

CS&A: Lab Sessions

Exercises: Recursion

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1 Time Schedule

Exercises are made individually. Fill in all solutions to the exercises in the file `oefeningen.html`. **Include all .asm files that contain your MIPS programs.**

Put all your files in a `tgz` archive, as explained on the course's website, and submit your solution to the exercises on Blackboard.

- Deadline: **December, 20 2010, 23u55**

2 Exercises

Write a MIPS program for the MARS simulator for each of the following exercises. As always, document your solution well (use `#`).

1. Write a MIPS program that reads two integers a and b , and calculates the greatest common divisor.
 - Write a (leaf) `remainder` procedure that takes two arguments a and b , and calculates the remainder of the division of a and b .
 - Write a (recursive) procedure `gcd` with two arguments a and b , which calculates the greatest common divisor using this recursive definition:

$$\text{gcd}(x, y) = \begin{cases} x & : \text{if } y = 0 \\ \text{gcd}(y, \text{remainder}(x, y)) & : x \geq y \text{ and } y > 0 \end{cases} \quad (1)$$