

# Computer Systems and -architecture

## MIPS

1 Ba INF 2015-2016

Bart Meyers  
bart.meyers@uantwerpen.be

Stephen Pauwels  
stephen.pauwels@uantwerpen.be

### Time Schedule

Exercises are made individually. 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: **November 26, 23u55**

### Exercises

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

1. Read an integer `n` (use `syscall`), and print  
This is my `n`-th MIPS-program.  
on the screen.
2. Convert the C++ code below to a MIPS program.

```
for (int i = 1; i < 11; i++)  
{  
    cout << i << endl;  
}
```

3. Write a program that reads an integer `n` and prints a pyramid of `n` rows, with on each row a sequence of integers starting with 1. With `n = 4` the output should be:

```
1  
1 2  
1 2 3  
1 2 3 4
```

4. Convert the C++ code below to a MIPS program. (Use a jump table with the `jr $t1` instruction and use the `la $t1, label` instruction to explicitly model the branch table)

```
int i = 1;  
int a = 0;  
switch (i) {
```

```
    case 0:
        a = 9;
        break;
    case 1:
        a = 6;
    case 2:
        a = 8;
        break;
    default:
        a = 7;
        break;
}
std::cout << a << endl
```