Practice Exercise #52: CAP

http://www.comp.nus.edu.sg/~cs1010/4_misc/practice.html

Reference: Week 13 Discussion Question 4

Date of release: 3 November 2014

Objectives: Structures

Task statement:

Write a program **cap.c** that makes use of these structures:

- **result_t** that contains 3 members: a 7-character module code, the grade obtained by the student, and the number of modular credits (MCs) of that module; and
- **student_t** that contains the student's name (at most 30 characters), and an array of result_t structures. You may assume that a student can take at most 50 modules.

Your program should read in a student's name, the number of modules he has taken, and for each module, the module code, the grade obtained, and the number of modular credits. All these data should be stored in a **student_t** variable. Your program should then compute the student's CAP (Cumulative Aggregate Point), based on this formula:

CAP = Σ (MCs × Grade Point) / Σ (MCs)

The table below shows the grade point corresponding to each grade:

Grade	A+ or A	A-	B+	B	B-	C+	C	D+	D	F
Grade Point	5.0	4.5	4.0	3.5	3.0	2.5	2.0	1.5	1.0	0

For example, if Brusco Beh has taken 5 modules and his results (module code, grade obtained, and number of MCs) are as follows:

```
CS1010 A+ 4
CS1231 B 4
MA1101R B+ 4
GEM1211 A- 3
PH2001 C 4
```

then his CAP is calculated as follows:

(5.0×4 + 3.5×4 + 4.0×4 + 4.5×3 + 2.0×4) / (4 + 4 + 4 + 3 + 4) = 71.5/19 = **3.76**

Sample run:

```
Enter student's name: Brusco Beh
Enter number of modules taken: 5
Enter results of 5 modules:
CS1010 A+ 4
CS1231 B 4
MA1101R B+ 4
GEM1211 A- 3
PH2001 C 4
CAP = 3.76
```