Deliverables

Your project files should be submitted to Web-CAT by the due date and time specified. Note that there is also an optional Skeleton Code assignment which will indicate level of coverage your tests have achieved (there is no late penalty since the skeleton code assignment is ungraded for this project). The files you submit to skeleton code assignment may be incomplete in the sense that method bodies have at least a return statement if applicable or they may be essentially completed files. To avoid a late penalty for the project, you must submit your completed code files to Web-CAT no later than 11:59 PM on the due date for the completed code assignment. If you are unable to submit via Web-CAT, you should e-mail your project Java files in a zip file to your TA before the deadline. Test files are not required for this project. If submitted, you will be able to see your code coverage, but this will not be counted as part of your grade.
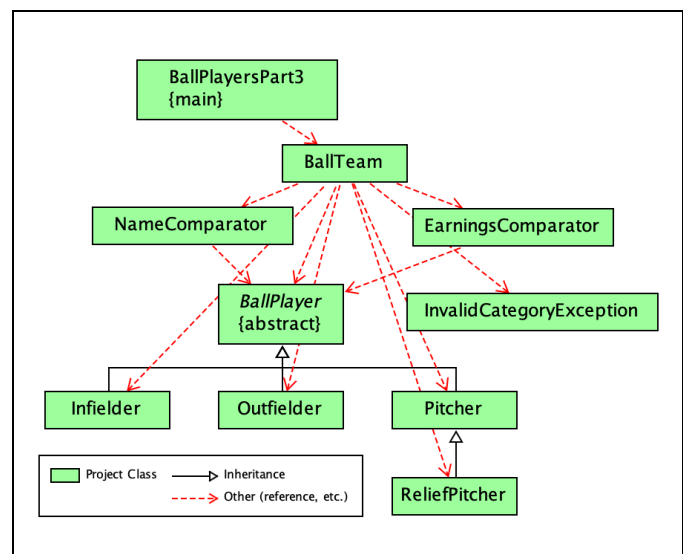
Files to submit to Web-CAT (*test files are optional*):

From Part 1
- BallPlayer.java, *BallPlayerTest.java*
- Outfielder.java, *OutfielderTest.java*
- Infielder.java, *InfielderTest.java*
- Pitcher.java, *PitcherTest.java*
- ReliefPitcher.java, *ReliefPitcherTest.java*

From Part 2
- NameComparator.java, *NameComparatorTest.java*
- EarningsComparator.java, *EarningsComparatorTe*st.java
- BallTeam.java, *BallTeamTest.java*

New Classes in Part 3
- InvalidCategoryException.java, *InvalidCategoryExceptionTest.java*
- BallPlayersPart3.java, *BallPlayersPart3Test.java*

Recommendations

You should create new folder for Part 3 and copy your relevant Part 2 source and optional test files to it. You should create a jGRASP project with these files in it, and then add the new source and optional test files as they are created.

Specifications – **Use arrays in this project; ArrayLists are not allowed!**

Overview: This project is Part 3 of three that involves the pay analysis and reporting for ball players. In Part 1, you developed Java classes including an abstract BallPlayer class and subclasses of it that represent categories of ball players: outfielders, infielders, pitchers, and relief pitchers. In Part 2, you implemented three additional classes: (1) NameComparator that implements the Comparator interface

for BallPlayer, (2) EarningsComparator that implements the Comparator interface for BallPlayer, and (3) BallTeam that represents a team of ball players and includes several specialized methods.   In Part 3, you are to add exception handing and invalid input reporting. You will need to do the following: (1) create a new class named InvalidCategoryException which extends the Exception class, (2) add try-catch statements to catch FileNotFoundException in the main method of the BallPlayersPart3 class, and (3) modify the readBallPlayerFile in the BallTeam to catch/handle the InvalidCategoryException, NumberFormatException, and NoSuchElementException in the event that these exceptions are thrown while reading the input file.

Note that the main method in BallPlayersPart3 should create a BallTeam object and then invoke the readBallPlayerFile method on the BallTeam object to read data from a file and add ball players to the team. You can use BallPlayersPart3 in conjunction with interactions by running the program in the canvas (or debugger with a breakpoint) and single stepping until the variables of interest are created. You can then enter interactions in the usual way. You should create a jGRASP project upfront and then add the source files as they are created. All your files should be in a single folder.

- **BallPlayer, Outfielder, Infielder, Pitcher, ReliefPitcher, NameComparator, EarningsComparator**

   Requirements and Design: No changes from the specifications in Part 1 and Part 2.

- **InvalidCategoryException.java**

   Requirements and Design: InvalidCategoryException is a user defined exception created by extending the Exception class. This exception is to be thrown and caught in the readBallPlayerFile method in the BallTeam class when a line of input data contains an invalid player category. The constructor for InvalidCategoryException takes a single String parameter representing *category* and invokes the super constructor with the following String:
   ```
   "For category: " + "\"" + category + "\""
   ```
   This string will be the toString() value of an InvalidCategoryException when it occurs. For a similar constructor, see InvalidLengthException.java in 11_Exceptions\Examples\Polygons from this week's lecture notes.

- **BallTeam.java**

   Requirements and Design: In addition to the specifications in Part 2, the existing readBallPlayerFile method must be modified to recognize invalid input data and catch InvalidCategoryException, NumberFormatException, and NoSuchElementException.

   - readBallPlayerFile has no return value and accepts the data file name as a String and throws FileNotFoundException. This method creates a Scanner object to read in the file and then reads it in line by line. The first line contains the team name and each of the remaining lines contains the data for a player. After reading in the team name, the "player" lines should be processed as follows. A player line is read in, a second scanner

is created on the <u>line</u>, and the individual values for the player are read in. After the values on the line have been read in, an "appropriate" BallPlayer object created. If there is room on the roster, the player is added to the roster array and the player count is incremented. Any player lines/records read from the file after the limit of *MAX_PLAYERS* players has been reached should be added to the excluded array and its count should be incremented. If excluded array is full, the line/record should just be skipped. The data file is a "comma separated values" file; i.e., if a line contains multiple values, the values are delimited by commas. So when you set up the scanner for the player lines, you need to set the delimiter to use a ",". Each player line in the file begins with a category for the ball player (O, I, P, and R are valid categories for ball players indicating **O**utfielder, **I**nfielder, **P**itcher, and **R**eliefPitcher respectively. <u>For each *incorrect* line scanned (i.e., a line of data contains an invalid category, invalid numeric data, or missing data), your method will need to handle the invalid items properly. (1) If the line of data begins with an invalid category, your program should throw an InvalidCategoryException (see description above). (2) If a line of data has a valid category, but includes invalid numeric data (e.g., the value for *battingAvg* contains an alphabetic character), a NumberFormatException (see notes on last page) will be thrown automatically by the Java Runtime Environment (JRE). (3) If a line of data has a valid category, but has missing data (e.g., the value for *battingAvg* has been omitted), a NoSuchElementException (see notes on last page) will be thrown automatically by the Java Runtime Environment (JRE) Your readBallPlayerFile method should catch and handle InvalidCategoryException, NumberFormatException, and NoSuchElementException as follows. In each catch clause, a String object should be created consisting of</u>

```
      e + " in: " + line
```

<u>where *e* is the exception and *line* is the line with the invalid data. The String object should be added to the excludedRecords array</u>.

The file *ball_player_data3a.csv* is available for download from the course web site. Below are example data records (the first line/record containing the team name is followed by player lines/records):

```
Auburn Heavy Hitters
O,32,Pat Jones,RF,150000,.375,.950
I,23,Jackie Smith,3B,150000,2.50,.275,.850
P,43,Jo Williams,RHP,150000,3.50,.125,22,4,2.85
L,34,Sammi James,LHP,150000,3.50,.125,5,4,3.85,17
R,34,Sammi James,LHP,150000,3.50,.125,5,4,3.85,17
O, 9,Pat Williams,RF,150000,1.25,.34a,.950
```

- **BallPlayersPart3.java**

  Requirements and Design: The BallPlayersPart3 class contains the main method for running the program. <u>In addition to the specifications in Part 2</u>, the main method should be modified as follows.

As before, `main` acquires the file name from args[0], creates an instance of BallTeam, and then calls the readBallPlayerFile method in the BallTeam class to read in the data file. After successfully reading in the file, main generates the five reports as shown in the example output beginning on the next page. The main method should not include the throws FileNotFoundException in the declaration. Instead, the main method should include a try-catch statement to catch FileNotFoundException when/if it is thrown in the readBallPlayerFile method in the BallTeam class. This exception will occur if an incorrect file name is passed to the readBallPlayerFile method. This exception will be propagated from readBallPlayerFile and caught in the main method. The catch block should print a message ("*** Attempted to read file: " along with the exception's message). For example, if the user entered "nofile.csv" as the command line argument and this file does not exit, then the Run I/O in jGRASP would look like the second run in the example output beginning on the next page.

Example Output

Output when <u>no</u> file name is passed to main in as a command line argument.

```
----jGRASP exec: java BallPlayersPart3
File name expected as command line argument.
Program ending.

 ----jGRASP: operation complete.
```

Output when a bad file name is passed to main in as a command line argument.

```
----jGRASP exec: java BallPlayersPart3 bad_file_name.cvs
*** Attempted to read file: java.io.FileNotFoundException: bad_file_name.cvs (No such file or directory)

 ----jGRASP: operation complete.
```

Output when `ball_player_data3a.csv` is passed to main in as a command line argument.

```
----jGRASP exec: java BallPlayersPart3 ball_player_data3a.csv
--------------------------------------
Team Report for Auburn Heavy Hitters
--------------------------------------

23 Jackie Smith (3B) .275
Base Salary: $150,000.00 Bonus Adjustment Factor: 2.5
Total Earnings: $237,656.25 (class Infielder)

43 Jo Williams (RHP) 22 wins, 4 losses, 2.85 ERA
Base Salary: $150,000.00 Bonus Adjustment Factor: 3.5
Total Earnings: $248,181.82 (class Pitcher)

34 Sammi James (LHP) 5 wins, 4 losses, 17 saves, 3.85 ERA
Base Salary: $150,000.00 Bonus Adjustment Factor: 3.5
Total Earnings: $214,948.45 (class ReliefPitcher)

-----------------------------------------
Team Report for Auburn Heavy Hitters (by Number)
-----------------------------------------
23 Jackie Smith 3B .275
34 Sammi James LHP 5 wins, 4 losses, 17 saves, 3.85 ERA
43 Jo Williams RHP 22 wins, 4 losses, 2.85 ERA

-----------------------------------------
Team Report for Auburn Heavy Hitters (by Name)
-----------------------------------------
34 Sammi James LHP 5 wins, 4 losses, 17 saves, 3.85 ERA
23 Jackie Smith 3B .275
43 Jo Williams RHP 22 wins, 4 losses, 2.85 ERA

-----------------------------------------
Team Report for Auburn Heavy Hitters (by Earnings)
-----------------------------------------
$248,181.82 43 Jo Williams RHP 22 wins, 4 losses, 2.85 ERA
$237,656.25 23 Jackie Smith 3B .275
$214,948.45 34 Sammi James LHP 5 wins, 4 losses, 17 saves, 3.85 ERA

-----------------------------------------
Excluded Records Report
-----------------------------------------
java.util.NoSuchElementException in: O,32,Pat Jones,RF,150000,.375,.950
InvalidCategoryException: For category: "L" in: L,34,Sammi James,LHP,150000,3.50,.125,5,4,3.85,17
java.lang.NumberFormatException: For input string: ".34a" in: O, 9,Pat Williams,RF,150000,1.25,.34a,.950

 ----jGRASP: operation complete.
```

Output when `ball_player_data3b.csv` is passed to main in as a command line argument.

```
----jGRASP exec: java BallPlayersPart3 ball_player_data3b.csv
---------------------------------------
Team Report for My Test Team
---------------------------------------

21 John Doe (RF) .200
Base Salary: $150,000.00 Bonus Adjustment Factor: 2.3
Total Earnings: $217,620.00 (class Outfielder)

11 Tim Dobbs (RF) .350
Base Salary: $140,000.00 Bonus Adjustment Factor: 2.2
Total Earnings: $244,566.00 (class Outfielder)

13 Jim Dobbs (LF) .278
Base Salary: $140,000.00 Bonus Adjustment Factor: 2.0
Total Earnings: $213,948.00 (class Outfielder)

12 Joey Ledet (LF) .325
Base Salary: $140,000.00 Bonus Adjustment Factor: 2.1
Total Earnings: $231,728.00 (class Outfielder)

14 Sruthi Yalamanchili (CF) .285
Base Salary: $150,000.00 Bonus Adjustment Factor: 1.9
Total Earnings: $226,351.50 (class Outfielder)

15 Kavyashree Krishnappa (CF) .298
Base Salary: $140,000.00 Bonus Adjustment Factor: 1.8
Total Earnings: $209,839.28 (class Outfielder)

29 Sanket Chintapalli (1B) .200
Base Salary: $150,000.00 Bonus Adjustment Factor: 2.3
Total Earnings: $217,620.00 (class Infielder)

17 Jane Doe (1B) .350
Base Salary: $140,000.00 Bonus Adjustment Factor: 2.2
Total Earnings: $244,566.00 (class Infielder)

18 Buddy Bell (2B) .325
Base Salary: $150,000.00 Bonus Adjustment Factor: 2.1
Total Earnings: $248,280.00 (class Infielder)

19 Oscar De La Hoya (2B) .278
Base Salary: $140,000.00 Bonus Adjustment Factor: 2.0
Total Earnings: $213,948.00 (class Infielder)

20 David Umphress (3B) .285
Base Salary: $150,000.00 Bonus Adjustment Factor: 1.9
Total Earnings: $226,351.50 (class Infielder)

10 Mikie Mahtook (3B) .298
Base Salary: $140,000.00 Bonus Adjustment Factor: 1.8
Total Earnings: $209,839.28 (class Infielder)

22 Matty Ott (SS) .200
Base Salary: $150,000.00 Bonus Adjustment Factor: 2.3
Total Earnings: $217,620.00 (class Infielder)

23 Louis Coleman (SS) .350
Base Salary: $140,000.00 Bonus Adjustment Factor: 2.2
Total Earnings: $244,566.00 (class Infielder)

25 Aaron Nola (RHP) 5 wins, 11 losses, 1.3 ERA
Base Salary: $140,000.00 Bonus Adjustment Factor: 2.0
Total Earnings: $110,782.61 (class Pitcher)

26 John Malkovic (RHP) 6 wins, 10 losses, 1.4 ERA
Base Salary: $150,000.00 Bonus Adjustment Factor: 1.9
Total Earnings: $131,000.00 (class Pitcher)

27 Louis Giglio (RHP) 7 wins, 9 losses, 1.5 ERA
Base Salary: $140,000.00 Bonus Adjustment Factor: 1.8
Total Earnings: $131,936.00 (class Pitcher)

28 Gus Malzan (LHP) 8 wins, 8 losses, 1.6 ERA
Base Salary: $150,000.00 Bonus Adjustment Factor: 2.3
Total Earnings: $150,000.00 (class Pitcher)

16 Tim Brando (LHP) 9 wins, 7 losses, 1.7 ERA
Base Salary: $140,000.00 Bonus Adjustment Factor: 2.2
Total Earnings: $149,125.93 (class Pitcher)

30 Todd Strange (LHP) 10 wins, 6 losses, 2 saves, 1.8 ERA
Base Salary: $150,000.00 Bonus Adjustment Factor: 2.1
```

```
Total Earnings: $172,500.00 (class ReliefPitcher)

31 Blake Dean (RHP) 11 wins, 5 losses, 3 saves, 1.9 ERA
Base Salary: $140,000.00 Bonus Adjustment Factor: 2.0
Total Earnings: $168,965.52 (class ReliefPitcher)

32 Brian Wilson (RHP) 12 wins, 4 losses, 4 saves, 2.0 ERA
Base Salary: $150,000.00 Bonus Adjustment Factor: 1.9
Total Earnings: $188,000.00 (class ReliefPitcher)

33 Johnny Manziel (RHP) 21 wins, 3 losses, 2 saves, 2.1 ERA
Base Salary: $170,000.00 Bonus Adjustment Factor: 1.8
Total Earnings: $235,806.45 (class ReliefPitcher)

34 Green Lantern (LHP) 14 wins, 2 losses, 3 saves, 2.2 ERA
Base Salary: $150,000.00 Bonus Adjustment Factor: 2.3
Total Earnings: $203,906.25 (class ReliefPitcher)


----------------------------------------
Team Report for My Test Team (by Number)
----------------------------------------
10 Mikie Mahtook 3B .298
11 Tim Dobbs RF .350
12 Joey Ledet LF .325
13 Jim Dobbs LF .278
14 Sruthi Yalamanchili CF .285
15 Kavyashree Krishnappa CF .298
16 Tim Brando LHP 9 wins, 7 losses, 1.7 ERA
17 Jane Doe 1B .350
18 Buddy Bell 2B .325
19 Oscar De La Hoya 2B .278
20 David Umphress 3B .285
21 John Doe RF .200
22 Matty Ott SS .200
23 Louis Coleman SS .350
25 Aaron Nola RHP 5 wins, 11 losses, 1.3 ERA
26 John Malkovic RHP 6 wins, 10 losses, 1.4 ERA
27 Louis Giglio RHP 7 wins, 9 losses, 1.5 ERA
28 Gus Malzan LHP 8 wins, 8 losses, 1.6 ERA
29 Sanket Chintapalli 1B .200
30 Todd Strange LHP 10 wins, 6 losses, 2 saves, 1.8 ERA
31 Blake Dean RHP 11 wins, 5 losses, 3 saves, 1.9 ERA
32 Brian Wilson RHP 12 wins, 4 losses, 4 saves, 2.0 ERA
33 Johnny Manziel RHP 21 wins, 3 losses, 2 saves, 2.1 ERA
34 Green Lantern LHP 14 wins, 2 losses, 3 saves, 2.2 ERA


----------------------------------------
Team Report for My Test Team (by Name)
----------------------------------------
18 Buddy Bell 2B .325
16 Tim Brando LHP 9 wins, 7 losses, 1.7 ERA
29 Sanket Chintapalli 1B .200
23 Louis Coleman SS .350
19 Oscar De La Hoya 2B .278
31 Blake Dean RHP 11 wins, 5 losses, 3 saves, 1.9 ERA
13 Jim Dobbs LF .278
11 Tim Dobbs RF .350
17 Jane Doe 1B .350
21 John Doe RF .200
27 Louis Giglio RHP 7 wins, 9 losses, 1.5 ERA
15 Kavyashree Krishnappa CF .298
34 Green Lantern LHP 14 wins, 2 losses, 3 saves, 2.2 ERA
12 Joey Ledet LF .325
10 Mikie Mahtook 3B .298
26 John Malkovic RHP 6 wins, 10 losses, 1.4 ERA
28 Gus Malzan LHP 8 wins, 8 losses, 1.6 ERA
33 Johnny Manziel RHP 21 wins, 3 losses, 2 saves, 2.1 ERA
25 Aaron Nola RHP 5 wins, 11 losses, 1.3 ERA
22 Matty Ott SS .200
30 Todd Strange LHP 10 wins, 6 losses, 2 saves, 1.8 ERA
20 David Umphress 3B .285
32 Brian Wilson RHP 12 wins, 4 losses, 4 saves, 2.0 ERA
14 Sruthi Yalamanchili CF .285


----------------------------------------
Team Report for My Test Team (by Earnings)
----------------------------------------
$248,280.00 18 Buddy Bell 2B .325
$244,566.00 11 Tim Dobbs RF .350
$244,566.00 17 Jane Doe 1B .350
$244,566.00 23 Louis Coleman SS .350
$235,806.45 33 Johnny Manziel RHP 21 wins, 3 losses, 2 saves, 2.1 ERA
$231,728.00 12 Joey Ledet LF .325
```

```
$226,351.50 14 Sruthi Yalamanchili CF .285
$226,351.50 20 David Umphress 3B .285
$217,620.00 21 John Doe RF .200
$217,620.00 29 Sanket Chintapalli 1B .200
$217,620.00 22 Matty Ott SS .200
$213,948.00 13 Jim Dobbs LF .278
$213,948.00 19 Oscar De La Hoya 2B .278
$209,839.28 15 Kavyashree Krishnappa CF .298
$209,839.28 10 Mikie Mahtook 3B .298
$203,906.25 34 Green Lantern LHP 14 wins, 2 losses, 3 saves, 2.2 ERA
$188,000.00 32 Brian Wilson RHP 12 wins, 4 losses, 4 saves, 2.0 ERA
$172,500.00 30 Todd Strange LHP 10 wins, 6 losses, 2 saves, 1.8 ERA
$168,965.52 31 Blake Dean RHP 11 wins, 5 losses, 3 saves, 1.9 ERA
$150,000.00 28 Gus Malzan LHP 8 wins, 8 losses, 1.6 ERA
$149,125.93 16 Tim Brando LHP 9 wins, 7 losses, 1.7 ERA
$131,936.00 27 Louis Giglio RHP 7 wins, 9 losses, 1.5 ERA
$131,000.00 26 John Malkovic RHP 6 wins, 10 losses, 1.4 ERA
$110,782.61 25 Aaron Nola RHP 5 wins, 11 losses, 1.3 ERA


--------------------------------------
Excluded Records Report
--------------------------------------
java.lang.NumberFormatException: For input string: "1.9a" in: R,32,Brian William,RHP,150000,1.9a,0.285,12,4,2,4
java.util.NoSuchElementException in: R,33,Johnny Madman,RHP,140000,1.8
java.lang.NumberFormatException: For input string: "14c" in: R,34,Green Monster,LHP,150000,2.3,0.2,14c,2,2.2,3
java.lang.NumberFormatException: For input string: "1d" in: R,35,Bruce Wellburn,LHP,140000,2.2,0.35,15,1d,2.3,4
java.util.NoSuchElementException in: P,36,Bull Durham,LHP,150000,2.1,0.325,16,0
java.lang.NumberFormatException: For input string: "2f" in: R,36,Bill Getts,LHP,150000,2.1,0.325,16,0,2.4,2f
InvalidCategoryException: For category: "H" in: H,24,Austin Nola,LHP,150000,2.1,0.325,4,12,1.2
R,35,Bruce Wayne,LHP,140000,2.2,0.35,15,1,2.3,4
R,36,Bill Gates,LHP,150000,2.1,0.325,16,0,2.4,2


 ----jGRASP: operation complete.
```

Output when `ball_player_data3c.csv` is passed to main in as a command line argument.

```
----jGRASP exec: java BallPlayersPart3 ball_player_data3c.csv
--------------------------------------
Team Report for My Test Team
--------------------------------------

21 John Doe (RF) .200
Base Salary: $150,000.00 Bonus Adjustment Factor: 2.3
Total Earnings: $217,620.00 (class Outfielder)

11 Tim Dobbs (RF) .350
Base Salary: $140,000.00 Bonus Adjustment Factor: 2.2
Total Earnings: $244,566.00 (class Outfielder)

13 Jim Dobbs (LF) .278
Base Salary: $140,000.00 Bonus Adjustment Factor: 2.0
Total Earnings: $213,948.00 (class Outfielder)

12 Joey Ledet (LF) .325
Base Salary: $140,000.00 Bonus Adjustment Factor: 2.1
Total Earnings: $231,728.00 (class Outfielder)

14 Sruthi Yalamanchili (CF) .285
Base Salary: $150,000.00 Bonus Adjustment Factor: 1.9
Total Earnings: $226,351.50 (class Outfielder)

15 Kavyashree Krishnappa (CF) .298
Base Salary: $140,000.00 Bonus Adjustment Factor: 1.8
Total Earnings: $209,839.28 (class Outfielder)

29 Sanket Chintapalli (1B) .200
Base Salary: $150,000.00 Bonus Adjustment Factor: 2.3
Total Earnings: $217,620.00 (class Infielder)

17 Jane Doe (1B) .350
Base Salary: $140,000.00 Bonus Adjustment Factor: 2.2
Total Earnings: $244,566.00 (class Infielder)

18 Buddy Bell (2B) .325
Base Salary: $150,000.00 Bonus Adjustment Factor: 2.1
Total Earnings: $248,280.00 (class Infielder)

19 Oscar De La Hoya (2B) .278
```

```
Base Salary: $140,000.00 Bonus Adjustment Factor: 2.0
Total Earnings: $213,948.00 (class Infielder)

20 David Umphress (3B) .285
Base Salary: $150,000.00 Bonus Adjustment Factor: 1.9
Total Earnings: $226,351.50 (class Infielder)

10 Mikie Mahtook (3B) .298
Base Salary: $140,000.00 Bonus Adjustment Factor: 1.8
Total Earnings: $209,839.28 (class Infielder)

22 Matty Ott (SS) .200
Base Salary: $150,000.00 Bonus Adjustment Factor: 2.3
Total Earnings: $217,620.00 (class Infielder)

23 Louis Coleman (SS) .350
Base Salary: $140,000.00 Bonus Adjustment Factor: 2.2
Total Earnings: $244,566.00 (class Infielder)

25 Aaron Nola (RHP) 5 wins, 11 losses, 1.3 ERA
Base Salary: $140,000.00 Bonus Adjustment Factor: 2.0
Total Earnings: $110,782.61 (class Pitcher)

26 John Malkovic (RHP) 6 wins, 10 losses, 1.4 ERA
Base Salary: $150,000.00 Bonus Adjustment Factor: 1.9
Total Earnings: $131,000.00 (class Pitcher)

27 Louis Giglio (RHP) 7 wins, 9 losses, 1.5 ERA
Base Salary: $140,000.00 Bonus Adjustment Factor: 1.8
Total Earnings: $131,936.00 (class Pitcher)

28 Gus Malzan (LHP) 8 wins, 8 losses, 1.6 ERA
Base Salary: $150,000.00 Bonus Adjustment Factor: 2.3
Total Earnings: $150,000.00 (class Pitcher)

16 Tim Brando (LHP) 9 wins, 7 losses, 1.7 ERA
Base Salary: $140,000.00 Bonus Adjustment Factor: 2.2
Total Earnings: $149,125.93 (class Pitcher)

30 Todd Strange (LHP) 10 wins, 6 losses, 2 saves, 1.8 ERA
Base Salary: $150,000.00 Bonus Adjustment Factor: 2.1
Total Earnings: $172,500.00 (class ReliefPitcher)

31 Blake Dean (RHP) 11 wins, 5 losses, 3 saves, 1.9 ERA
Base Salary: $140,000.00 Bonus Adjustment Factor: 2.0
Total Earnings: $168,965.52 (class ReliefPitcher)

32 Brian Wilson (RHP) 12 wins, 4 losses, 4 saves, 2.0 ERA
Base Salary: $150,000.00 Bonus Adjustment Factor: 1.9
Total Earnings: $188,000.00 (class ReliefPitcher)

33 Johnny Manziel (RHP) 21 wins, 3 losses, 2 saves, 2.1 ERA
Base Salary: $170,000.00 Bonus Adjustment Factor: 1.8
Total Earnings: $235,806.45 (class ReliefPitcher)

34 Green Lantern (LHP) 14 wins, 2 losses, 3 saves, 2.2 ERA
Base Salary: $150,000.00 Bonus Adjustment Factor: 2.3
Total Earnings: $203,906.25 (class ReliefPitcher)

---------------------------------------
Team Report for My Test Team (by Number)
---------------------------------------
10 Mikie Mahtook 3B .298
11 Tim Dobbs RF .350
12 Joey Ledet LF .325
13 Jim Dobbs LF .278
14 Sruthi Yalamanchili CF .285
15 Kavyashree Krishnappa CF .298
16 Tim Brando LHP 9 wins, 7 losses, 1.7 ERA
17 Jane Doe 1B .350
18 Buddy Bell 2B .325
19 Oscar De La Hoya 2B .278
20 David Umphress 3B .285
21 John Doe RF .200
22 Matty Ott SS .200
23 Louis Coleman SS .350
25 Aaron Nola RHP 5 wins, 11 losses, 1.3 ERA
26 John Malkovic RHP 6 wins, 10 losses, 1.4 ERA
27 Louis Giglio RHP 7 wins, 9 losses, 1.5 ERA
28 Gus Malzan LHP 8 wins, 8 losses, 1.6 ERA
29 Sanket Chintapalli 1B .200
30 Todd Strange LHP 10 wins, 6 losses, 2 saves, 1.8 ERA
31 Blake Dean RHP 11 wins, 5 losses, 3 saves, 1.9 ERA
```

```
32 Brian Wilson RHP 12 wins, 4 losses, 4 saves, 2.0 ERA
33 Johnny Manziel RHP 21 wins, 3 losses, 2 saves, 2.1 ERA
34 Green Lantern LHP 14 wins, 2 losses, 3 saves, 2.2 ERA

----------------------------------------
Team Report for My Test Team (by Name)
----------------------------------------
18 Buddy Bell 2B .325
16 Tim Brando LHP 9 wins, 7 losses, 1.7 ERA
29 Sanket Chintapalli 1B .200
23 Louis Coleman SS .350
19 Oscar De La Hoya 2B .278
31 Blake Dean RHP 11 wins, 5 losses, 3 saves, 1.9 ERA
13 Jim Dobbs LF .278
11 Tim Dobbs RF .350
17 Jane Doe 1B .350
21 John Doe RF .200
27 Louis Giglio RHP 7 wins, 9 losses, 1.5 ERA
15 Kavyashree Krishnappa CF .298
34 Green Lantern LHP 14 wins, 2 losses, 3 saves, 2.2 ERA
12 Joey Ledet LF .325
10 Mikie Mahtook 3B .298
26 John Malkovic RHP 6 wins, 10 losses, 1.4 ERA
28 Gus Malzan LHP 8 wins, 8 losses, 1.6 ERA
33 Johnny Manziel RHP 21 wins, 3 losses, 2 saves, 2.1 ERA
25 Aaron Nola RHP 5 wins, 11 losses, 1.3 ERA
22 Matty Ott SS .200
30 Todd Strange LHP 10 wins, 6 losses, 2 saves, 1.8 ERA
20 David Umphress 3B .285
32 Brian Wilson RHP 12 wins, 4 losses, 4 saves, 2.0 ERA
14 Sruthi Yalamanchili CF .285


----------------------------------------
Team Report for My Test Team (by Earnings)
----------------------------------------
$248,280.00 18 Buddy Bell 2B .325
$244,566.00 11 Tim Dobbs RF .350
$244,566.00 17 Jane Doe 1B .350
$244,566.00 23 Louis Coleman SS .350
$235,806.45 33 Johnny Manziel RHP 21 wins, 3 losses, 2 saves, 2.1 ERA
$231,728.00 12 Joey Ledet LF .325
$226,351.50 14 Sruthi Yalamanchili CF .285
$226,351.50 20 David Umphress 3B .285
$217,620.00 21 John Doe RF .200
$217,620.00 29 Sanket Chintapalli 1B .200
$217,620.00 22 Matty Ott SS .200
$213,948.00 13 Jim Dobbs LF .278
$213,948.00 19 Oscar De La Hoya 2B .278
$209,839.28 15 Kavyashree Krishnappa CF .298
$209,839.28 10 Mikie Mahtook 3B .298
$203,906.25 34 Green Lantern LHP 14 wins, 2 losses, 3 saves, 2.2 ERA
$188,000.00 32 Brian Wilson RHP 12 wins, 4 losses, 4 saves, 2.0 ERA
$172,500.00 30 Todd Strange LHP 10 wins, 6 losses, 2 saves, 1.8 ERA
$168,965.52 31 Blake Dean RHP 11 wins, 5 losses, 3 saves, 1.9 ERA
$150,000.00 28 Gus Malzan LHP 8 wins, 8 losses, 1.6 ERA
$149,125.93 16 Tim Brando LHP 9 wins, 7 losses, 1.7 ERA
$131,936.00 27 Louis Giglio RHP 7 wins, 9 losses, 1.5 ERA
$131,000.00 26 John Malkovic RHP 6 wins, 10 losses, 1.4 ERA
$110,782.61 25 Aaron Nola RHP 5 wins, 11 losses, 1.3 ERA


----------------------------------------
Excluded Records Report
----------------------------------------
java.lang.NumberFormatException: For input string: "1.9a" in: R,32,Brian William,RHP,150000,1.9a,0.285,12,4,2,4
java.util.NoSuchElementException in: R,33,Johnny Madman,RHP,140000,1.8
java.lang.NumberFormatException: For input string: "2.2" in: R,34,Green Monster,LHP,150000,2.3,0.2,2,2.2,3
java.lang.NumberFormatException: For input string: "1d" in: R,35,Bruce Wellburn,LHP,140000,2.2,0.35,15,1d,2.3,4
java.util.NoSuchElementException in: P,36,Bull Durham,LHP,150000,2.1,0.325,16,0
java.lang.NumberFormatException: For input string: "2f" in: R,36,Bill Getts,LHP,150000,2.1,0.325,16,0,2.4,2f
InvalidCategoryException: For category: "H" in: H,24,Austin Nola,LHP,150000,2.1,0.325,4,12,1.2
R,35,Bruce Wayne,LHP,140000,2.2,0.35,15,1,2.3,4
R,36,Bill Gates,LHP,150000,2.1,0.325,16,0,2.4,2
O,21,John Dogget,RF,150000,2.3,0.2,0.98
O,11,Tim Dobber,RF,140000,2.2,0.35,0.97
O,13,Jack Dotson,LF,140000,2,0.278,0.95
O,12,Joey Lemon,LF,150000,2.1,0.325,0.96
O,14,Sruthi Jain,CF,150000,1.9,0.285,0.94
O,15,Kavyashree Jain,CF,140000,1.8,0.298,0.93
I,29,Sanket Chinti,1B,150000,2.3,0.2,0.98
I,17,John Doe,1B,140000,2.2,0.35,0.97
I,18,Buddy Bellsom,2B,150000,2.1,0.325,0.96
I,19,Jaime De La Hoya,2B,140000,2,0.278,0.95
```

```
I,20,David Palmer,3B,150000,1.9,0.285,0.94
I,10,Mikie Mahtookie,3B,140000,1.8,0.298,0.93
I,22,Matty Otter,SS,150000,2.3,0.2,0.98
I,23,Louis Cole,SS,140000,2.2,0.35,0.97
InvalidCategoryException: For category: "H" in: H,24,Austin Nolan,LHP,150000,2.1,0.325,4,12,1.2
P,25,Aaron Nolan,RHP,140000,2,0.278,5,11,1.3
P,26,John Palkovic,RHP,150000,1.9,0.285,6,10,1.4
P,27,Louis Biglio,RHP,140000,1.8,0.298,7,9,1.5
P,28,Gus Malson,LHP,150000,2.3,0.2,8,8,1.6
P,16,Tim Brandies,LHP,140000,2.2,0.35,9,7,1.7
O,21,John Dogget,RF,150000,2.3,0.2,0.98


 ----jGRASP: operation complete.
```

Notes:

1. This project assumes that you are reading each double or int value as String using next() and then parsing it into a double with Double.parseDouble(...) or into an int with Integer.parseInt(…) as shown in the following examples.
   ```
   . . . Double.parseDouble(myInput.next());
   . . . Integer.parseInt(myInput.next());
   ```
   This form of input will throw a java.lang.NumberFormatException if the value is not a double.

   If you are reading in each double value as a double using nextDouble(), for example
   ```
   . . . myInput.nextDouble();
   ```
   then a java.util.InputMismatchException will be thrown if the value read is not a double.

   For this project, you must use Double.parseDouble(...) or Integer.parseInt(…) to input a double or int value respectively since Web-CAT is expecting NumberFormatException when an input String cannot be converted to double or int value.

2. In the readBallPlayerFile method, for the default case (or else), which detects an invalid category, the only statement should be:
   ```
   throw new InvalidCategoryException(category);
   ```
   The code that was in this block in Part 2 should be moved to the catch block for InvalidCategoryException with any changes specified for Part 3.