

CSCI 2500 — Computer Organization
Homework 04 (document version 1.0) — Due December 6, 2023
Pipelining in MIPS

- This homework is due by the midnight EST on the above date via a Submittity gradeable.
- This homework is to be completed **individually**. Do not share your code with anyone else.
- Homework assignments are available approximately seven calendar days before they are due. Plan to start each homework early. You can ask questions during office hours, in the Submittity forum, and during your lab session.
- You **must** use C for this homework assignment, and your code **must** successfully execute on Submittity to receive credit.

Homework Specifications

For this individual homework assignment, you will work on textbook problems. All problems in this assignment are from the following section <https://learn.zybooks.com/zybook/RPICSCI2500KuzminFall2023/chapter/12/section/14> in zyBooks.

First, start with some “warm-up” exercises, which you will **not** submit as part of this assignment. In other words, do these “warm-up” exercises as practice and to prepare to work on the actual problems you will submit for credit.

Warm-Up Exercises (for Practice)

1. Textbook Problem 12.14.1 (all sub-parts)
2. Textbook Problem 12.14.3 (all sub-parts)
3. Textbook Problem 12.14.11 (all sub-parts)

Homework Problems (to Submit for Credit)

- Answer the questions and provide solutions to all problems given below.
- You **MUST** type up your answers. Handwritten solutions will not be accepted or graded, even if they are scanned into a PDF file.
- We recommend using LaTeX (<https://www.latex-project.org/>). If you have never used LaTeX, you might want follow some tutorial, like this one: <https://www.latex-tutorial.com/tutorials/>. There is a convenient online LaTeX editor called Overleaf (<https://www.overleaf.com/>) that has a free plan for students.
- Submit your answers on Submittity as a single PDF file named **hw4.pdf**.
- This part of the homework will be manually graded by our TAs.
- Explicitly denote any assumptions you need to make.

- **Show all work!**
 - Clearly label every problem. If a problem has a single answer, like 200 ps, make it bold, use a larger font, and enclose in a box for better visibility, like this:

200 ps

. You still need to show all work!
1. **Textbook Problem 12.14.5 (all sub-parts)**
 2. **Textbook Problem 12.14.7 (all sub-parts)**
 3. **Textbook Problem 12.14.10 (all sub-parts)**
 4. **Textbook Problem 12.14.16 (all sub-parts)**

Submission and Grading Criteria

For this assignment, you will submit your PDF (i.e., `hw4.pdf`) with your answers to the textbook problems into the Submittity gradeable.