Workshop 3: Pipeline Simulation
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Due: July 16, 2007
Worth: 50 points

This workshop is designed to increase your understanding of pipelining and handling command line arguments in a C program.

Description

You are to write a C program that simulates a pipeline with up to five stages, each with potentially different durations, for an arbitrary number of clock cycles. The output of the program should be a single value indicating the total number of clock cycles elapsed in the simulation. You should design your program to run from the command line in the following way:

```
% a.out 1000 30 40 20
```

In this example, 1000 is the number of clock cycles, 30 is the duration of the first stage, 40 is the duration of the second stage, and 20 is the duration of the third and final stage.

After completing your program, use it to verify the results of your homework problems, and to experiment with various lengths and durations of pipelines.

Resources

- “man” page for atoi C function
- other online C programming references (look for info on command line arguments and for loops)
- see class web site “Resources” page

What to hand in

Email me with the name of your program file and I will retrieve it from your account, compile it and run it. In the email provide a brief explanation of what you observed.

Grading criteria

Program compiles and runs 25
Handles command line input correctly 5
Produces accurate simulation output 10
Brief explanation of observations 10