1. Create a package called *cs520.hw4*. There is only one part to this assignment.

2. Copy *Player.java* from Assignment 3 into *cs520.hw4* and change its package name accordingly. Do not merely

import *Player* from cs520.hw3. This must be a separate file. Remove the *computeScoringAverage()* method and

remove any *import* statements that are no longer needed. Copy *team.txt* into the new package as well.

3. Create a new class called *Game* in *cs520.hw4* according to the following specifications:

• Create the following instance variables and corresponding get/set methods:

o *month* (int)

o *day* (int)

o *year* (int)

o *teamName* (String)

o *opponentName* (String)

o *players* (*List<Player>*) -- could also be *ArrayList<Player>* or *Collection<Player>*

• No constructors are needed.

• Create a public method called *setDate()* that accepts *month*, *day* and *year* values (all of type *int*) and then

sets them in the corresponding instance variables (prefixed with *this.*). This is meant to be a convenient way

to set the date rather than calling the *set* method for each value.

• Create a *public* method called *simulateGame()* that accepts no arguments and does not return a value,

according to these steps and in this order:

o Print the game info to the console in this format (referencing the instance variables with *this.*):

Game played on month/day/year vs. opponentName

*For example:*

Game played on 7/1/2020 vs. Boston College

o Create a local *int* variable called *teamPoints* and set it to zero. This will hold the running total of all

points scored in the game by all players.

o Loop through all players in *this.players* (or *this.getPlayers()*). For each player:

▪ Create a local *int* variable called *points*, and assign to it to a random *int* between 1 and 10

(see Savitch 3.5 for help creating random numbers).

▪ Add *points* to *teamPoints*.

▪ Print the player info to the console in this format:

player scored points points

*For example:*

#7 Sam Smith (G, Senior) scored 5 points

The portion of the output shown in blue above should come from the *toString()* method in the

*Player* class that you created in Assignment 3.

o After the loop completes, create a random *int* between 1 and 100 and assign it to a local variable

called *opponentPoints*.

o Print out to the console:

Final score: teamName teamPoints, opponentName opponentPoints

For example:

Final score: BU 65, Boston College 26

o Print a blank line to the console: *System.out.println();*

4. Copy *TeamTest.java* from Assignment 3 into *cs520.hw4* and change its package name accordingly. Make the

following changes:

• Remove the *totalScoringAverage* variable.

• Modify the *createPlayer()* method:

o Make it return *Player* instead of *double*.

o Remove the lines of code that reference *scoringAverage*.

o Return the new *player* instance at the end of the method.

• In the *main()* method:

o Create an *ArrayList* at the beginning of the method called *players* that will contain *Player* objects, i.e.

*new ArrayList<Player>()*.

o Read the lines from *team.txt* using *Scanner* and a loop just as in the previous assignment.

o Within each iteration of the loop that reads the lines from *team.txt*:

▪ Based on the changes you made to *createPlayer()* above, the method now returns a *Player*

object rather than a *double*, so assign the returned *Player* object into a local variable called

*player* and discard any references to *totalScoringAverage*.

▪ Add *player* to the *players* list.

o When all lines have been read from the file, your *players* variable should now be an *ArrayList* of 10

*Player* object instances.

o Declare a *String[ ]* array called *opponents* and populate it with the name of any 5 opposing teams or

schools. For example:

String[] opponents = new String[] {"BC", "Northeastern", "Harvard", "MIT", "UMass"};

o Loop through all members of the *opponents* array. In each loop iteration:

▪ Create a new instance of *Game* (instantiated with no arguments) in a local variable of type

*Game* called *game*.

▪ Call *game.setTeamName()*, passing whatever you want to call your team.

▪ Call *game.setOpponentName()*, passing the opponent name (the current loop value).

▪ Call *game.setDate()*, passing whatever date values you wish (it's OK to pass the same date

values each time through the loop).

▪ Call *game.setPlayers()*, passing the *players ArrayList*. The players will always be the same for

all 5 *Game* objects you are creating.

▪ Call *game.*simulateGame(). This will produce the output you added in that method.

o Retain the user-friendly exception handling that you had implemented in *TeamTest* for Assignment 3.

5. Run *TeamTest* and you should see output like this. You do not need to submit the results of your testing. Again,

don't worry if the stats are not realistic!

Game played on 7/1/2020 vs. Boston College

#1 Nico Lynch (G, Senior) scored 9 points

#2 Case McCarthy (D, Freshman) scored 8 points

#3 Ty Amonte (F, Junior) scored 5 points

#4 David Farrance (D, Junior) scored 4 points

#5 Cam Crotty (D, Junior) scored 9 points

#7 Alex Vlasic (D, Freshman) scored 7 points

#9 Logan Cockerill (F, Junior) scored 7 points

#10 Gabriel Chabot (F, Senior) scored 1 points

#11 Patrick Curry (F, Senior) scored 7 points

#12 Jamie Armstrong (F, Freshman) scored 6 points

Final score: BU 63, Boston College 11

Game played on 7/2/2020 vs. Northeastern

#1 Nico Lynch (G, Senior) scored 7 points

#2 Case McCarthy (D, Freshman) scored 4 points

#3 Ty Amonte (F, Junior) scored 8 points

#4 David Farrance (D, Junior) scored 4 points

#5 Cam Crotty (D, Junior) scored 4 points

#7 Alex Vlasic (D, Freshman) scored 0 points

#9 Logan Cockerill (F, Junior) scored 5 points

#10 Gabriel Chabot (F, Senior) scored 2 points

#11 Patrick Curry (F, Senior) scored 9 points

#12 Jamie Armstrong (F, Freshman) scored 4 points

Final score: BU 47, Northeastern 5

...etc... for all five games