New York University
School of Continuing and Professional Studies
Division of Programs in Information Technology

Introduction to Python
Homework, Session 7

7.1   Convert the custom sort function you created in the previous session into a
      lambda.

      Expected output: same as for 6.1.

7.2   Write a single list comprehension that returns the list of ids from student_db.txt.
      Print the IDs list.

      Expected Output:

      ```
      ['jk43', 'axe99', 'jab44', 'ak9', 'ap172', 'jb23', 'jb29']
      ```

7.3   Reading through stock_prices.csv, build a dict of lists in which the key is the stock
      ticker and the value is a list of closing prices for that ticker. Sort the tickers by the
      difference between the highest and lowest close prices for each stock ticker for
      the year, and report as shown below. For extra credit, render the sort function as a
      lambda.

      Brief discussion:

      As you loop line by line, the operative code line is this:

      ```
      ticker_prices[ticker].append(close)
      ```

where you are appending the closing price to a list of prices associated with a particular ticker (AAPL, GOOG, etc.)

However, as discussed, you will need to check the dict ahead of time to see if the ticker key is already there. If not, set the key and value in the dict for that line.

```
ticker_prices[ticker] = []
```

Please avoid looping through the file more than once. Please avoid using a separate list or set to hold any of the values. A dictionary of lists is all you need! This exercise helps you see how you can build and sort a multidimensional structure.

Once the structure is built, your sort function will sort each key in the dictionary by the difference between the highest and lowest close prices recorded. Inside the sort function, you can use the max() and min() functions to get highest and lowest; these functions take a list argument and return the greatest or least value of each.

Expected Output:

```
GOOG:   180.38 difference (672.93-492.55)
LNKD:   100.82 difference (270.76-169.94)
AAPL:   36.74 difference (133.0-96.26)
FB:   25.76 difference (98.39-72.63)
MSFT:   9.32 difference (49.61-40.29)
```