Timekeeper/Statistical tool for Basketball
Sponsor: Prof. Wayne Dyksen & MSU Basketball Team
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User Guide

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1.0 Introduction

The STATe program is solution that will be provided to the Michigan State Basketball team that will help them sufficiently in managing all types of game statistics.   These statistics can be collected during the game or after the game while watching a video. They will be collected through multiple programs. The game time statistics collected during the game will be sent (via a wireless network) to the front bench where the coaches will be able to interpret the stats through various views.

There are three programs: the player tracker, the statistical tracker, and a bench view. The player tracker allows the user to keep track of what players are currently in the game. The advantage of this program is to monitor how long a player has played or how long he has rested. The statistical tracker allows the user to record various shots and fouls for each player. The bench view displays all of this data and is for displaying only. The user does not have input any data.

The purpose of this guide is to show how an administrator would run and use the STATe program with details about setting up or joining a game and how to use the three programs.

2.0 Installation

Before STATe can run properly, the two system services STATe.Clock and STATe.RTDB must be installed. This can be done simply by running the supplied install.bat file. You may uninstall these services by running the uninstall.bat file. There is no need to install the main program, but it is necessary that STATe.Resources.dll be in either a system folder, or the same folder as the main executable, STATe.exe.

3.0 Start Up

Figure 2.1: Start Screen

- ## Creating a game
  A game must be initially created before other views can join. When you start the
  program a window will appear with the option to make a new game or join a game
  (See figure 2.1). Click on the make a new game button. All new games will start with
  the player tracker interface. Other users can join with the bench view or statistical
  tracker.

  - **Game Time Clock**

The game time clock is a server that keeps track of the game time. It can be installed on any computer by running install.bat

To remove the game clock simply run uninstall.bat

Any time in the set up process you may cancel, or move forward **Click here to select** through the various setup windows by the clicking on the appro **a new team** bottom of the windows.
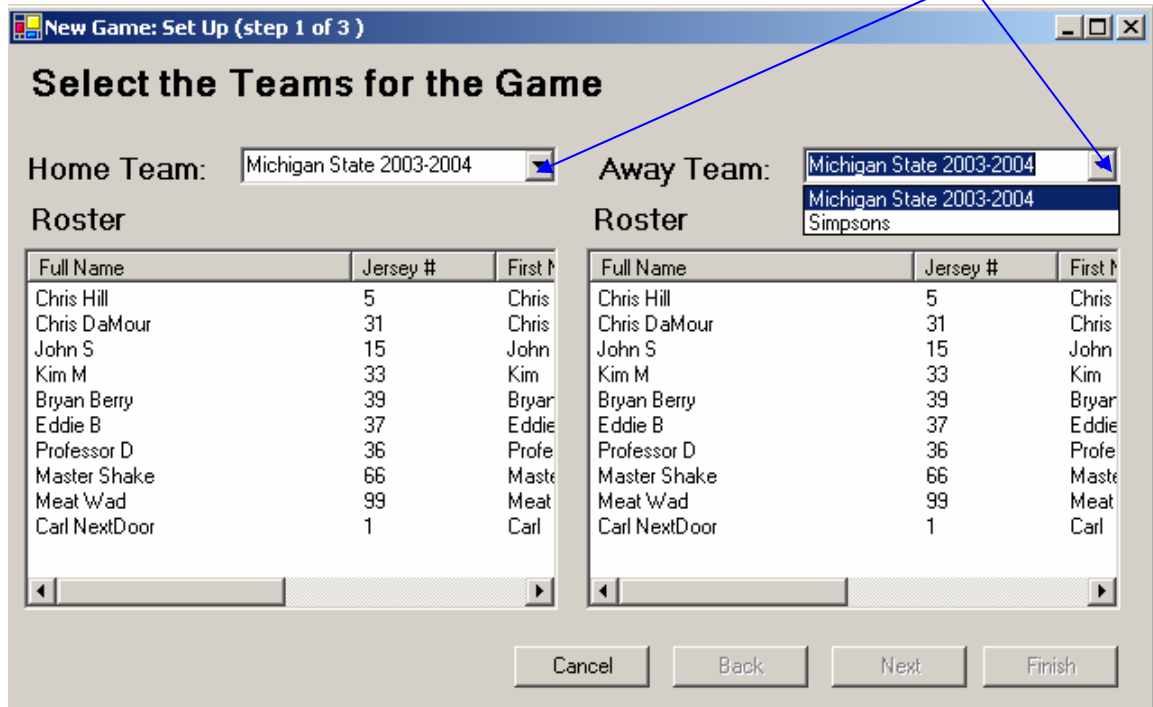

Figure 2.2: Select the Teams

▪ **Selecting the teams**

The next screen that will appear will ask you to chose the teams in the game. You must choose the home team and the away team. You can change the teams by selecting on the arrow next to the team names. A drop down list will appear with possible teams to select. The information for all of the players is listed in the boxes below each team. When you are satisfied with the teams click the next button. See Figure 2.2.
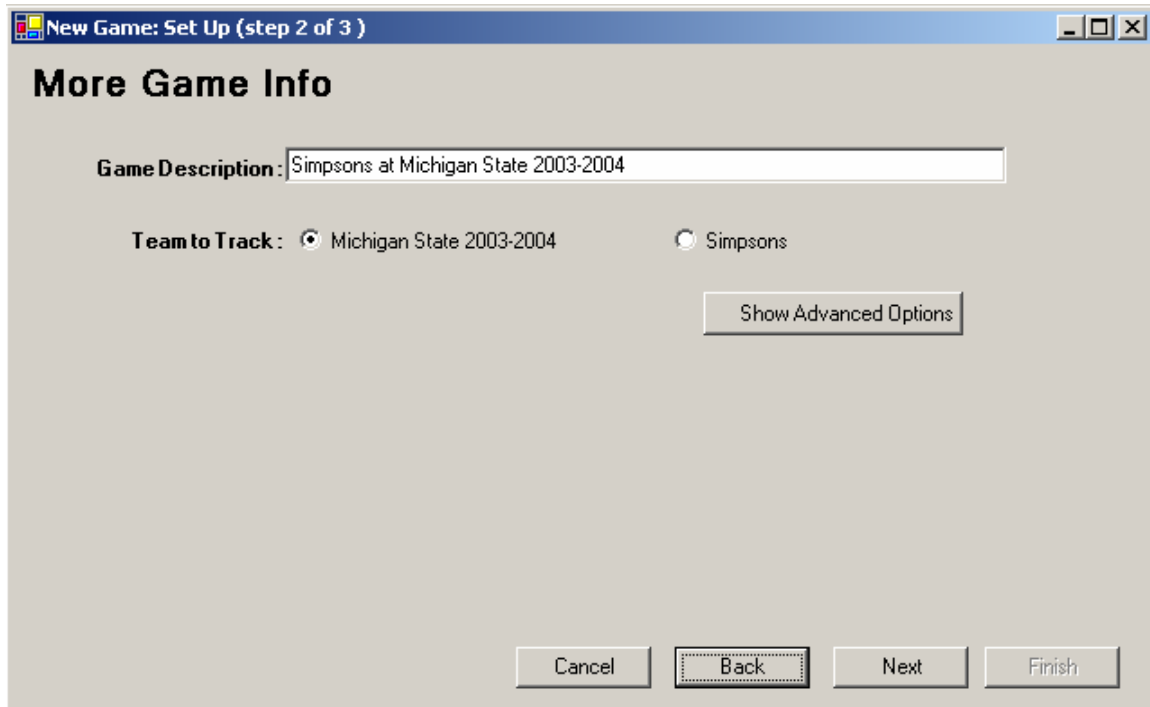
Figure 2.3: More Game Information

- **Setting Game Information**

The next screen allows the user to choose what team to track and to set up the advanced options. Click on the Show Advanced Options button to view these options. See Figure 2.3
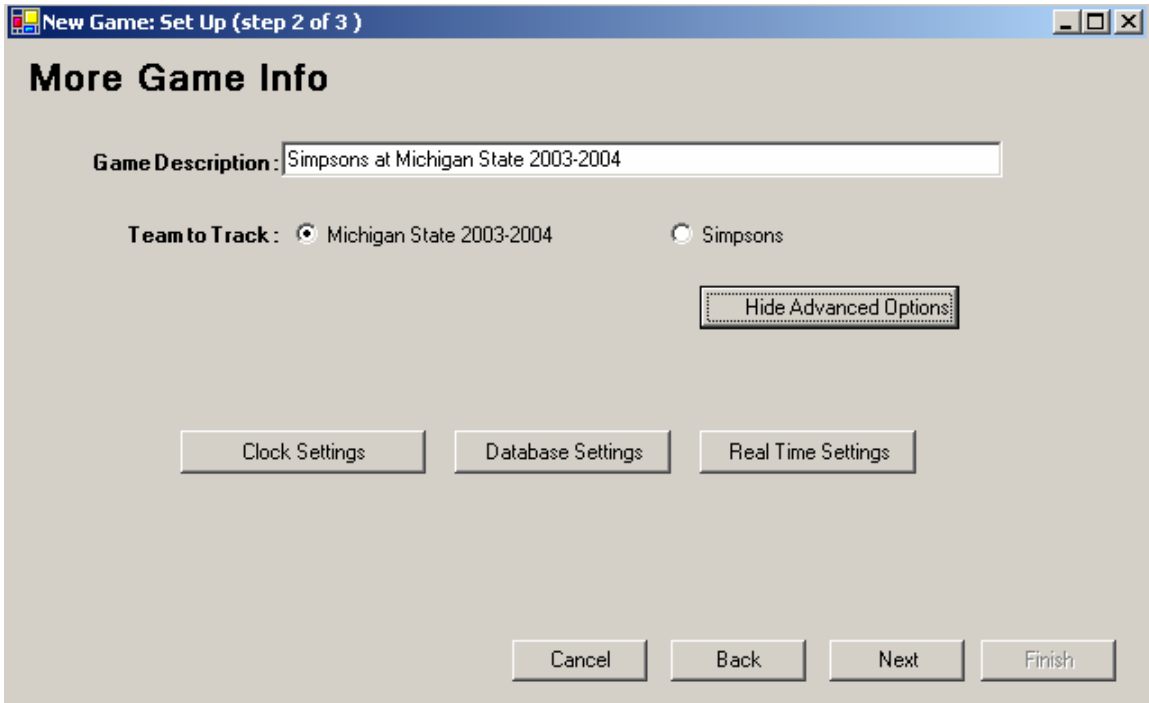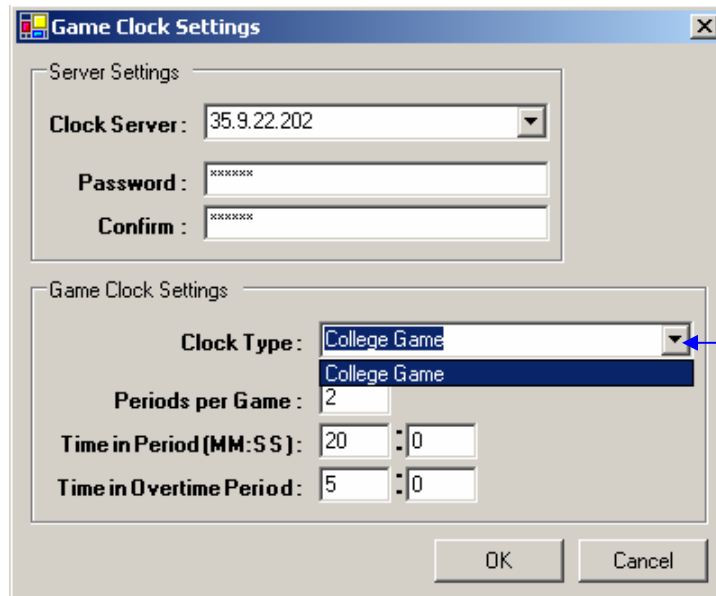
Figure 2.4: Advanced Options

▪ **Advanced Options**
See Figure 2.4
The advanced options involve:

-Clock Settings: Settings for the game clock location, and
-Database Settings: Settings about the database
-Real Time Settings: Settings about the Real Time Database

Change the Type of Timing To Use

Figure 2.5: Game Clock Settings

Game Clock Settings
-See Figure 2.5

-You can specify were the game clock server by specifying the IP address under the server settings. When creating a game the IP will default to the current machine you are creating a new game on. You need a password to be able to connect to the game clock. The password is automatically set.

-Since different leagues have different timing schemes, you can specify what clock type you want under game clock settings. You can pick a predefined type, i.e. a College Game, or set your own values in the text boxes.
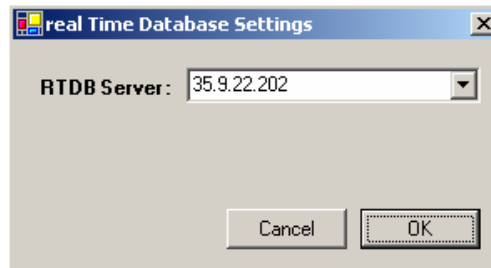
-When everything is set, press the OK button.

Figure 2.6: Real Time Database Settings

Real Time Database Settings
-See Figure 2.6

-You can specify were the real time database is located by specifying the IP address. It defaults to the current machine you are creating a new game on.

-When everything is set, press the OK button.
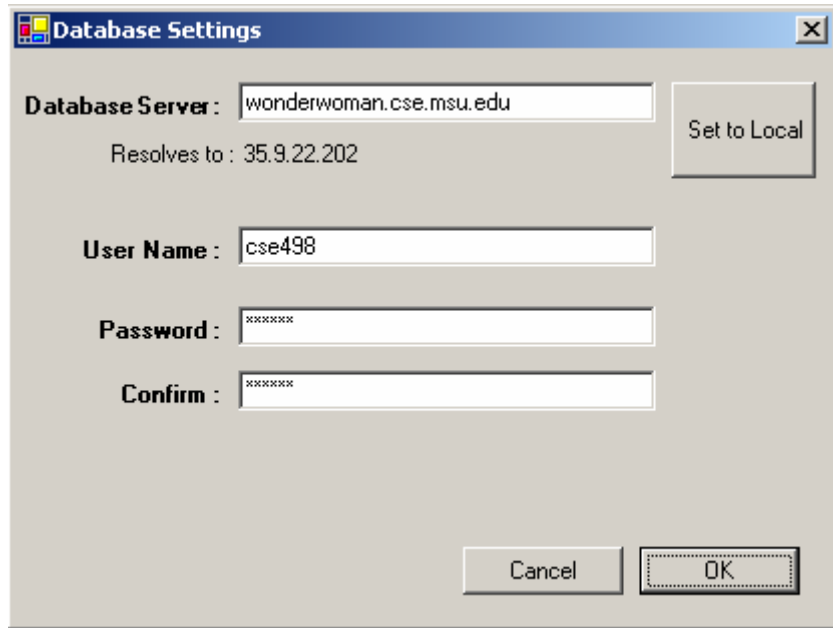
Figure 2.7: Database Settings

<u>Datbase Settings</u>
-See Figure 2.7

-You can specify were the database is located by specifying the IP address. It does not defaults to the current machine you are creating a new game on, but you can set it to the your local machine by pressing the Set To Local button.

-The database, like the clock server, needs a password and also a user name. These are automatically set, but can be changed.

- When everything is set, press the OK button.

- **Finishing Game Info**
When you done with setting the advanced options, click on the next button at the bottom of the New Game: Set Up (step 2 of 3) window

New Game: Set Up (step 3 of 3)

Finalize Game Info

Description: Simpsons at Michigan State 2003-2004

Home Team: Michigan State 2003-2004

Away Team: Simpsons

[Cancel] [Back] [Next] [Finish]
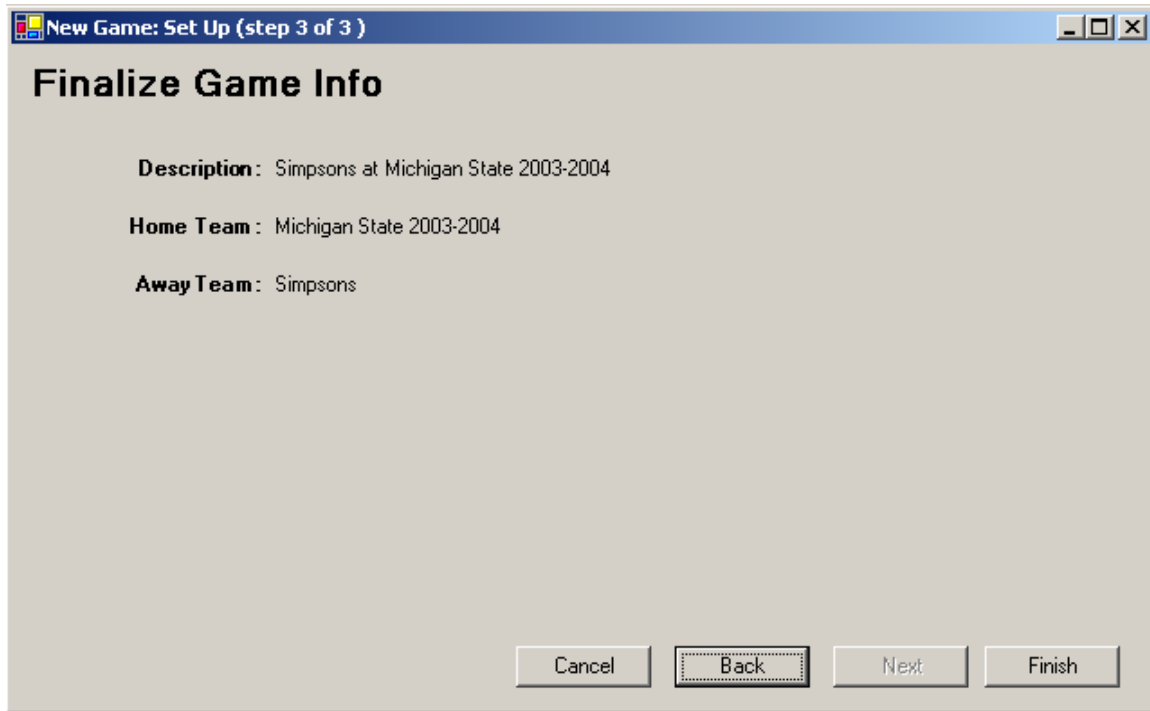
Figure 2.8: Finalize Game Info

▪ **Confirm**
The next window displays the current teams chosen. If you are satisfied, click the finish button, else you can go back by pressing the back button and change any information. See Figure 2.8.

The Player Tracker program will now load.

- **Joining an Existing Game**

When a new program is started, the start window will appear, see Figure 2.1 on page 4. Press the Join a game button.
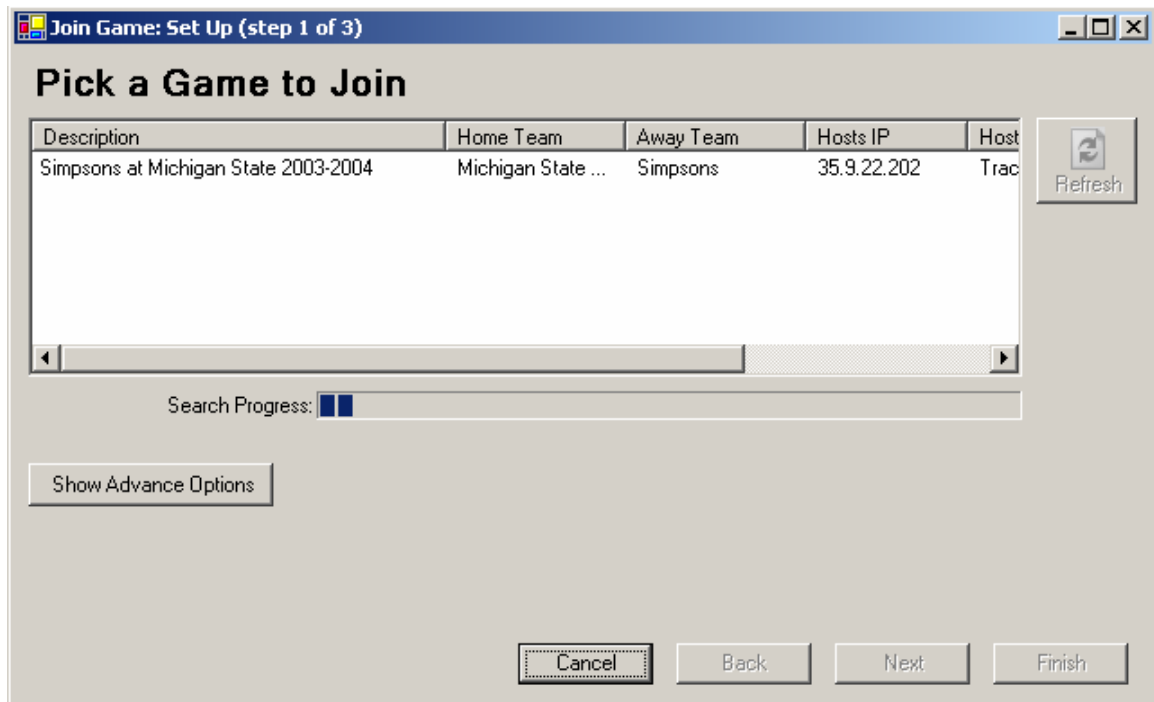
Figure 2.9: Pick a Game to Join

- **Pick a Game**

The program will search for existing games. Select the game you want by clicking on it to highlight it. Then press the next button. Show Advanced options will allow you to modify the database and real time location settings.
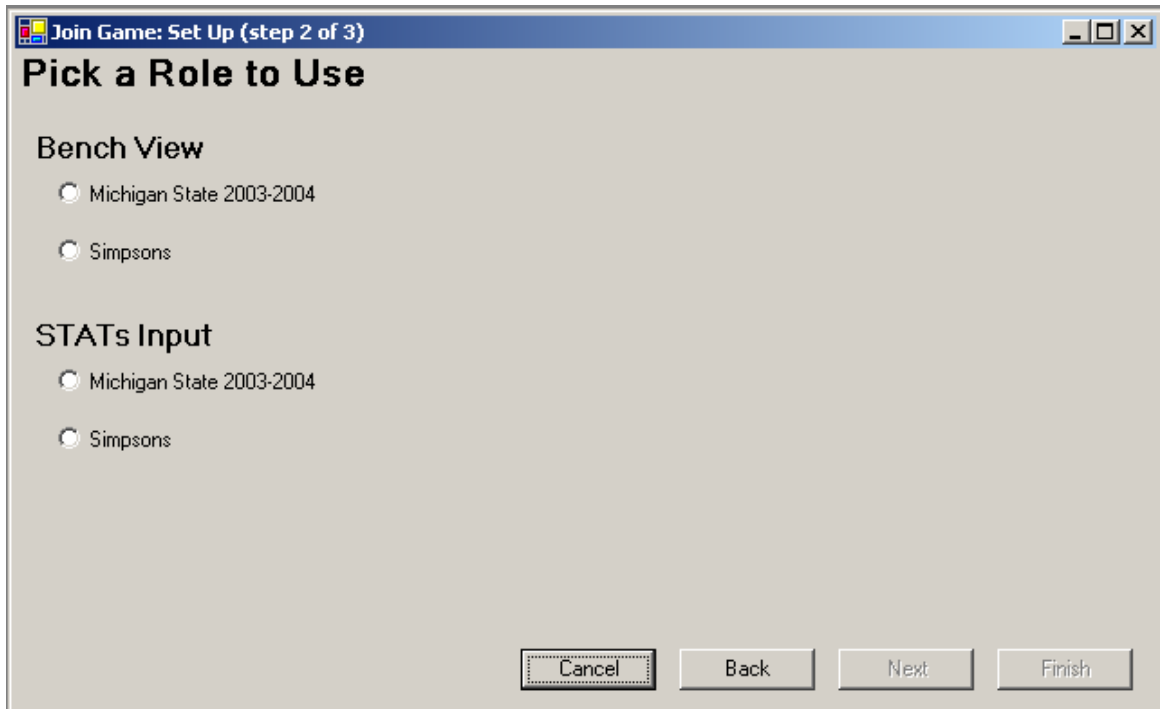
Figure 2.10: Choose a Role

- **Pick a Role**

The next window that will appear will allow the user to chose a role. You can choose what view you want, either the bench view or the statistical tracker. You can specify what team in the game you want to display also. Check what role you choose and press the next button. See Figure 2.10.
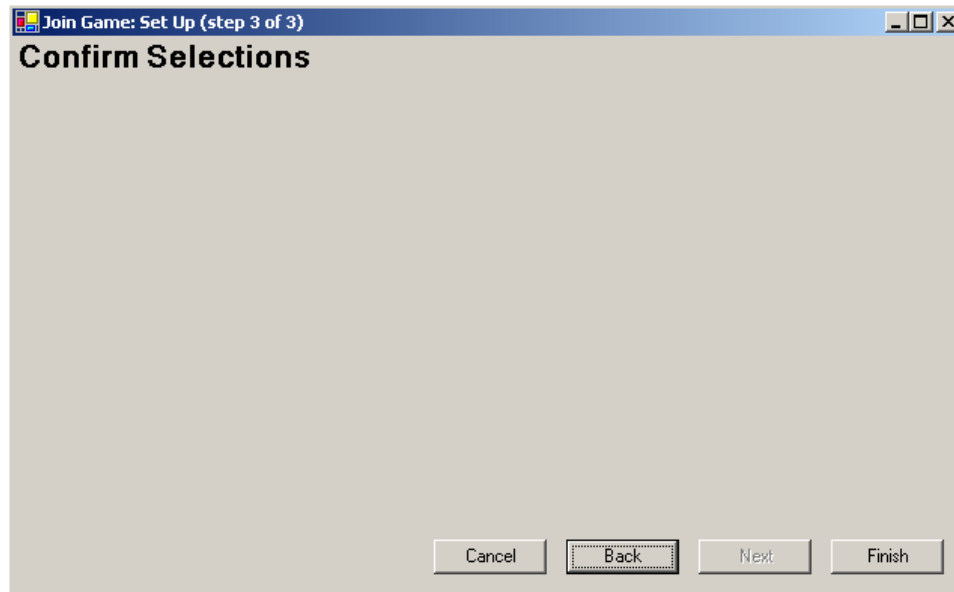
Figure 2.11: Confirm Joining a Game

- **Confirm**

The next window will ask you to confirm your selections. Click finish to start or the back button to change the role. See Figure 2.11

4.0 Using the Statistical Tracking Program

- ## Overview

The Player Tracker Program allows the user to keep track of what players are currently in the game. The advantage of this program is to monitor how long players have played or have rested. The game time is displayed on the screen but the user of this program is responsible to synchronize the program's game clock to the actual game time.

- ## Starting a New Game

The user needs to setup a new game (see Chapter 2.0: Setup). Once a new game has been established, the slots will be loaded with players from the team selected in the setup and buttons will appear that check players in and out. The game is set up and ready to begin action.

Click on any of these to check a player in

Click on any of these to check a player out

Figure 3.1: Checking In/Out Players

- ## Checking In Players

Checking in a player can be accomplished by clicking on the check in/check out button located in between the check in and check out fields for that player. Checking on the player's name or number in the check out field will also check in a player (See Figure 3.1). If the game clock has started the player will be pending a check in. The player's name and number in the check out field will flash. When the clock stops the player will then switch to check in mode. Playing times for the checked in player will begin once the clock has started.
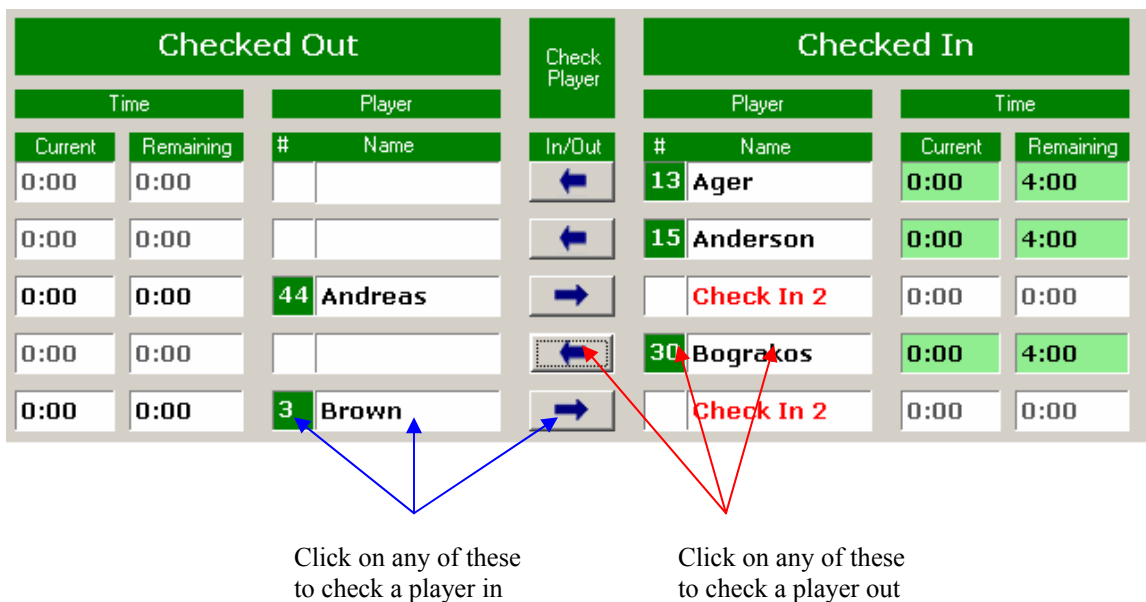
- ## **Checking Out Players**

Checking out a player can be accomplished by clicking on the check in/check out button located in between the check in and check out fields for that player. Checking on the player's name or number in the check in field will also check out a player (See figure3.1). If the game clock has started the player will be pending a check out. The player's name and number in the check in field will flash. When the clock stops the player will then switch to check out mode. Resting time for the checked out player will begin immediately and will start from when the clock was last stopped.

Activate All Warning:	Pick Player	Checked Out				Check Player	Checked In			
		Time		Player			Player		Time	
☑		Current	Remaining	#	Name	In/Out	#	Name	Current	Remaining
☑ 1	▼	0:00	0:00			←	13 Ager		0:00	4:00
☑ 2	Ager Anderson	0:00				←	15 Anderson		0:00	4:00
☑ 3	Andreas **Bograkos**	0:00				←	44 Andreas		0:00	4:00
☑ 4	Brown Davis	0:00				←	30 Bograkos		0:00	4:00
☑ 5	Deacon Hamo	0:00				←	3 Brown		0:00	4:00
☑ 6	Hill Hogeboom	0:00		40 Davis		→			0:00	0:00
☑ 7	Johnson Naymick	0:00		10 Deacon		→			0:00	0:00

Figure 3.2: Switching Players

- ## **Rearranging Players**

Under the pick player category, click on the corresponding arrow for the player to be moved. A list will drop down with all the players in the same team (See Figure 3.2). Click on a players name and he/she will be switched in.

- o **Swapping in a Displayed Player**
    If the new player was also being currently displayed the two players will switch locations. If the new player was previously not displayed, his/her information will be loading. It does not matter what mode (check in or out) either player is in.
- o **Swapping in a New Player**

If the new player was not currently displayed, his/her information will be loaded. The player being switched out must be in the check out mode.

Figure 3.3: Game Clock and Period

- **Game Clock**

The game clock is displayed at the top of the screen (See Figure 3.3) and can be activated and controlled by two start/stop buttons located above and below the list of players on the screen. This button becomes activate only when five players are checked in the game. The user must synchronize this clock with the actual game clock. This can be accomplished by using the up and down arrows located next to the clock time. Clicking on these buttons with the time started or stopped will drift the game clock time forward or backwards.

- **Periods**

The period is located in the upper right hand corner (See Figure3.3).
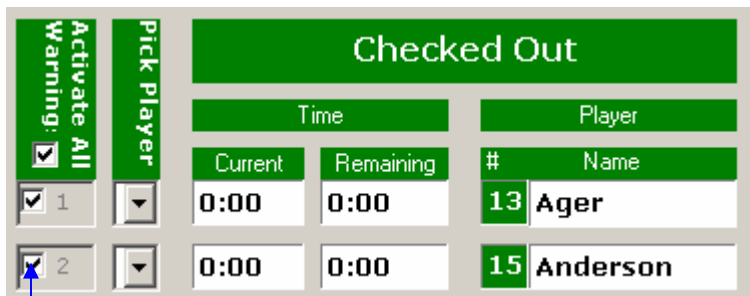
Uncheck to
Deactivate Warnings

Figure 3.4: Activating Warnings

- **Warnings**

Warnings are displayed automatically. There are two types time warnings and number of players checked in.
   - **Time Warnings**

   When a player is in check in mode and playing, his playing times will start off with a green background. Thirty seconds before the times reach that player's maximum allowable playing time the color will turn yellow. When the times have reached the maximum playing time, the color will turn red.

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When a player is in check out mode and resting (has played at least once) , his resting times will start off with a red background. Thirty seconds before the times reach that player's maximum needed rest time the color will turn yellow. When the times have reached the maximum resting time, the color will turn green

- o **Number of Players Checked In**
  In order for the clock button to become active, only five players can be checked in. If more then five players are checked in, warnings will appear in the name sections of the check out field letting the user know how many players to check out. If less then five players are checked in, warnings will appear in the name sections of the check in field letting the user know how many players to check in.

• Deactivating Warnings

To the far left of each player is a check box (See Figure 3.4). When the check box is checked the color   warnings for the players resting and playing times will be activated. When the check box is not checked the color warnings will be deactivated. The user can activate warnings for all players by checking on the Activate All Warnings check box.

• Problem Shooting

- o **Nothing Happens When the Clock Start/Stop Button is Clicked**
  Problem: There are not five players checked in.
  Solution: Check out or check in players so that there are only five checked in.
- o **The Game Time is Off From the Real Game Time**
  Problem: User did not start or stop the clock on time.
  Solution: Drift the clock time forward or backwards by using the arrows next to the game time.
- o **Can't Rearrange a Player**
  Problem: Player being swapped out is playing and the player being swapped in is not currently displayed.
  Solution: Swap in a player that is currently displayed or wait to swap out the player until he is checked out.

5.0 Using the Statistical Tracking Program

- ## Overview

The Statistical Tracking program is used to keep track of player and team statistics throughout the game. The advantages of this is keeping track of the stats in a database makes queries possible after the game, and allows quick easy viewing of real time game stats.

- ## Starting New Statistical Tracking Program

First the user needs to join an existing game with a Statistical Tracker Role (see Chapter 3.0: Set Up). Once the game has been created the program will connect the user to the database and the player fields will populate with the player name and their number. The program is ready.

- ## Updating Stats

Once the user has started a new tracking program the user is able to write records to the database. Clicking on the buttons of the desired stat to update does this.
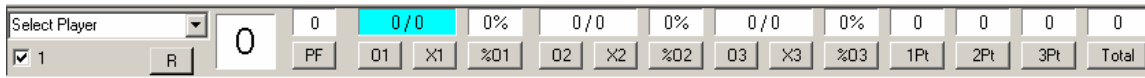
Figure 4.1: Player Slot

Figure 4.1 Illustrates a layout of a player's stats. Below is a key to each button. A button can be pressed at any time, even when the game clock is stopped.

Button	Action
PF	increase personal foul
01	increase made free throw
X1	increase miss free throw
%01	shows free throw percent made
02	increase made 2 point
X2	increase miss 2 point
%02	shows 2 point percent made
03	increase made 3 point
X3	increase miss 3 point
%03	shows 3 point percent made
1pt	shows points from free throws
2pt	shows points from 2 point shots
3pt	shows points from 3 point shots
total	shows total number of point made
exit	closes statistical tracking program

- ## Undoing an accidental stat update
Click on the "-" button located at the bottom of the window. The cursor will changed to two horizontal arrow with a bar between them. Move the cursor over the stat button that was accidentally pressed and the stat will then be decremented. The cursor will change back to the normal arrow.

If you double click on the minus button, the cursor will be in "minus" mode until the minus button is clicked again.

- ## Modifying display settings
The arrow next to the players name allows the order players appear in the table to be changed. A drop down menu will appear select the player name you would like in that slot. If the player already exists in the view the player locations will be swapped. If the player is not on the list the new player will take the place.

- ## Locking a Player's Info
The check mark below the player name makes it so that the stats are locked and cannot be changed.

- ## Highlighting a Column
Clicking on a row or column will highlight the row or column for ease of viewing.

6.0 Using the Bench View Program

The bench viewing GUI will be strictly used for viewing and is not able to change any records in the database (it will only be used during the game).

- ## Overview

The main goal of this tool is to keep the coaches updated on the game statistics and playing time of all the players. One of the coaches on the bench will actually have a tablet PC and will be viewing this GUI throughout the game. All of the info represented by the view will be pulled from a database that is created by the above GUI's (Player Tracker and Statistical program).

- ## Starting a Bench View Program

First the user needs to join an existing game with a Bench View Role (see Chapter 3.0: Set Up). Once the game has been created the program will connect the user to the database and the player fields will populate with the player name and their number. The program is ready. Since there will not be any buttons besides an exit button the user doesn't have to do anything but run the program.

- ## The Bench View Labels

Since there will not be any buttons besides an exit button the labels are listed on the next page in Figure 5.1. An active player is listed under Active Player, while resting players are listing under Resting Players.

- ## Color Warnings

If a player is active, his playing time will either be red, yellow, or green. If he has played too long, the color will be red. If he is close to playing too long, the color will be yellow. If he is okay to play, the color will be green.
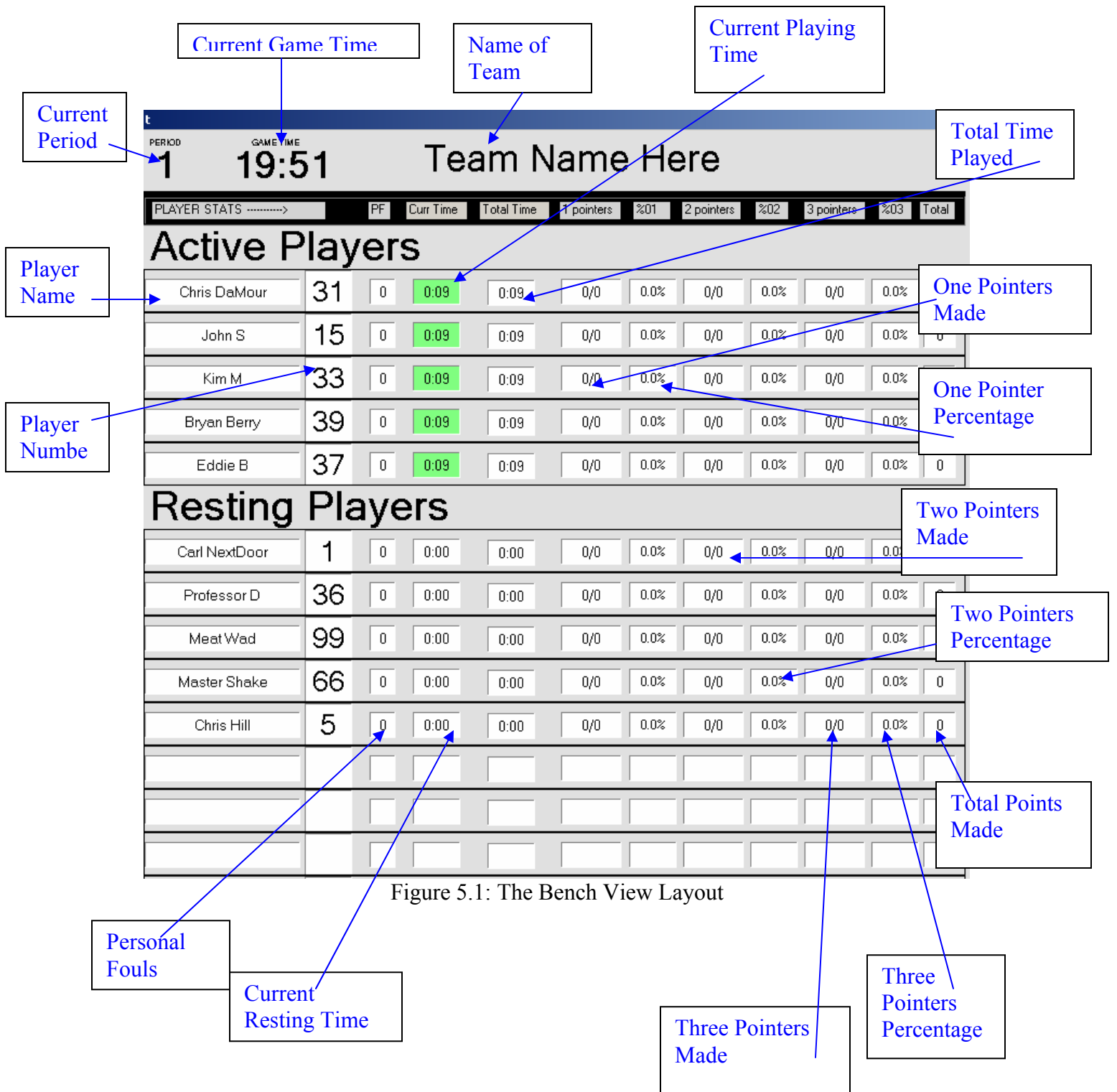
Current Period

Current Game Time

Name of Team

Current Playing Time

Total Time Played

Player Name

Player Numbe

One Pointers Made

One Pointer Percentage

Two Pointers Made

Two Pointers Percentage

Total Points Made

Personal Fouls

Current Resting Time

Three Pointers Made

Three Pointers Percentage

PERIOD	GAME TIME
1	19:51

Team Name Here

PLAYER STATS ---------->	PF	Curr Time	Total Time	1 pointers	%01	2 pointers	%02	3 pointers	%03	Total

Active Players

Name	#	PF	Curr Time	Total Time	1 pointers	%01	2 pointers	%02	3 pointers	%03	Total
Chris DaMour	31	0	0:09	0:09	0/0	0.0%	0/0	0.0%	0/0	0.0%	
John S	15	0	0:09	0:09	0/0	0.0%	0/0	0.0%	0/0	0.0%	0
Kim M	33	0	0:09	0:09	0/0	0.0%	0/0	0.0%	0/0	0.0%	
Bryan Berry	39	0	0:09	0:09	0/0	0.0%	0/0	0.0%	0/0	0.0%	
Eddie B	37	0	0:09	0:09	0/0	0.0%	0/0	0.0%	0/0	0.0%	0

Resting Players

Name	#	PF	Curr Time	Total Time	1 pointers	%01	2 pointers	%02	3 pointers	%03	Total
Carl NextDoor	1	0	0:00	0:00	0/0	0.0%	0/0	0.0%	0/0	0.0%	
Professor D	36	0	0:00	0:00	0/0	0.0%	0/0	0.0%	0/0	0.0%	
Meat Wad	99	0	0:00	0:00	0/0	0.0%	0/0	0.0%	0/0	0.0%	
Master Shake	66	0	0:00	0:00	0/0	0.0%	0/0	0.0%	0/0	0.0%	0
Chris Hill	5	0	0:00	0:00	0/0	0.0%	0/0	0.0%	0/0	0.0%	0

Figure 5.1: The Bench View Layout
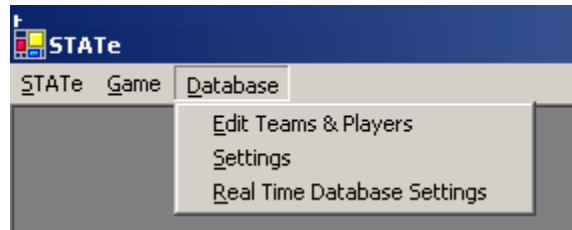
7.0 Modifying Teams/Players

Figure 6.1: Menu Options

- **Accessing the Team/Player Data**

In the Menu Bar click on the database tab and select Edit Teams & Players. See Figure 6.1. A window will appear to edit the team/player info
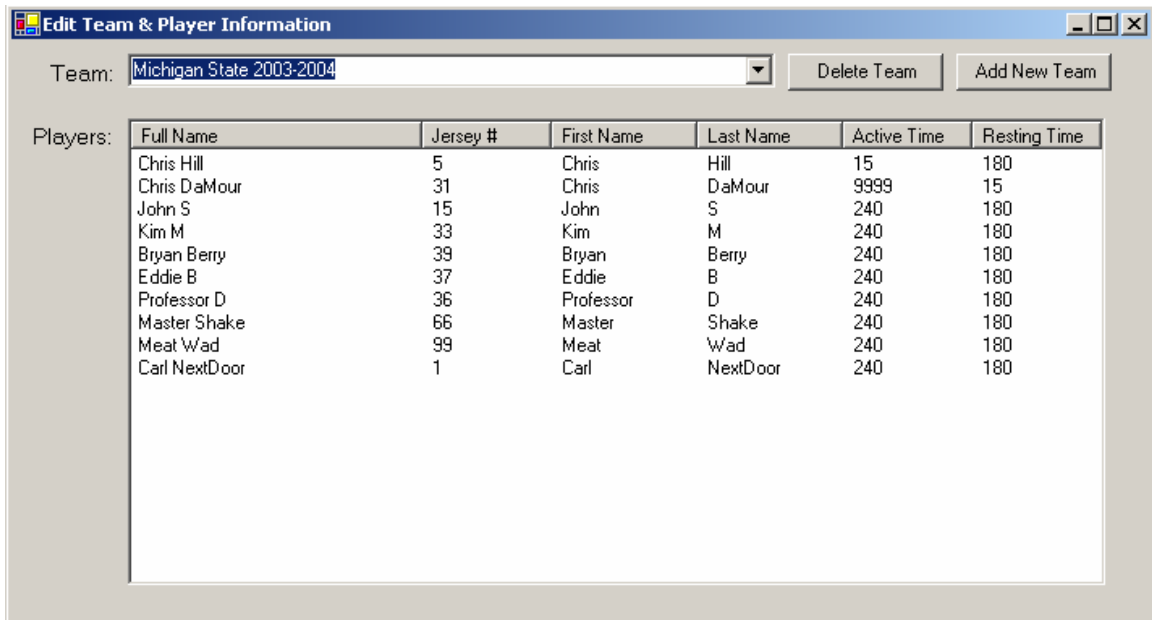

Figure 6.2: Edit Team and Player Information

- Editing Team Info

To edit a team you can either add a new team or delete a team by selecting the appropriate button in Figure 6.2

Figure 6.3: Modify Player Window

- ## Editing Player Info

To edit a player, simply right click on a player's name. A menu will appear with the option to modify a player. Select the option and the modify player window will appear. Change the information as necessary and press okay. See Figure 6.3.

- ## Add a New Player

To add a player to an existing team, right click on a blank area in the players field. A menu will appear with the option to add a new player. Select the option and the modify player window will appear. Or when the "add new team" option is clicked the modify player window will also appear. Insert the new information and press okay. See Figure 6.3.