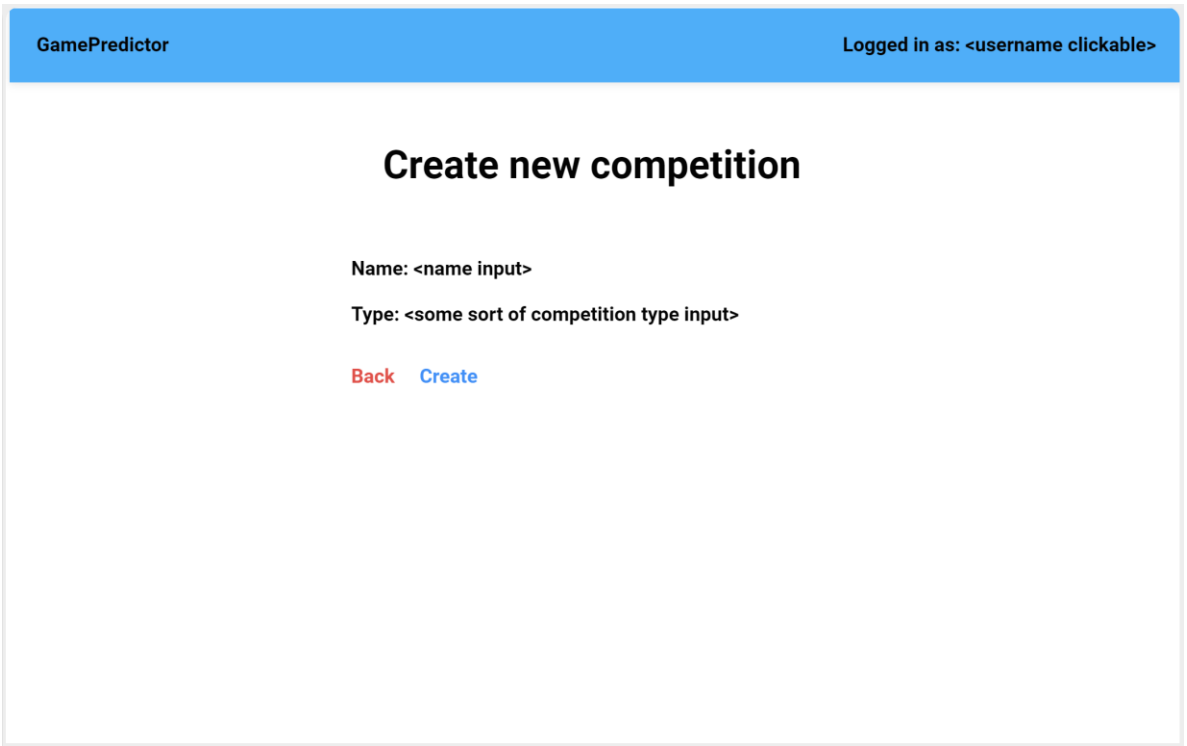
It would show user the list of competitions that he's involved in. It would also indicate whether he is the host of the competition or not. The "host" would be the one to have initially created the competition and whose task is to add games to the competition to have the others (including himself) start to predict them. It would also be his duty to end the competition when there's no more games left, after which competitions would be marked finished as can be seen in the sketch above.

Before continuing with the competition screen sketch, let us explore the "Join new" and "Create new" functionalities next. Upon clicking "Join new" the user would be presented a screen similar to this:



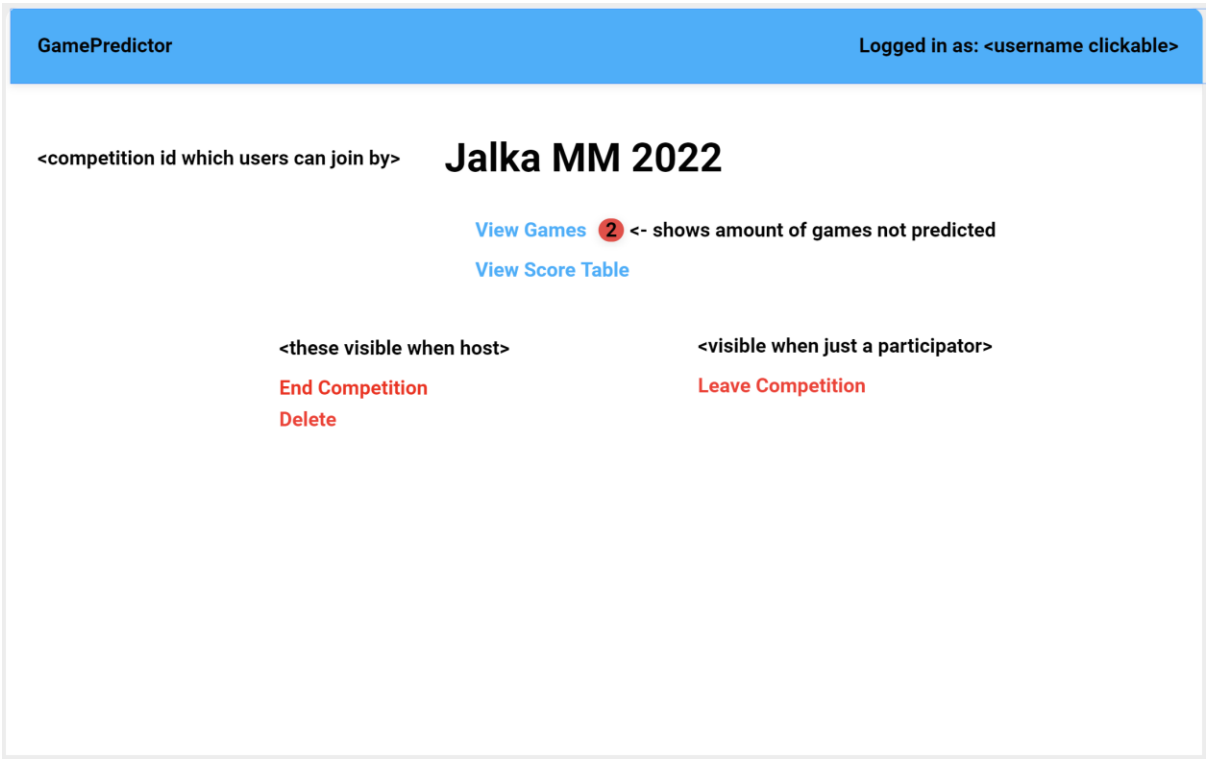
I have decided to illustrate the process of entering a competition key in a single screen sketch. The user would enter a so-called “competition key” (unique competition identifier which the host can spread to anyone he wants to invite), after which a found competition is shown with a button to join.

Alternatively, clicking “Create new” would bring up the following:



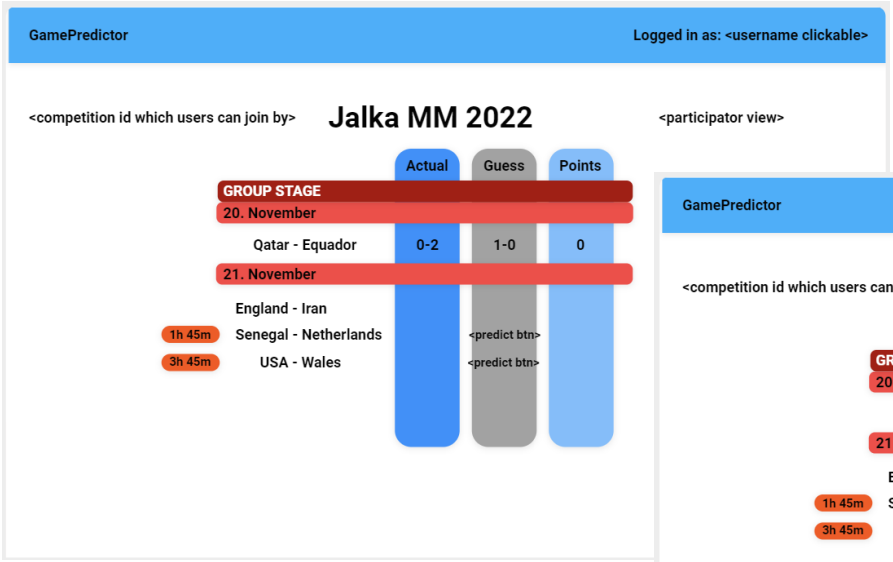
Along having to name the competition, the user would also have to specify the competition type (Football, Ice Hockey, Other etc).

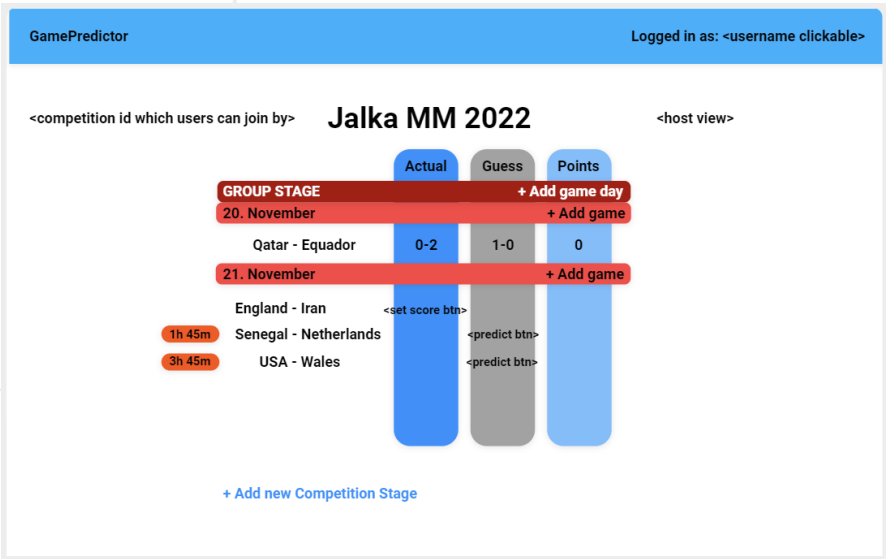
Clicking on any of the competitions in the “Your competitions” list would bring up something like this:



For hosts, it will provide options to either end competition or delete it. While ending the competition will simply mark the competition as finished (as shown previously), deleting simply removes the existence of it. For regular participators these options are replaced with the option to leave the competition.

This page further involves into 2 additional views “Games” and “Score Table”. When clicking “View Games”, a table similar to this is shown:





I have decided to show the views of a host and a participator separately to point out the extra features the host has in order to add stuff to the table.

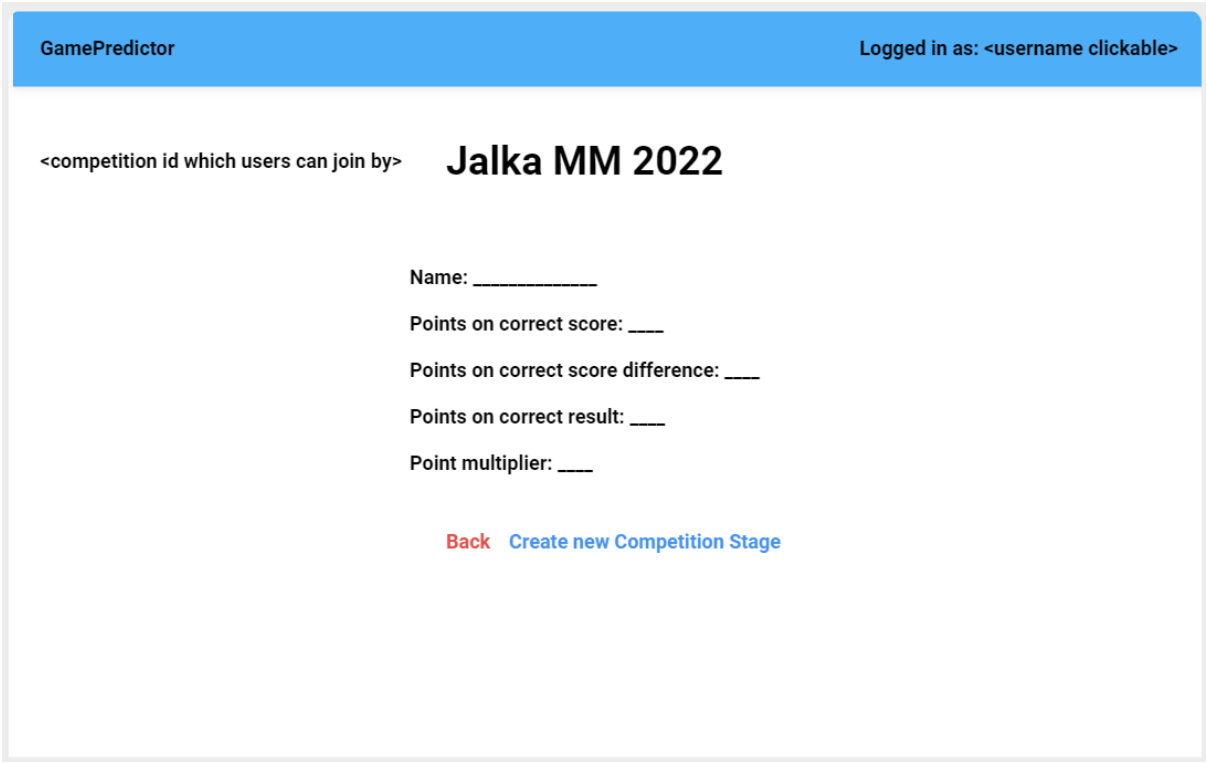
The table lists all the games and has columns for the result of the game, your prediction and the points that you got from your prediction. As can be seen in the sketches above, users can only predict the games which prediction timers have not been expired.

As stated above, the host has the power of adding stuff to the table. The "stuff" includes competition stages, game days, games and game results.

Dividing the competition into stages has two advantages. In addition to simply looking nicer, it provides a previously mentioned possibility of altering the scoring rules in different stages of competition.

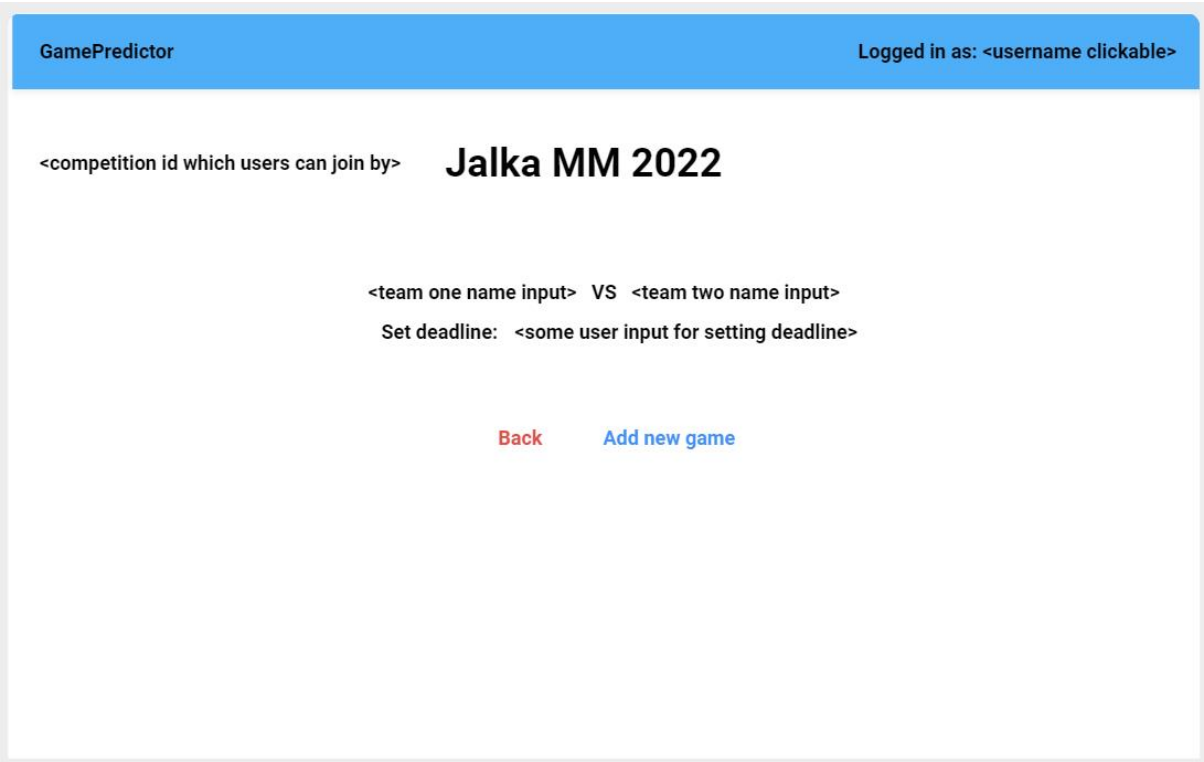
Each competition stage is divided into gamedays which the host must create manually. While automatically dividing the games into gamedays based on the prediction deadline could work, I have decided against it for two reasons. Firstly, it lets the host name the game days in however way he wants and secondly it ensures identical table views for all users no matter the time format they are using.

When clicking "+ Add new Competition Stage" as host, something along the lines is shown:



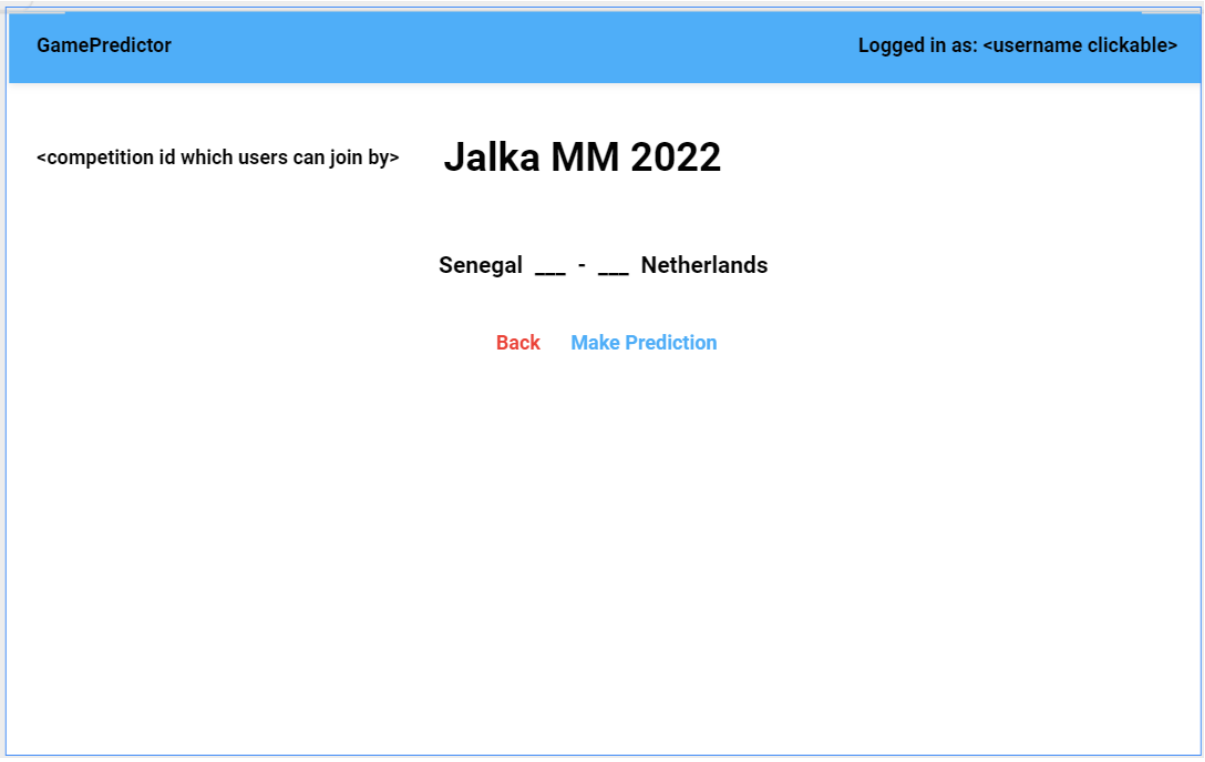
Along having to name the stage, the host is also required to fill some fields to define the scoring. The contents of the form is definitely not set in stone and may change whenever any new scoring ideas come to mind.

Clicking "+ Add game" would bring up the following:



A pretty straight forward form which requires the names of two teams and an input for the prediction deadline.

When predicting a game as either host or a participant, a simple form for submitting the prediction is shown:



Jumping back a bit to the competition home screen, when clicking on the “View Score Table”, a score table is shown:

The table would rank all the users in competition based on their points total.

Extras

Project's git repository: https://gitlab.cs.ttu.ee/oslaak/icd0021-22-23-s