

Digital Design and Computer Architecture: Lab Report		
Lab 7: Writing Assembly Code		
Date		Grade
Names		
		Lab session / lab room

You have to submit this report via Moodle.

Use a zip file or tarball that contains the report and all other files you used for the report. If any files are missing, it may negatively impact your grade. No shortcuts/links will be accepted.

Only one of the members of each group should submit. All members of the group will get the same grade.

The name of the submitted file should be Lab7_LastName1_LastName2.zip (or .tar), where LastName1 and LastName2 are the last names of the members of the group. The deadline for the report is a hard deadline and it will not be extended.

Exercise 1

Assume that instead of using black and white images, for which pixels are described with a single value, we use color images, i.e., every point is described by the combination of three colors (R,G,B).



The `abs_diff` function can be redefined as:

```
int abs_diff_color(int R1, int G1, int B1, int R2, int G2, int B2) {
    int abs_diff = abs(R1-R2) + abs(G1-G2) + abs(B1-B2);
}
```

```
    return abs_diff;
}
```

This new function requires 6 arguments, but MIPS only provides 4 registers (\$a0-\$a3) to pass the arguments. How would you modify the function `abs_diff()` so that it adjusts to the calling convention in MIPS (*System V Application Binary Interface - MIPS RISC Processor Supplement*), i.e., pass arguments after \$a3 through the stack? You should implement the function and submit it via Moodle. Include explanations on how the function works.

Feedback

If you have any comments about the exercises (e.g., related to mistakes in the text, the difficulty level, or anything else that will help us improve them), please submit them through Moodle, using the corresponding “Lab 7: Feedback” form:

<https://moodle-app2.let.ethz.ch/mod/feedback/view.php?id=900406>