Criterion A: Planning

Defining the problem

I play football on our school's varsity football team. To get stronger and to better prepare us for our games our team lifts weights every morning. Coach Scales is our weight lifting coach. The exercises: power clean, squat, bench press, and incline are particularly important to football players, so one of Coach Scales jobs is to track the maximum (max) weight each player can lift on these weight training exercises so that he can accurately predict how much weight needs to be added each week to increase players' strength. I noticed one morning at workouts the method that he used to track players' maxes was to document the weights on a piece of paper then transfer that information to individual workout cards.

Coach Scales mentioned to me that he was not pleased with his current system because it took him a lot of time to make a workout card for each player and he also had to update the information on every card each week. He also claimed that many players weren't lifting the correct amount of weight because he had to calculate the weight increase by keying the information into a formula on a calculator which was very time consuming and prone to typing errors.

Because of my knowledge of football/lifting requirements and programming experience I told Coach Scales I might be able to help. I explained to him that I could write a computer program that would save time and accurately predict players' weight training goals. He was intrigued by the idea so I setup a time to meet with him to get his input as to what he would like the program to be able to do.

My advisor for this project will be my Computer Science teacher Mr Wagner. He is going to be advising me on the coding aspect of the project, whereas I will be getting my information on the weight lifting from own lifting experience and Coach Scales.

Rationale for Proposed Solution

Since the program only needs to be installed on one computer in the coaches' office a Java application program will suffice. Since the majority of the data input into the program is numbers a terminal program will do the job just fine.

By writing this program, in a small way, I will be helping my team better themselves in the weight room which will allow us to compete at the highest levels. The program will also benefit our coaches, who spend a lot time coaching football and don't have time to spend on tasks like making weight cards.

Success Criterion

After interviewing Coach Scales (Appendix A) we decided on the following program criteria:

- Enter player names and their current weight maxes for the 4 basic lifts - power clean, squat, bench, and incline.
- View a list of all players in the database in alphabetical order.
- View a single player's weight lifting data.
- Make changes to the maxes of all players.
- Make changes to the maxes for a specific player.
- Printout workout cards for a single player or the entire database of players that includes the number of reps and amount of weight they should be lifting for that week.
- Printout a list of players organized into groups of four according to their bench press max.
- Use menu system that will allow users to navigate the program simply by typing numbers.
- Include data validation so that program does not crash if a user enters invalid data.
- Delete a single student or clear the entire database.
- Include File I/O so that the data can be stored and reloaded into the program each time it is launched.
- Make a backup file of the database each time the program is launched.

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