



QuizBattle

PROJECT PROPOSAL

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Introduction

We plan an app where it's possible to quiz against friends or any random people by answering questions or by guessing the answers, because mostly the answer isn't known correctly. That's an effective way to learn new things and being entertained. It could be used in school, after or during presentations, to learn things with classmates and compete with each other, because it's great fun.

Every instructor or teacher could use it to make a short learning quiz for students. The users can also just have fun playing their most favorite quizzes and beat their friends on the current most popular topics. The project will also bring some interesting informations to the users and improves the user's general knowledge. Additionally everyone can share their ideas and quiz questions to all the people using the app around the world.

Initial Situation

There are a lot of other quiz apps which have some very good features and implementations. Two of the most popular quiz-apps are Quizduell and QuizUp, which are available for Android and Iphone.

In Quizduell you are able to play online quizzes, but only against one person and it is not real-time but turn-based. Others than Quizduell, our app will have a real-time multiplayer and the users are going to be able to play against more than one player. There is free and premium version of Quizduell. In the free version you are only able to play and in the premium version you also can create questions, access your personal statistics and much more.

The QuizUp is for free and it also has a real-time multiplayer. Like mostly every quiz-game in the app-store, QuizUp only supports 1vs1 sessions. The questions are categorized and you are able to create own questions or categories, but only over the webapp of QuizUp and not over the mobile phone.

Another quiz-app, which got very popular over the last time, is Kahoot. It offers a real-time multiplayer and it's playable on Android, Iphone and even on the Webapp, but it's only for private sessions and doesn't offer many other functions.

Also there is no app which features guessing questions. In most of the quiz-apps there are only questions, where you have the choice between four different answers. Our app brings the new guessing playmode to the traditional quiz playmode.

General Conditions and Constraints

The very basic idea is the development of an app where it's possible to answer questions. This idea got expanded to estimation/guessing questions like "How many people had at least three mobile phones in their lifetime?" or "What percentage of people uses public transport to get to work or school?" The user will be able to give his answer and tries to get as close as possible to the correct answer or to guess the correct answer of given options. But that's not what we've stuck on. So we decided that this must be multiplayer capable. Competing and beating others in multiplayer battles makes just more fun, than just guessing an answer and see if it's correct or not. At this juncture we thought that a score system would be great, which means that the faster you give the answer and the closer you get the more score-points you earn for answering the question. Fortunately the "loser" of the round has not completely lost the battle, because there are several rounds where the players can gain some score-points. The more points in the end of the round the player has the higher is his rank on the game-leaderboard. But the one who scores a lot of points might come to a question where he is far away from the correct answer and scores hardly any score points. All that is a very essential constraint and has to be realized.

The game must have a live and real-time concept, which means that there's a matchmaking queue where people are searched and when found the session starts or you invite friends (from Facebook or Google account) and have your own private session. When the session starts and everyone is ready a question shows up and all players can answer it in real-time. Then the score points will be given to the players and the next round starts. In addition there's also a timer for every question/round.

As login-service we have to use Google. That's required, because of the Google Play Services API to ensure the real time multiplayer. Additionally the user can use his Facebook account inside the app to share the game, game results and invite friends from Facebook.

Every user should be able to add his own questions to the community. By the community we mean the network of the people using the app. A question can also be voted. If a user thinks that the question he just read is great he or she can up-vote it or just down-vote. In order to avoid inappropriate questions there's a report button planned to report questions as spam or harming. All the questions are shown and ordered by the votes. Questions with too many down-votes and hardly any up-votes might be removed or just not shown, because they are not very popular and disliked.

This brings us to the next feature: Categories! When the user wants to start the game he can select question pools (categories). That means that the player will be able to only get questions of the category he chose. It might be even possible to create your own category and invite friends to play with you. By creating questions or categories there's the possibility that the question and categories are private. That means that only you can see them, but they can be saved on the server though so that you have them with you on every device when connected to the server.

The whole system has to include at least two clients: One for mobile devices and one for standard PCs. The mobile client is thought to be of easy access for players and the PC is meant to provide a convenient platform for managing question and also playing the quiz.

To cover at least 98% of all mobile devices a cross platform app for Android and iOS has to be implemented.

In order to keep the implementation effort for two different mobile platforms low a cross platform development system like Xamarin and Visual Studio have to be used

Due to the fact that Microsoft bought Xamarin, Windows users can now develop applications using Visual Studio with the Xamarin features. This means that project members using OSX will use Xamarin Studio and the Windows users will use Visual Studio with Xamarin features to develop our app.

Additionally, some IDE's are required for the server things. A still under discussion topic, which is not yet decided is on which technology our server will be based on and if we are going to use C# or Java for the server. For some smaller things, which maybe don't even have to be compiled (scripts) we are using notepad++. In case we are using C# we definitely use Visual Studio and Xamarin and when using Java, Eclipse will be used for the server specified technologies. The reason why we choosed Eclipse is, because we currently developing the wildfly server in Eclipse so we have more experience and know how. The database will be developed using the Entity Framework.

For designs and images we are going to use GIMP or Photoshop.

To simplify the development of the app we decided to use some 3rd party technologies, which can save a lot of time, energy and work for us.

A very useful Interface is the Real-time multiplayer API provided by Google Services. It helps us settings up multiplayer session in real-time with any player from anywhere in the world. Therefore we need the google play console, but for the registration we need to pay 25\$.

Project Objectives and System Concepts

We planned to have different structures for the quiz questions. As questions there can be a simple text or a picture with a text. The answers will be either to guess a value or to use an answer from given options. Only numbers are valid for the guessing questions.

An interesting feature we planned to add is a daily question on the dashboard of the app and web client. The user can pick a short answer and the next day there is another question and the community result of the yesterday's question will be shown. That makes it possible to see how many percent of the community would pick a specific answer. For instance: "Are you using public transports to get to school/work?" Then everyone can pick an answer and the next day the result can be showed.

If someone in the session gets disconnected, we are currently not sure how to handle it. One way would be to throw this player completely out of the session or to let the other players

decide, if they want to wait for these players or if the player should be thrown out of this session.

Our total objective is to make a great app running on Android as like as on IOS and in addition a website which handles all the things that are hard or uncomfortable to be used on the mobile phone as good as possible. All long “texts” and questions and categories must be easy to be handled for the user on the computer using our website for the app. The focus is on laying the game on the phone while all the administrative things can be done on the website with the best user-friendly result. But you can use every feature on every platform, but each platform specifies on certain features.

Our team has already moderate android development experience and a well java know-how. Also the app design and user interface experience is present and quiet good. All the technologies we will use during the development are not too complex and we are going to make a lot of implementations ourselves. Some deficits are, that we didn’t learn a lot of server technologies and online databases so far, but this will be resolved in the present school year.

Also a profile can be created where there are achievements to reach a profile picture and some public information.

A leaderboard and statistics should be at the end of every game session you played and a global leaderboard + global statistics.

To have some additional social content we thought about emojis you can send while the next round during a game session is loaded or when you finished guessing and the others didn’t finish yet.

Different platforms

We decided to make a cross platform app, because it brings the big advantage that we can make some small differences between the Android and iOS designs of the app and also optimizations and still using mostly the same code for both platforms. A web app has the feature that no additional web client for PC users is needed. However, there is not the possibility to really change the designs on the different platforms and everything is quiet the same. But on a computer it’s really more comfortable to create your own categories and questions than typing on your mobile phone. So a web application for the PC users will be developed.

Our development tools are Visual Studio and Xamarin for the cross platform app. For the web app asp.net, which is also featured in the IDEs named before. Also Github and Source tree to keep our work together.

Opportunities and Risks

The project has the following Opportunities:

It is a new great teaching method where the students can learn by playing against each other. it's also possible to quiz against friends or any random people by answering questions.

It should be a great real-time multiplayer quiz game for more than just 2 players.

The app should be cross platform capable for Android, iOS and at least also for web.

Getting into the newest topics of the community and challenge yourself and other players in the most favorite topics.

The player can play against his friends from facebook and google.

The following Risks have to be taking into account:

Our app heavily depends on the internet connection of the user.

Our app also depends on the Google Play Services because of the Real-time multiplayer API by Google.

If there are not enough people online, the multiplayer won't work because our app doesn't support single player mod.

The cross platform version of our app using Xamarin might bring worse performance or some technical issues.

Planning

The project will start on the 4th of October, 2016 and it will end in half a year. We estimate that the first complete prototype will be available on November of 2017. As we also have to write the system specifications, so we aren't able to start the implementation earlier than January.

Major milestones

- 19.11.16 Finishing the project proposal
- 13.12.16 Finishing the system specification
- 10.01.17 Start of Implementation
- 20.02.17 First prototype of user interface
- 23.05.17 First prototype of multiplayer game play
- 27.06.17 Finishing the design of the GUI
- 23.05.17 Start of Testing
- 30.05.17 Start of bug fixing
- 26.09.17 Creating the web app

Team roles

- Reischl Andreas: Project lead/Programmer/Tester
- Diljkan Marko: Programmer/Tester
- Many Egon: Designer/Programmer/Tester