Cloud Computing InfoTrivia Documentation

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1 Overview

InfoTrivia (name subject to change) is a project inspired by the shape most interview questions come in: namely, exactly that of a trivia question. As such, we aim to develop a platform that holds a large collection of high-end multiple-choice questions which can be used to students and graduates to train themselves for that type of interview question, and perhaps even as a fun side activity to help learn various niche cases of languages or technologies.

In an initial stage, we aim at a narrow target group (i.e. only university-wide), and plan to use the advantages of going small-scale to cover for marketing issues, as well as assuring non-overlap with bigger competitors.

2 Existing Solutions

2.1 Kahoot!

Perhaps the most famous giant in the field that we tackle is Kahoot!, which is the most well-known educational-trivia platform, at over 1.5 billion users (in accordance to Kahoot! own "About us" statement)[1]. Its first iterations used a resident Apache server together with Java, while its current version is hosted by Fastly. We do not know what motivated this choice, however, we found that google cloud's CDN service is much faster [3], and this will be our main reason for sticking with choosing gcloud.

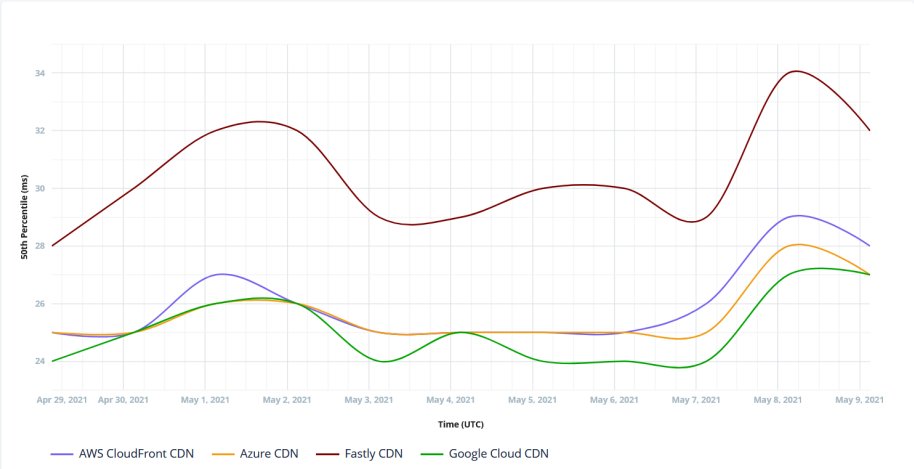

Figure 1: CDN Comparison by CDNPerf[3]

Another key point of Kahoot! which we plan to exploit is in its marketing: it is primarily aimed at lower education, with higher education being only an afterthought that is rarely approached at all. Further, within the niche of computer science and higher education, there are only a handful of resources[2], and those in turn are aimed at learning to code from zero, rather than deepening an already-established understanding. Hence, our target group of graduates looking to enter the workforce does not overlap with Kahoot!'s target group, making this giant a non-competitor.

2.2 ConQUIZtador and Triviador

On a national scale, the best known such software is ConQUIZtador and later Triviador, which are a heavily modified kind of a trivia game taking elements from games such as Risk. Both of these are games rather than learning platforms, and their trivia questions are as such aimed at a broad audience: geography, history, and other such "common" knowledge. Needless to say, our highly-specialized, niche questions do not overlap in any regards, nor do we aim to market primarily as a game, but as a learning platform. Further, with the software being old and weakly secured, it is not worth researching the technology behind it[4].

2.3 Other question-making platforms

A much broader point of view looks at all sort of other trivia software such as TriviaMaker, Quizalize and Quizizz. What all of them have in common (and, to a lesser extent, with Kahoot! as well) is that quizzes are being made by public users, for other public users. This is not how we plan to handle things, but instead we will leverage the small scope of the project: a low user base allows for liberty in hand-checking the sources allowed to create quizzes, and thus limit it to relevant university or recruitement personnel. Controlling the quality of content in this way will help distance ourselves from being "just another question platform"

3 Technology Overview

3.1 Python

Python is our language of choice for the application, due to all the well-known benefits of python: speed of use, clarity of code, and wide assortment of features. The speed and clarity are our main motivator against other common technologies such as Node.js or .net.

3.2 Github

Our choice of source-control is github, due to ease of use, familiarity with the technology, and reliability.

3.3 gCloud

As mentioned before, gCloud is simply the fastest of the well-known hosting platforms 1, as well as user-friendly and versatile despite using a free trial. Even upon expanding (and using a paid subscription), relying on Google's support team for issue handling is a good idea, and the CDN speed is a fact that will remain true for the foreseeable future.

3.3.1 Google Firestore

Our database solution, provided by google. We choose to use Firestore as opposed to Datastore (or rather, firestore in datastore mode) because the advantages of Datastore involve a greater number of concurrent requests[5], and our project scope is rather small and thus unlikely to be able to leverage this advantage. Firestore, on the other hand, provides easier to manage, more robust requests, at the price of being more limited in scope.

3.3.2 Google Cloud Functions

Google functions is used to assure asynchronous operation for certain actions, particularly database updates, which may take a while to be executed and we prefer to not hold the user until such an update is completed. Instead, we use functions to handle it, allowing the user to freely use the platform for anything else while the function completes the task in the background.

3.3.3 Google Firebase Authentication

We choose to use Firebase over building a resident login function thanks to Firebase allowing a broader range of login options, such as using google and facebook accounts instead of requiring a new account to be made just for our website. Being a small business, we feel that demanding a new account for our platform could hurt the number of potential users, so this advantage is extremely valuable.

References

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