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Project Report

**Sources we used:**

**Sunny’s Sample code to base ours on**

**Absolute C++ Sixth edition by Walter Savitch**

Savitch, Walter J., and Kenrick Mock. Absolute C . Pearson, 2016.

**Stack Overflow for help with a doubly-linked list, and circular linked list implementation.**

zengalzengal 1, et al. “Doubly Linked Lists Implementation.” Stack Overflow, 1 May 2018, https://stackoverflow.com/questions/4597744/doubly-linked-lists-implementation.

codercoder 1, and Martin YorkMartin York 76.9k44 gold badges9292 silver badges287287 bronze badges. “Circular Linked List Implementation in C .” Code Review Stack Exchange, 1 June 2018, https://codereview.stackexchange.com/questions/186239/circular-linked-list-implementation-in-c.

**Description:**

Our project contains three classes: Player, Court, and Bench. The player class is essentially a linked list of basic player information such as age, jersey number, playing time, and bench status. Then we use the court class to be able to see when the time of the oldest players was up from court class, to switch them with the bench class, appropriately. In order to keep track of the players on the bench and to switch players status from playing to bench we consider it efficient to create a separate class Bench. As for the game itself, it starts by separating the operations into four quarters each consisting of 12 minutes. The main function fills up the bench and court linked list with players using two four loops and last by calling the function startGame with the parameters of bench, court. The bench and Court parameters hold the two classes. On startGame function, we kept track of the minutes by calculating how many minutes the player was allowed to play. Then we did an if function that said if (old << time since start - time player entered the court) we add a bench player and us swap out for the court player.

Finally, we tried a realistic approach in our testing our program. In that we used three input files containing 2 columns with 12 random numbers in each row. The first column represented jersey numbers 0-99 and the second represented ages 18-42.