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1:
2: # computes and records final grades
3:
4: # input line format:
5:
6: #   name and misc. info, e.g. class level
7: #   Final Report grade
8: #   Midterm grade
9: #   Quiz grades
10: #   Homework grades
11:
12: # comment lines, beginning with #, are ignored for computation but are
13: # printed out; thus various notes can be put in comment lines; e.g.
14: # notes on missed or makeup exams
15:
16: # usage:
17:
18: #   python FinalGrades.py input_file nq nqd nh wts
19:
20: #       where there are nq Quizzes, the lowest nqd of which will be
21: #       deleted; nh Homework assignments; and wts is the set of weights
22: #       for Final Report, Midterm, Quizzes and Homework
23:
24: # outputs to stdout the input file with final course grades appended;
25: # the latter are numerical only, allowing for personal inspection of
26: # "close" cases, etc.
27:
28: import sys
29:
30: def convertltr(lg): # converts letter grade lg to 4-point-scale
31:     if lg == 'F': return 0
32:     base = lg[0]
33:     olg = ord(base)
34:     if len(lg) > 2 or olg < ord('A') or olg > ord('D'):
35:         print lg, 'is not a letter grade'
36:         sys.exit(1)
37:     grade = 4 - (olg-ord('A'))
38:     if len(lg) == 2:
39:         if lg[1] == '+': grade += 0.3
40:         elif lg[1] == '-': grade -= 0.3
41:     else:
42:         print lg, 'is not a letter grade'
43:         sys.exit(1)
44:     return grade
45:
46: def avg(x,ndrop):
47:     tmp = []
48:     for xi in x: tmp.append(convertltr(xi))
49:     tmp.sort()
50:     tmp = tmp[ndrop:]
51:     return float(sum(tmp))/len(tmp)
52:
53: def main():
54:     infile = open(sys.argv[1])
55:     nq = int(sys.argv[2])
56:     nqd = int(sys.argv[3])
57:     nh = int(sys.argv[4])
58:     wts = []
59:     for i in range(4): wts.append(float(sys.argv[5+i]))
60:     for line in infile.readlines():
61:         toks = line.split()
62:         if toks[0] != '#':
63:             lw = len(toks)
64:             startpos = lw - nq - nh - 3
65:             # Final Report
66:             frgrade = convertltr(toks[startpos])
67:             # Midterm letter grade (skip over numerical grade)
68:             mtgrade = convertltr(toks[startpos+2])
69:             startquizzes = startpos + 3
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70:         qgrade = avg(toks[startquizzes:startquizzes+nq],nqd)
71:         starthomework = startquizzes + nq
72:         hgrade = avg(toks[starthomework:starthomework+nh],0)
73:         coursegrade = 0.0
74:         coursegrade += wts[0] * frgrade
75:         coursegrade += wts[1] * mtgrade
76:         coursegrade += wts[2] * qgrade
77:         coursegrade += wts[3] * hgrade
78:         print line[:len(line)-1], coursegrade
79:     else:
80:         print line[:len(line)-1]
81:
82: if __name__ == '__main__':
83:     main()
84:
```