Owen Akel
IB Computer Science HL

Criterion A: Planning

Defining the problem (a detailed analysis of the problem):
When working out, it is hard to measure intensity when sets vary based on weight and reps. As a result, one can often be either too conservative when attempting higher rep sets, loading less weight then they are capable of lifting. Consequently, their sets are not as optimized as possible. Adversely, one can also be too ambitious, loading too much weight onto the bar. As a result they could risk serious injuries. As an avid weightlifter, I have personally experienced this problem. I will be working with my friend Connor Zanoli—my sponsor—to develop an accurate One Repetition Maximum Calculator.

Rationale for proposed solution (your thought process in solving the problem):
The proposed solution to this problem is a One Repetition Maximum (ORM) Calculator, which will display a calculated ORM for major lifts (Bench, Squat, Deadlift). The user will input the number of sets and repetitions that they performed that day, which the calculator will use to calculate a projected ORM. Additionally, this data will be saved and be displayed in a graphical format which the user can refer to whenever. Another idea for measuring intensity is basing it on an algorithm which calculates Rate of Perceived Exhaustion (RPE) — or how many reps one could do before reaching failure in an exercise; however, I need to look into whether or not there are accurate formulas which can calculate this.

Stating the success criteria (a set of GOALS that will guide the design
and be used to test the success of the program):

1. Provide an accurate calculation for weight after user inputs working sets.
2. Save the data for working sets into the computer's ROM to be referenced at later dates.
3. Create a graph which records ORM based on the user inputted information.

Word Count - 310 words