ECAM BRUSSELS ENGINEERING SCHOOL

Fall 2019
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E301B C Programming

Quizz 4: Memory and pointer arithmetic

This assessment evaluates the following competencies:

- *CP209 – understand the concept of addressing and pointer*
- *CP012 – use pointer arithmetic to manipulate pointers*
- *CP018 – use pointer of pointer and define non rectangular two-dimensional arrays*
- *CP207 – understand how variables and their values are stored in memory*
- *CP212 – understand the relation between arrays and pointers concepts and notation equivalence*

For the three first assessed competency (CP209, CP012 and CP018), you have to determine the value of ten expressions, given the following situation in memory and the `char **data` declaration:

	8001	`'H'`
	8000	`'y'`
		⋮
	3016	1000
	3008	8000
	3000	8000
		⋮
	2008	1000
data:	2000	3000
		⋮
	1000	`'X'`

Note that your answer to an expression may be "it depends" (on the content of other memory areas).

1. `data`:
2. `*data`:
3. `&data`:
4. `**data`:
5. `data + 2`:
6. `*(data + 2)`:
7. `**(data + 2)`:
8. `data + 10`:
9. `*(data + 1) + 1`:
10. `**(&data + 1)`:

Given the situation in memory depicted above, how many bytes are used to store a pointer? (CP207)

How would you write the 7th expression with array notation (`[]`) instead of pointer notation? (CP212)