

## Problem – Due September 14<sup>th</sup>

Universities desire to teach software security because of the industry demand for secure coding and Security Engineers. The best way to prepare students is with hands on experience seeing, exploiting, and patching vulnerabilities. Setting up a practice area for students with multiple computers is expensive and requires management. Students will also frequently crash their target computers which requires constant troubleshooting and resetting. If you allow them full permission to the infrastructure to troubleshoot their own problems, they could do nefarious things or even break the infrastructure. Students could host their own virtual machine, but this takes time away from class, requires computing power, and doesn't give students unique answers to submit. Even if all of these efforts were planned, supported, and managed there are not any solutions that translate student exercises to grades for professors. Professors could take the time to create tons of exercises and vulnerable virtual machines but there are already hundreds of great resources available. This is where my application comes in – the Security Lab Manager. It takes these vulnerable exercises others have already made, adds a unique hash for every exercises, per student, and manages them so students can attack, destroy, and reset their machines. Professors have a nice interface to view competition of student exercises and be notified if any students cheat. Hosting this application takes minimal resources and can scale easily to the class size.

How do we build a solution that allows students to?

- Start working immediately with relatively no client-side setup
- Launch and reset exercises
- Submit unique answers to each problem

And allows professors to?