P51a — Instructions For Final (Second) Lab Report

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1 Objective

The tasks of this submission are twofold; one for each of the Labs 4 and 5.

Lab 4: Inital KUtrace experiences studying programs from Lab 2 and Lab 3

You will draw together the results from Lab 4; report, discuss, and draw conclusions for each of these sets of the chapter's experiments.

You will wish to use the chapter question 25.1 as a guideline for the content when reporting lab4.

> 25.1 Find another anomaly in the HTML files for the four traces in this chapter. Specify the time range, what looks odd, and your thoughts and reasoning about what likely is going on. How would you improve the performance?

Report your results, compare and contrast these with your expectations. Make clear your expectations, the differences between those and the operational experience, and discuss what caused these differences. You may wish to test your hypothesis.

For example if you speculate that client processes are congested at the server due to contention over spin-locks - examine the KUtraces and identify the relevant parts of the trace. Don't forget you can add your own KUtrace labels in the code (look at `~/KUtrace/bookcode/aw_files/book-user-code/hello_world_trace.c` for an example.

Lab 5: Studying server_disk and server when host is under antagonistic load

Lab 5 specifically intends for you to compare and contrast the behaviour of a known workload when subject to an antagonist.

Furthermore, by using KUtrace together with the applications own logging, you can make clear identification of how the application is affected by the antagonistic workloads.

Look for differing behaviour between loads with and without an antagonist and then by using KUtrace alongside the application's own measurements identify the cause of the new behaviour. Describe clearly the root cause of these differences, justifying your discussion with measurements, the study of the KUtrace data, and so-forth.

Discuss how the two mechanisms (application-based measurement and KUtrace measurements) can, together with intentional resource starvation due to antagonistic workloads, reveal specific behaviours, identify potential bottlenecks, and potential for both misbehaviour and poorer performance. Draw conclusions on how best each of these tools may be used; both independently and together.

2 Structure

A scientific method outline is suitable – see the lab report1 guidelines or the sample report1.tex for section names; once again you may wish to have aim(s)/objective, equipment, results, discussion and conclusion section for each part of Lab 4 and Lab 5 or you may find it more sensible to combine all results and discussion within a single report structure.

Please don't be constrained by the suggested headings; consider them a guide to ensure you remember to include all the graphs and results, to discuss all the results specifying when the results support your initial assumptions, and discuss why it is when results fail to support your expectations.

Finally please remember a conclusion is not a summary; a conclusion is used in several ways (one or more of these things): to highlight an interesting and relevant result, to identify a key finding from the discussion, to draw together a set of findings when they support a greater conclusion, note wherever your initial aim is supported, or not.

3 Quick Feedback from the reports so far

Use this information to improve your final report (full feedback for each of you will follow promptly; this is merely a quick set of observations to help you on your way.)
A few weaknesses:

- Failure to clearly state what is being measured and what is expected

- Failure to clearly state conclusions, including what was observed and how it differed from what was expected.

- Failure of the observed data to support the discussions' conclusions.

- Diagrams without sufficient text stating what we are looking at and why – remember it is good practice to reference every table, and every figure from within the text of the lab report.

- Figures missing fundamentals: e.g., missing keys, missing units.

A few things to remember:

- Include references to all figures within the report; and attempt to force figures to be adjacent to the first reference in the text (try using the argument `\begin{figure}[h]` **h** for **here**

- Use proper scale, adapt the template if need be – be particularly careful of using scaled-down figures as this also means scaled down fonts

- Make sure that your (computing) environment does not affect the results; multiple runs can reassure you on this

- Do not make assertions, instead make claims supported by evidence from experimentation
  Discuss your results in depth by:

- Compare and contrast results gained through different vantage points, using different tools, on different platforms, etc.

- Provide side-by-side comparisons

- Use the questions in book and handouts as guiding examples

- Use the right terminology (accuracy, precision, resolution)

- Correct typos and grammar mistakes

- If/where necessary, annotate your figures; yes use an editor and draw an arrow/circle/large letter A as needed. This makes a readers life much easier as you can refer to *the big A on Figure XYZ*

4 End

Try always to keep a sense of wonder, try stuff, and don't be hipster Flanders. Thank you all.