### Project Title: Basketball Roster Management

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## Problem

Explain the problem that your software will solve. What does the program do? Two or three sentences that “sell” your product.

The program will keep track of a team’s statistics and substitutions within a game. It can be used to more easily manage and record stats of an entire team.

What is required? Final report? Results displayed? Video/animation displayed?

Include any diagrams, math formulas, models that will help explain the problem.

Initially, a team’s starting roster will be loaded (with blank stats), followed by the bench. The program will run by the user, with swaps between active players and increases in game stats made via a menu.

## Client/User

Who is your client? Who will be using your program? Bank manager, child, grandmother, cashier, restaurant server, researcher, doctor, nurse, patient, police officer, teacher, mechanic, teenager, etc.

The user will be a team coach or scorekeeper.

What assumptions do you have to make about your user?

Can use keyboard, monitor. Has access to Unix. Understands fundamental rules of basketball. Is familiar with players on the team to be managed.

How will they use your software? Standard unix application with keyboard? Handheld device with stylist? Cell phone with touch screen? Other?

Access Unix with keyboard input and monitor output.

## Data

What is unknown? What information will come from the user, data file, calculation or other input?

The data file will hold the initial starting roster and bench of the team with empty stats. As the game progresses, the user will enter baskets made, rebounds, etc, as well as changes in the active players. At the end of the game, averages among the team can be formed.

What is given? What is known? Prices, amounts, maximums or minimums?

Only given/known data is initial roster in the data file. All other data will be entered by the user.

What assumptions do you have to make about the data? Ranges? Validation needed?

The team managed is a basketball team.

## Solution

What are the principle parts of the problem? Basic input, processing, output steps?

Input – roster from data file; Processing – user controlled actions manipulate stats; Output – display roster after changes.

Have you solved a problem like this before? How is it like another problem you have solved?

This is an issue I have not tried to solve before.

Are some parts easier to solve than others? Which one(s)?

Uploading the initial roster will use generic code. Incrementing the stats and swapping players will also follow general code for manipulating nodes in a linked list.

Which part of the problem will be tricky to solve? What ideas do you have?

Making sure the correct player’s stats are incremented via a menu

Does it help to restate the problem in a different way?

. User will need to select active player, then select action for every play. Nested menu will be used.

Did you use all the information that was given?

Yes.

Can you satisfy all the conditions of the problem?

Yes.

Have you left anything out?

No.

Planning

Classes  
Create a UML diagram for each class you plan to use (see Ch 13.16)

|  |
| --- |
| Player |
| ID  First Name  Last Name  Rebounds  Points  Steals  Assists  Starting |
| Increment()  incrementTwo()  incrementThree() |

Structure Chart  
Create a structure chart or flowchart show the major features of your program.

User Loads roster Action in Game User selects player User increments stat Display final stats/avgs

User swaps player

Pseudocode  
Type the basic sequence of actions necessary to solve the general problem. Do not write any code – just write the steps: Input – Processing – Output. Include any additional diagrams that would be helpful.

Input – Upload teamsheet via data file

Processing – Menu function called. Function called based on selection (substitution or stat change). Players entered and swap function executed

OR Player entered, another menu with used to select desired stat change, function called to increment stat for selected player.

Output – Display function will display entire list and calculated averages for entire team.

### Sample Data

Sketch the list(s) that you will use for this project. Insert sample data into your objects so I can understand what information your list(s) will hold. See example:

|  |  |
| --- | --- |
| **Active** | **Bench** |
| LJ23  Points 20  Rebs 7  Steals 3  Assists 10  Start Yes | AV17  Points 5  Rebs 3  Steals 0  Assists 1  Start Yes |
| KL00  Points 15  Rebs 12  Start No  etc. | JW99  Points 100  Rebs 50  Etc. |
| Etc. |  |
| Etc. |  |
| Etc. |  |