# **CS 8, Winter 2015**

Homework Assignment #? (draft)

## Assignment Overview

This project allows you to practice more with data retrieval, summarization, and tabulation.

## Background

Web servers and clients communicate using a standard called HTML (Hyper Text Markup Language). Web pages are stored on a server computer (e.g., www.cnn.com, www.google.com, etc.) and a client (i.e., a Web browser on a MAC, PC, tablet, phone, etc.) can retrieve such pages by supplying a unique URL (Uniform Resource Locator, e.g., http://www.cs.ucsb.edu/~cs8) that identifies a particular page on the server. The server retrieves the page (in html format) and sends it to the client. The Web browser on the client computer then parses the html file and displays the content on the screen.

## Project Specifications

You will be given a file containing fictitious students' grades in a CS8 class. The file comprises multiple lines and each line contains six fields separated by comma: last name, first name, homework 1 grade, midterm grade, homework 2 grade, and final grade.

You will calculate the averages of these four grades, weighed equally, for all students. You also need to sort these records by a given field (any of the six plus the final average). Finally, you are to generate an html file that is a table of the sorted records for a Web browser to display.

## Deliverables

The deliverable for this assignment is the following file:

html.py – the source code for your Python program

Be sure to use the specified file name and submit it for grading via the **turnin** system before the project deadline.

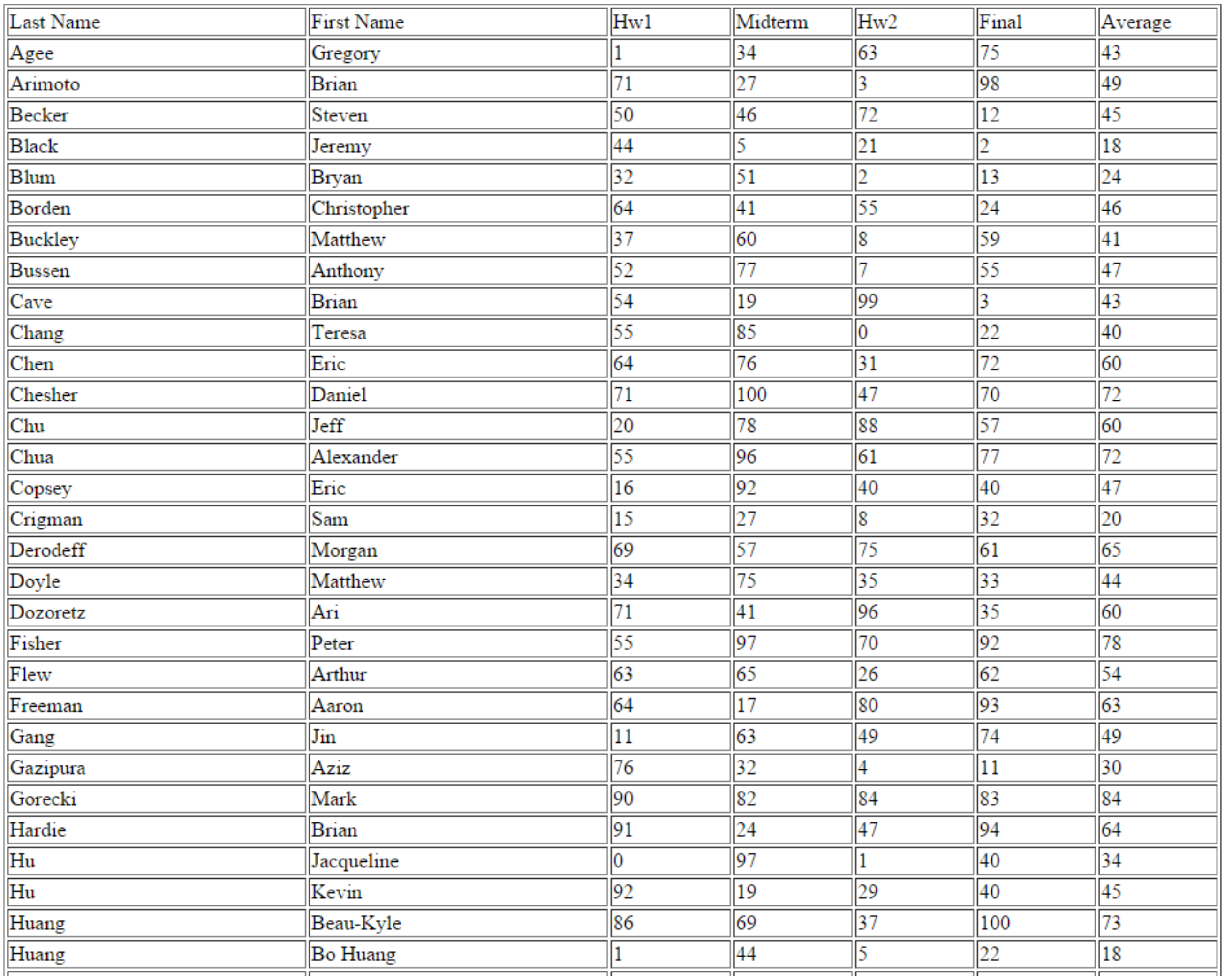
## Assignment Notes:

1. A template html file ("template.html") will be made available to you. This template file is for generating an html table with seven columns. The content should be quite self-explanatory: There are html tags <html></html>, <head></head>, <body></body>, and <table></table> that delineate the whole document, the header, the body, and a table, respectively. Each line in the table is specified with <tr></tr> tag. You are to insert your sorted data into the table using the same format as the first, caption line.
2. To do this, you should copy template file line by line into your output file until you reach the line </table> which indicates the end of the table. Before you write out that line, you need to format your data and add them into the output file. The output file can be opened by any Web browser to show a table.
3. There is only one external callable function: tabulate(IP, OP, template, SortedbyCol)
    a. IP: is the input file name

b. OP: is the output file name
c. template: is the html template file
d. SortedbyCol: is a value between 0 and 6 which denotes the column used for sorting

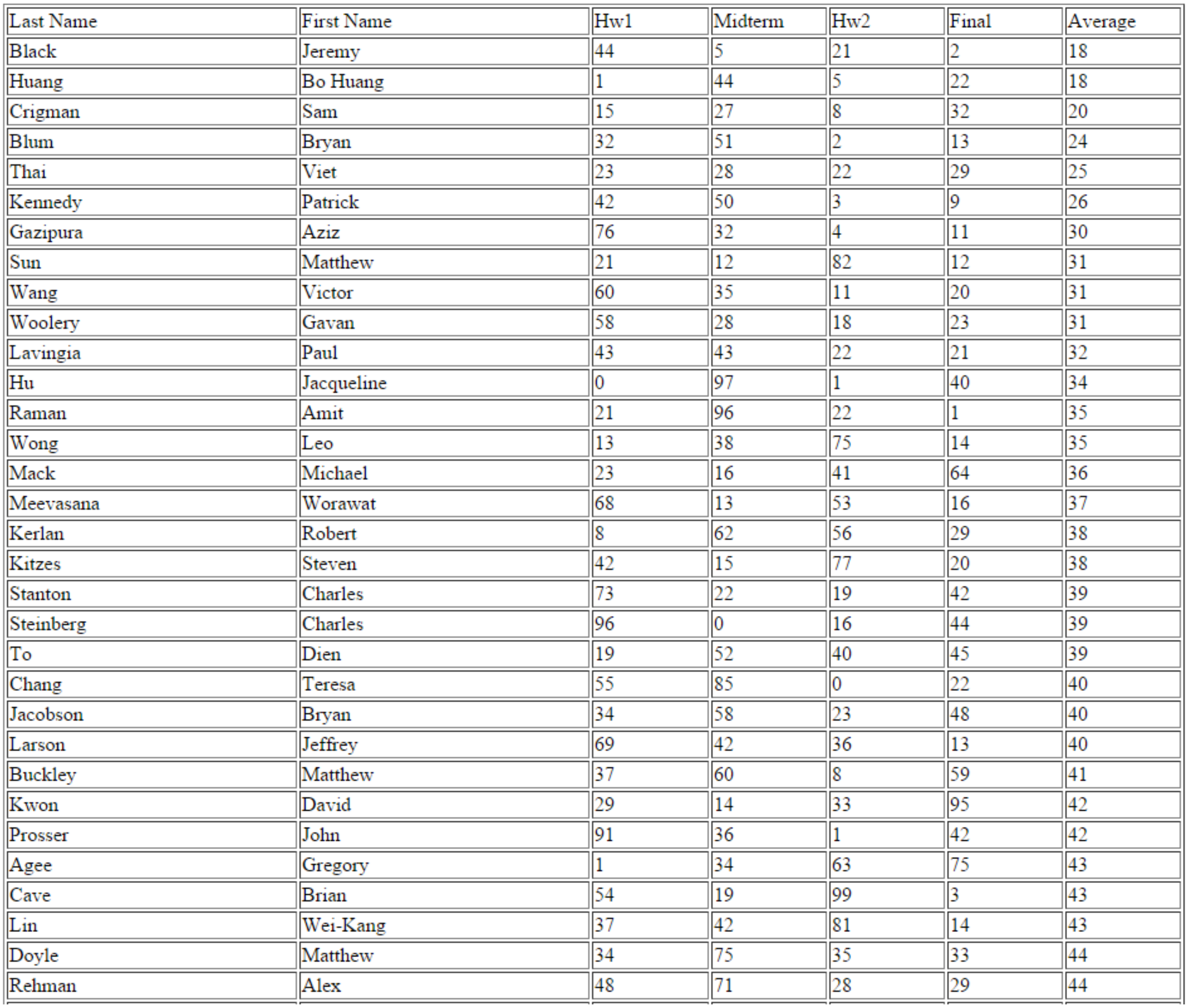
**Sample Outputs:**

Please note that the records were generated randomly and did not in any way reflect a student’s true performance in the class.



| Last Name | First Name | Hw1 | Midterm | Hw2 | Final | Average |
|---|---|---|---|---|---|---|
| Agee | Gregory | 1 | 34 | 63 | 75 | 43 |
| Arimoto | Brian | 71 | 27 | 3 | 98 | 49 |
| Becker | Steven | 50 | 46 | 72 | 12 | 45 |
| Black | Jeremy | 44 | 5 | 21 | 2 | 18 |
| Blum | Bryan | 32 | 51 | 2 | 13 | 24 |
| Borden | Christopher | 64 | 41 | 55 | 24 | 46 |
| Buckley | Matthew | 37 | 60 | 8 | 59 | 41 |
| Bussen | Anthony | 52 | 77 | 7 | 55 | 47 |
| Cave | Brian | 54 | 19 | 99 | 3 | 43 |
| Chang | Teresa | 55 | 85 | 0 | 22 | 40 |
| Chen | Eric | 64 | 76 | 31 | 72 | 60 |
| Chesher | Daniel | 71 | 100 | 47 | 70 | 72 |
| Chu | Jeff | 20 | 78 | 88 | 57 | 60 |
| Chua | Alexander | 55 | 96 | 61 | 77 | 72 |
| Copsey | Eric | 16 | 92 | 40 | 40 | 47 |
| Crigman | Sam | 15 | 27 | 8 | 32 | 20 |
| Derodeff | Morgan | 69 | 57 | 75 | 61 | 65 |
| Doyle | Matthew | 34 | 75 | 35 | 33 | 44 |
| Dozoretz | Ari | 71 | 41 | 96 | 35 | 60 |
| Fisher | Peter | 55 | 97 | 70 | 92 | 78 |
| Flew | Arthur | 63 | 65 | 26 | 62 | 54 |
| Freeman | Aaron | 64 | 17 | 80 | 93 | 63 |
| Gang | Jin | 11 | 63 | 49 | 74 | 49 |
| Gazipura | Aziz | 76 | 32 | 4 | 11 | 30 |
| Gorecki | Mark | 90 | 82 | 84 | 83 | 84 |
| Hardie | Brian | 91 | 24 | 47 | 94 | 64 |
| Hu | Jacqueline | 0 | 97 | 1 | 40 | 34 |
| Hu | Kevin | 92 | 19 | 29 | 40 | 45 |
| Huang | Beau-Kyle | 86 | 69 | 37 | 100 | 73 |
| Huang | Bo Huang | 1 | 44 | 5 | 22 | 18 |

*Figure 1: First few records sorted by last names*



| Last Name | First Name | Hw1 | Midterm | Hw2 | Final | Average |
|---|---|---|---|---|---|---|
| Black | Jeremy | 44 | 5 | 21 | 2 | 18 |
| Huang | Bo Huang | 1 | 44 | 5 | 22 | 18 |
| Crigman | Sam | 15 | 27 | 8 | 32 | 20 |
| Blum | Bryan | 32 | 51 | 2 | 13 | 24 |
| Thai | Viet | 23 | 28 | 22 | 29 | 25 |
| Kennedy | Patrick | 42 | 50 | 3 | 9 | 26 |
| Gazipura | Aziz | 76 | 32 | 4 | 11 | 30 |
| Sun | Matthew | 21 | 12 | 82 | 12 | 31 |
| Wang | Victor | 60 | 35 | 11 | 20 | 31 |
| Woolery | Gavan | 58 | 28 | 18 | 23 | 31 |
| Lavingia | Paul | 43 | 43 | 22 | 21 | 32 |
| Hu | Jacqueline | 0 | 97 | 1 | 40 | 34 |
| Raman | Amit | 21 | 96 | 22 | 1 | 35 |
| Wong | Leo | 13 | 38 | 75 | 14 | 35 |
| Mack | Michael | 23 | 16 | 41 | 64 | 36 |
| Meevasana | Worawat | 68 | 13 | 53 | 16 | 37 |
| Kerlan | Robert | 8 | 62 | 56 | 29 | 38 |
| Kitzes | Steven | 42 | 15 | 77 | 20 | 38 |
| Stanton | Charles | 73 | 22 | 19 | 42 | 39 |
| Steinberg | Charles | 96 | 0 | 16 | 44 | 39 |
| To | Dien | 19 | 52 | 40 | 45 | 39 |
| Chang | Teresa | 55 | 85 | 0 | 22 | 40 |
| Jacobson | Bryan | 34 | 58 | 23 | 48 | 40 |
| Larson | Jeffrey | 69 | 42 | 36 | 13 | 40 |
| Buckley | Matthew | 37 | 60 | 8 | 59 | 41 |
| Kwon | David | 29 | 14 | 33 | 95 | 42 |
| Prosser | John | 91 | 36 | 1 | 42 | 42 |
| Agee | Gregory | 1 | 34 | 63 | 75 | 43 |
| Cave | Brian | 54 | 19 | 99 | 3 | 43 |
| Lin | Wei-Kang | 37 | 42 | 81 | 14 | 43 |
| Doyle | Matthew | 34 | 75 | 35 | 33 | 44 |
| Rehman | Alex | 48 | 71 | 28 | 29 | 44 |

*Figure 2 First few records sorted by averages*