

Practice S11P04: CAP

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

Week of release: Week 11

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:

$$\text{CAP} = \frac{\sum (\text{MCs} \times \text{Grade Point})}{\sum (\text{MCs})}$$

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:

$$(5.0 \times 4 + 3.5 \times 4 + 4.0 \times 4 + 4.5 \times 3 + 2.0 \times 4) / (4 + 4 + 4 + 3 + 4) = 71.5 / 19 = \mathbf{3.76}$$

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