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Project Proposal: Concurrency in iOS Development

For this project, I (as a 1-person team) will be creating a proof of concept regarding concurrency in iOS. This not only allows me to research how iOS handles concurrency in a more in-depth fashion, but it also allows me to present the information in a very hands-on and practical way. I plan to focus on two large questions during my presentation: “why do you need to think about concurrency when developing software?” and “what impact does concurrency have on the end user?”. And, even though the presentation will be focused around iOS, the general concepts will apply to application development on any platform.

For the actual deliverable of the project, I plan on creating an iOS application which covers a multitude of examples regarding concurrency. For each of these examples, I will relate back to the main two questions of my presentation, showing what happens when you use concurrency to your advantage correctly and when you don’t. I will make these examples as common and realistic as possible to show how often a software engineer should be thinking about operating systems’ concepts in general. Some examples I’m thinking of include how to prevent the UI from freezing during large operations, when it is right to use synchronous operations over asynchronous ones, and how to avoid race conditions (i.e trying to access a file at the same time it is written to).

Lastly, as mentioned before, I will be working on this project solo (most students at MSU have an understandable but irrational hate for Apple, so I did not expect much interest in my project idea). Because of this, obviously, all deliverables will be worked on by me. I plan on spending the first couple weeks researching my topic, and the rest of the time will be used to create an app with the best examples I can think of!