CS8
Assignment 4: Baseball Fun With Classes
Due Date: November 6, 2017 by 11:59PM

Part 2
1. Your first task is to create a function with one parameter (a file name) that reads each line of data and creates a PlayersYear object from that line, then places it in a list. After all lines are read, this list of PlayersYear objects is returned to the main function.
2. Next, create a function with one parameter (the list of PlayersYear objects) to display all the players in a table proceeded by heading1.
3. Next, create a function with one parameter (the list of PlayersYear objects) to display the averages of each player in a table proceeded by heading2.
4. Next, create a function to get the key that permits sorting on the number of homeruns a player hits. This function has one parameter, (a Player object). This function returns the number of home runs hit by this PlayersYear object.
5. Next, create a function with one parameter (the list of PlayersYear objects) that sorts this list with respect to home runs.
6. Next, create a function to get the key that permits sorting on the number of at bats. This function has one parameter, (a Player object). This function returns the number of at bats of this PlayersYear object.
7. Next, create a function with one parameter (the list of PlayersYear objects) that sorts this list with respect to at bats.
8. Finally, the main() function (is where the functions are called) is described by the comments below:

    ### Ask user to enter file's name

    ### Read the data from the file, return a list of PlayersYear objects

    ### Display all stats of the players (heading1)

    ### Display all averages (heading2)

    ### Display all stats of the players sorted by homer
    (heading1)

    ### Display all stats of the players sorted by at bats (heading1)

    ### Display all averages sorted from highest to lowest slugging percentage
    (heading2)

Deliverables:
Zip together, the files `PlayersYear.py`, `assign4.py`, `baseball.txt`, and `dimaggio.txt`. Don't forget to document each function!

Here are some outputs:

```
All players in file order:
-----------------------------------------------------------------------------
Player          Year    AB    S      D      T     HR     BA      SLG
-----------------------------------------------------------------------------
Hank Aaron      1971    495   90     22     3     47     0.327   0.669
Barry Bonds     2002    403   70     31     2     46     0.370   0.799
Rod Carew       1974    599   180    30     5     3      0.364   0.446
Ty Cobb         1912    553   166    30     23    7      0.409   0.584
Joe DiMaggio    1937    621   119    35     15    46     0.346   0.673
Mickey Mantle   1956    533   109    22     5     52     0.353   0.705
Roger Maris     1961    590   78     16     4     61     0.269   0.620
Willie Mays     1963    596   110    32     7     38     0.314   0.582
Wilbur Stargell 1978    390   67     18     2     28     0.295   0.567
Ted Williams    1957    420   96     28     1     38     0.388   0.731
Babe Ruth       1920    457   73     36     9     54     0.376   0.849
Bill Mazeroski  1960    538   110    21     5     11     0.273   0.392
Frank Gustine   1941    463   93     24     7     1      0.270   0.359
Thurman Munson  1975    597   151    24     3     12     0.318   0.429
Orlando Cepada  1967    563   121    37     0     25     0.325   0.524


All averages in file order:
-------------------------------------------
   Player        Slugging %    Year
-------------------------------------------
Joe DiMaggio     0.576         1936
Joe DiMaggio     0.673         1937
Joe DiMaggio     0.527         1938
Joe DiMaggio     0.592         1939
Joe DiMaggio     0.556         1940
Joe DiMaggio     0.559         1941
Joe DiMaggio     0.447         1942
Joe DiMaggio     0.453         1946
Joe DiMaggio     0.464         1947
Joe DiMaggio     0.531         1948
Joe DiMaggio     0.492         1949
Joe DiMaggio     0.507         1950
Joe DiMaggio     0.363         1951


Sorted by home runs:
-----------------------------------------------------------------------------
Player          Year    AB    S      D      T     HR     BA      SLG
-----------------------------------------------------------------------------
Frank Gustine   1941    463   93     24     7     1      0.270   0.359
Rod Carew       1974    599   180    30     5     3      0.364   0.446
Ty Cobb         1912    553   166    30     23    7      0.409   0.584
Bill Mazeroski  1960    538   110    21     5     11     0.273   0.392
Thurman Munson  1975    597   151    24     3     12     0.318   0.429
Orlando Cepada  1967    563   121    37     0     25     0.325   0.524
Wilbur Stargell 1978    390   67     18     2     28     0.295   0.567
Willie Mays     1963    596   110    32     7     38     0.314   0.582
Ted Williams    1957    420   96     28     1     38     0.388   0.731
Barry Bonds     2002    403   70     31     2     46     0.370   0.799
Joe DiMaggio    1937    621   119    35     15    46     0.346   0.673
Hank Aaron      1971    495   90     22     3     47     0.327   0.669
Mickey Mantle   1956    533   109    22     5     52     0.353   0.705
Babe Ruth       1920    457   73     36     9     54     0.376   0.849
Roger Maris     1961    590   78     16     4     61     0.269   0.620


Sorted by slugging percentages (hi to low):
-------------------------------------------
   Player        Slugging %    Year
-------------------------------------------
Babe Ruth        0.849         1920
Barry Bonds      0.799         2002
Ted Williams     0.731         1957
Mickey Mantle    0.705         1956
Joe DiMaggio     0.673         1937
Hank Aaron       0.669         1971
Roger Maris      0.620         1961
Ty Cobb          0.584         1912
Willie Mays      0.582         1963
Wilbur Stargell  0.567         1978
Orlando Cepada   0.524         1967
Rod Carew        0.446         1974
Thurman Munson   0.429         1975
Bill Mazeroski   0.392         1960
Frank Gustine    0.359         1941
```

```
Sorted by at bats:
--------------------------------------------------------------------------------
Player              Year    AB    S     D     T     HR    BA     SLG
--------------------------------------------------------------------------------
Joe DiMaggio        1949    329   60    14    6     14    0.286  0.492
Joe DiMaggio        1951    482   71    22    4     12    0.226  0.363
Joe DiMaggio        1939    524   108   32    6     30    0.336  0.592
Joe DiMaggio        1946    567   93    20    8     25    0.257  0.453
Joe DiMaggio        1940    572   111   28    9     31    0.313  0.556
Joe DiMaggio        1947    601   107   31    10    20    0.280  0.464
Joe DiMaggio        1950    606   83    33    10    32    0.261  0.507
Joe DiMaggio        1937    621   119   35    15    46    0.346  0.673
Joe DiMaggio        1941    622   109   43    11    30    0.310  0.559
Joe DiMaggio        1936    637   118   44    15    29    0.323  0.576
Joe DiMaggio        1938    660   117   32    13    32    0.294  0.527
Joe DiMaggio        1948    669   114   26    11    39    0.284  0.531
Joe DiMaggio        1942    680   123   29    13    21    0.274  0.447
```