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University of Dundee Industrial Project 2020

Project Brief

- Create a quizzing application
    - For myself
    - For others in person
    - For friends virtually
        - Voice? Video?
    - For strangers?
- No accounts/logins
    - Too much hassle with data privacy and sufficient security
- Need a large and diverse set of questions so it's not boring
- Powerups, hints, or lifelines when users are stuck
- Scoring, leaderboards, trophies, achievements
- Available on Web, Android, iOS and Windows
- You may want to theme it on a franchise like The Chase, Jeopardy, Pointless or keep it plain

Guidance

Be realistic with your client

1. Software development and product delivery is a balance of priorities.
2. The project brief which has been given to you, as a full list, is unattainable in three weeks – do not attempt to tick every item.
3. Communicate with the client what you think should be the priorities on the deliverables should be; particularly if things go wrong.
4. Be able to reasonably explain why you're prioritising certain items over others.
5. The items you are able to complete during the project may be affected by the abilities and knowledge of your and that's a perfectly valid reason.

Play to your strength as a team

- 10 people is a lot to be commiting to one codebase, use the extra people in your team to specialise in particular areas for the project.
- See the presentation of ideas of how to organise yourself but know that you are not limited to what I've suggested

- Specialisations may include:
    - Splits between frontend and backend work
    - Splits along the targeted platform (Android, Windows, Web, …)
    - A dedicated scrum master who manages the scrum activities and tracks the velocity of the team
    - UX researching, analysis, and design (visual, interaction, etc)
    - Data analysis and question researcher
    - Quality assurance & software testing
    - Devops & infrastructure management

Follow good engineering practises

Mandatory

- Use source control
    - Probably Git + Github, but others exist
    - Make sure you know how to use it properly
    - Tip: commit little and often
    - https://gitexplorer.com/
    - https://education.github.com/git-cheat-sheet-education.pdf
- Feature branching
    - Once the initial application/framework is setup, no committing to the main/master branch
    - Setup a branch policy to prevent this

Preferred

- Unit testing
    - Adequately cover your discrete functions with unit tests
    - Following test driven development (where possible) *may* reduce defects
- Code reviews
    - A chance to be vulnerable and allow others to critique your code
    - Most organisations perform code reviewing, and for many it's mandatory
    - Learn about areas of the application you're not specifically working on
    - Reading code is just as important skill as writing it
    - https://google.github.io/eng-practices/review/reviewer/
    - Built into GitHub pull requests

Optional

- Continuous integration & deployment
    - Build, test, and verify your software automatically
    - Deploy it to the server
    - https://martinfowler.com/articles/continuousIntegration.html
    - https://www.martinfowler.com/bliki/ContinuousDelivery.html

Bottlenecks

Frameworks

Backend

- https://dotnet.microsoft.com/apps/aspnet
- https://laravel.com/
- http://www.slimframework.com/
- https://flask.palletsprojects.com/en/1.1.x/
- https://spring.io/
- https://rubyonrails.org/
- https://expressjs.com/

Frontend

- https://reactjs.org/
- http://angular.io/
- https://vuejs.org/

Cross platform

- https://flutter.dev/
- https://reactnative.dev/
- https://dotnet.microsoft.com/apps/xamarin

Data Loading & Servers

- Control your own infrastructure
    - Amazon Web Services*
    - Microsoft Azure*
    - Google Cloud Platform
    - DigitalOcean*
    - Linode
    - Heroku*

*Available of the GitHub education pack

- Find quick ways of loading data into databases

Datasets

- https://opentdb.com/
- https://data.world/sya/200000-jeopardy-questions
- http://nlp.cs.washington.edu/triviaqa/
- https://github.com/uberspot/OpenTriviaQA