

Knight Foundation School of Computing and Information Sciences

Summer 2022 Capstone I Project

ComboCounter

Students: Marcos Paiva

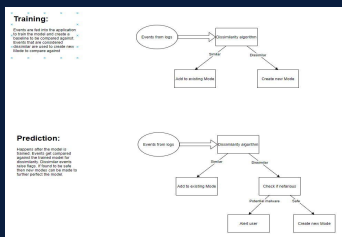
Mentor: Michael Buchar

Instructor/Faculty: Dr. Masoud Sadjadi, Florida International University

Problem

ComboCounter is the name for a hardware including the scanner and the punching bag, and software including the code entailing accessibility for users of different modes and tracks punches by logging inputs and saves for various user high-scores or for short-term during a training session. The code had been set up previously to include basic functions without modes: including punch count and matching force per punch. There hasn't been an established UI for choosing game modes, and creating into app format.

Object Design



System improvements

The application being developed allows for the raw data software processing algorithms to allow user combination game modes in Java converted to JavaScript. Where the application allows for better UI for personal training modes, while the processing code allows for combination of score algorithms. Based on the owners directions, my main accepted user stories to be created into the code include a combination algorithm: Punching bag hit detectors to record timing/speed, with a force threshold that can be set to a punch limit that can be reached for certain achievements. Output visuals for user: User-friendly displays that allow the user to enter the system with an account of their gender/age/weight, and receive total averages of force for session compared to highest overall sessions in terms of force, speed and "calculated score." Create an algorithm to determine score with an added bonus based on users age or game mode (Using mathematical algorithms) for averages for time speed and challenge mode.

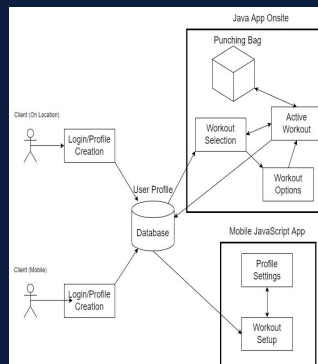
Implementation

- 1) JavaScript
- 2) Java
- 3) Jira
- 4) Google Docs
- 5) Github

Verification

Application was tested with Sysmon Simulator and discovered a 75% success rate.

System Design



Summary

Working together as a team was enlightening in the ways we each bring new ideas to the table and how it all fits w a director/coordinator. The ideas for how it should look where very much ingrained but the software algorithm ideas itself were up to be changed and morphed for Java to JavaScript. Sending coding ideas through discord and research while also using GitHub to edit code was a new experience in efficiency and comparing and contrasting the UI to the UX while practicing how to analyze scrum systems.

References

- [1] "Ransomware." FBI, FBI, 3 Apr. 2020, <https://www.fbi.gov/scams-and-safety/common-scams-and-crimes/ransomware#:~:text=Ransomware%20is%20a%20type%20of,%20critical%20information%20and%20data>.
- [2] "2021 Cyber Security Statistics Trends & Data." PurpleSec, 6 Aug. 2021, <https://purplesec.us/resources/cyber-security-statistics/#:~:text=Ransomware%20attacks%20are%20estimated%20to,attacks%20than%20ever%20in%202019>.