Team 18 Project Charter
WhiteBoard

Team Members:
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Problem Statement:
Code isn't always restricted to a computer screen, with an easy compiler and editor; so why are professional development tools limited to that space? Imagine if, during a job interview, the interviewer could easily snap a picture of a prospective hire's code and see if it compiles, and works correctly. Or you, receiving a code screenshot from a friend or coworker, asking for help debugging it, could compile the code without the hassle of typing it out? We propose a solution to fill this gap, in the form of a cross-platform mobile app that uses OCR. It will act as a basic "IDE" for handwritten or typeform code, either compiling the code and showing its output or identifying errors where they are present in the code image. While services for both OCR and code compilation exist and are widely used, none of them integrate the two together; further, the handwritten OCR resources lack support for the full ASCII set, which many programming languages need.

Project Objective:
- Build a cross-platform mobile app that can take or upload a photo of code written on paper, or in typeform
- Convert a photo of code into a textual format using OCR (character segmentation followed by HCR).
- Compile the code in real-time and send the stack trace back to the user
- Develop a library that saves user's recently submitted code and their output

Stakeholders:
- Users: People who want to compile their written or typeform code
- Developers: Chunao Liu, Anurag Shah, Zhang Jenna, Yierpan Abuduwaili, Michelle He, Yang Jingyuan
- Project Manager: Jean Preston Watts
- Project Owner: Chunao Liu, Anurag Shah, Zhang Jenna, Yierpan Abuduwaili, Michelle He, Yang Jingyuan

Deliverables:
- A React Native based front-end cross-platform mobile app that allows
    - Users to take or upload photos of their code, either in typeform (a screenshot or printed page), or handwriting.
    - Users to then see the compiled result of their code. In case it fails to compile, the app will display the compilation errors and underline the specific lines where errors were encountered with a red line in the output image shown. This way, it will act as an "IDE" for handwritten code.

- A neural network model for OCR that converts image of code into a textual representation, and returns this to the backend for the compiler to process it.
- An SQL based back-end database that allows users to access their previously uploaded code and images, and their corresponding terminal output or stack trace.