**Hello Sir,**

Thank you for choosing TTGS for this solution. To be certain we understand what you need, we were hoping to clarify some details.

First, we’d like to understand the wider context around this web application. We find that it helps us considerably during the development process to know our client’s goals, and generally the wider context of the software. This way, we can make suggestions based on what YOU need, which has never failed us in delivering an outstanding solution!

* What will this application achieve?
* What made you decide that this app was what you need?
* Who will be using it, and why?
* Why implement centralised control?

So far, we understand that you’d like us to implement a centralised database, and certain game features based on the new database functionality. The purpose of this seems to be allowing user data and configuration settings to be stored and accessed centrally. What prompted this design decision, and what makes it so vital?

Below, we have included a list of business rules/assumptions about the application.

Please note that questions are highlighted for your convenience.

# General Questions

Do you have any software requirements that we need to consider?   
No, just want a website that anyone can access from anywhere, standard browser, no plugins, chrome, edge, Firefox, etc. don’t care what you have to do to build it.

Do you want us to use any specific development tools? Or may we choose our toolset  
As above. Industry standards. No obscure languages or toolsets.

Besides the user authentication/access details outlined in the brief, do you have any security standards that we will be required to adhere to?  
want hosting on a HTTPS, we want an encrypted protocols. Don’t know about database, but you may choose how to keep it safe. We want it safe.

Do you have a style guide or coding standards that we will need to adhere to, besides the database naming convention  
Customer: no. lecturer: yes. (will supply standards)

Please inform us of the browser you’d like this application to be optimised for (the primary browser your users will be using), and which browsers you’d like it to be compatible with (we will assume all major browsers)  
see above

What will the maximum volume of users accessing the application at any time be? (vital knowledge – we need to know this for database optimisation purposes)  
Cannot at this stage say. We do want you to make sure that the program is scalable (so code understandable etc.).

What devices will this application be used with? Do we need to design responsively, for mobile device compatibility? Please note that this will incur an extra fee and will require further negotiation.  
Yes, responsive web design for the game (already responsive, though). Admin interface, can be designed for iPad or larger.

#### Our overall understanding of the project so far…

App: a browser game, testing the player’s reflexes.  
Project goal: Implement a centralised database, and certain database-centric game features, such as custom game modes and access control for varying account types.  
Reason for project: to store and access user data and configuration settings.

Note: business rules and constraints are very similar. Consider business rules as “boundaries”. Consider Functional Requirements as the means to adhere to those boundaries – meaning, a functional requirement Might be worded the same as a business rule, but also, it may be implemented in a different way.

# Business rules

## Users

### Contexts

* There shall be 3 different “contexts” of user:
  + Player
  + Standard admin
  + Super admin
* Each context of user will have a totally different view/different access to the application.  
  actually, 2 different applications – game, and configuration

#### “Player” Context:

* Games may be accessed and played, viewed sorted by difficulty level.  
  This implies a selectable list of “game modes” (administrator-configured games) – is this what you have in mind?
* Players may optionally store game results in the database  
  For what purpose? Can we instead simply store the results automatically? You have not specified that the player can view their past results  
  player may or may not store the game results in the database, and this will influence the details shown in reports.

#### “Admin” Context:

* Games may be configured.  
  Can existing games be changed? Or can only new games be made? If so, what about games can be changed?  
  games may not be changed – only new ones may be created. They may be VIEWED – but not altered.  
  games may only be deleted when they have not been played. Ideally, we’d like to have an active-inactive flag in the database so that it is stored but not shown on the web interface.  
  Can existing games be deleted?

#### “Super Admin” Context:

* Games may be configured.  
  Same questions – but should the super users have different game configuration options?
* Admin reports may be generated  
  *see below*
* May create SA account and Admin account.
* Difficulty levels may be administered  
  Can difficulty levels be added, removed, or altered? Or will they be preset, and only assigned to a given game?   
  they can be added, they can be removed if not referenced by a record table (if referenced by a game has been played)  
  think about “they can only be removed if the game has not been played”  
  In what format should they be?   
  difficulty is a “tag” for each game – admin chooses the “tag” for the game. i.e., if they make a hard game, they can choose that “hard” tag.  
  How will difficulty levels influence the game?  
  They won’t – it’ll simply be a descriptor.

### Security/access/registration

* All users must authenticate before accessing ANY part of the application

User context will be filtered by account type, based on the credentials entered.  
yes

Would you prefer all user contexts to log on from the same location? Or a separate “admin” login page/location?  
Separate page altogether  
The admin pages are to be another subdirectory on the same level as the browser game directory  
  
  
there will be level of separation between game and admin pages

* User passwords shall be of a certain strength.   
  What are the inhouse rules for password strength?  
  12 characters min, no maximum, at least 2 uppercase, 2 lowercase, 2 numbers 0-9, 2 other characters (special characters).  
  can we have a 255 max? yeah, sure!  
  Does this apply to admin users, too?  
  password strength apply to both players and admins. Also first, last, and username.

You specify that players may register an account, but don’t mention admin contexts. Are admins pre-registered? Or will they be allowed to register accounts, too?   
at least one Super admin account pre-registered when application is delivered.  
Super admin can be deleted by another super admin.

If admins MAY register an account, do you require the application to be secured to prevent *any* old person from creating an account with Admin access? New Admin accounts must be registered by an already-registered Super Admin.  
see above

* Upon registration, a Player’s first and last names must be provided  
  Presumably, this applies to all account types?   
  yes  
  Do you have length requirements/constraints for names? (basically, how long will the longest name be?)  
  no, unless you feel there ought to be. (so I’ll come up with them)
* From any Admin context, the game may be launched in a new browser window.  
  yes – but we’ll be bought to the game login page  
  Does this mean that games are accessible through Admin context?  
  Users may not play the game in Admin context. They must play in Player context (meaning, log in with a Player account). This would have the benefit of setting crystal-clear roles, where the Admin context is solely for the purpose of administering the application and Player context is for playing it.
* From a Super Admin context, admin records may be administered.  
  Could you please specify “administer”? Can the admin records be modified, or only viewed? Does “Admin records” refer to Admin User accounts?  
  see above

## Admin Reports

* All reports to launch in a new tab/modal pop-up.  
  yes
* Only accessible from admin contexts.  
  everyone can see hall of fame report (data viewable will be the same). But the other report is viewable only by admins.

#### Hall of Fame report

* A report to view the best games by difficulty level, ranked by time.
* May be altered (by any context with view access) in the following ways:
  + The number of records displayed may be increased or decreased, defaulting to 10. When changed, a new default is set.

Will this be the new default for ONLY that admin account? Or for the entire application (all other accounts)?  
see above

* + Ranking order may be altered – either the slowest or fastest times.  
    yes.
* Earlier, you mentioned that “Players may optionally store game results in the database”. Will the results displayed in the HOF report ONLY be results that players have chosen to store? If a player chooses not to store their results, will it be excluded from the report? Or, are *player-recorded records* and *admin report records* to be kept separate?  
  see above

#### Game Popularity report

* A report ranking games, by the number of times played, bounded by specific dates. Displays the name, difficulty, and times played *within the corresponding period.  
  correct*
* Sort order may be switched between ascending and descending, but descending is default  
  yes
* Selection fields for the bounding dates are to be displayed on the interface, defaulting to the previous month’s start and end dates.  
  yes  
  Will the report be reset if the game is changed/modified by a Super Admin? Or, will the game record be stored and marked as Archived for historical purposes? (please note that this may incur a complexity fee)  
  see above

We have devised a player scenario, based on our current understanding of the requirements.

*User scenario*

*Player, with a newly registered account.*

*I enter the website URL and am bought to a login page. I enter my username and password, then click “log in”. I’m bought to a “main menu” page – I click “new game”. From a drop-down list, I select the “Easy” difficulty level. From the list of “Easy” games that appears on the screen, I click a game. I’m loaded into the game and begin playing. I win the game! My time and other game statistics are displayed. I’m asked if I’d like to play again, save the record, or return to the main menu.*

Does this line up with how you imagine the player experience to be?

yes, it does!

Players should have the option to create an account on the login page

Thank you for your patience – this is always the most tedious part of any project! Rest be assured – when my team makes a major design decision, we’ll update you to ensure that we’re on the same page.

As agreed, the quote will be provided as soon as these details are clarified and the quotation fee has been processed. After that, we will begin drafting an agreement.

Please don’t hesitate to reach out should any of these questions require clarification, or in the case of any issues.

Kind Regards,

Angus Blake  
TTGS Project Lead

Include accommodation for expansion - new types of admin accounts and user accounts

User and Admin accounts must be in separate tables – however, inheritance may be observed.

Create admin

Promote and demote admins/super users

Super admin can deactivate (and reactivate) admin accounts

Super users create, and delete difficulty levels and games (only delete new/unused)

NOTE:  
Select all difficulty levels for which there is an active game. Display these difficulties on the GUI.

Should asc/desc sorting be done in javascript or sql?  
Does not matter – but more efficient to sort it, less trips. Also data may go stale if kept in JavaScript.

Players must have unique usernames

No artificial limitations on data storage

Recorded data for times should be within the millisecond

2 games may be the same (not unique) however the name must be unique. Name may be quite long, 255 is sufficient.

Username should be of a reasonable length

No leading or trailing spaces. In any fields.

Timer may not go beyond an hour.

No upper limit for throws, misses, balloons, etc.

Scrollbar on the report, not pages.

View reports in the browser, not downloadable.

Users may not delete accounts

Description may be changed for difficulty level

Difficulty level description must be unique