OF-1 Report :
Computational Simulations of a Lid-driven Cavity

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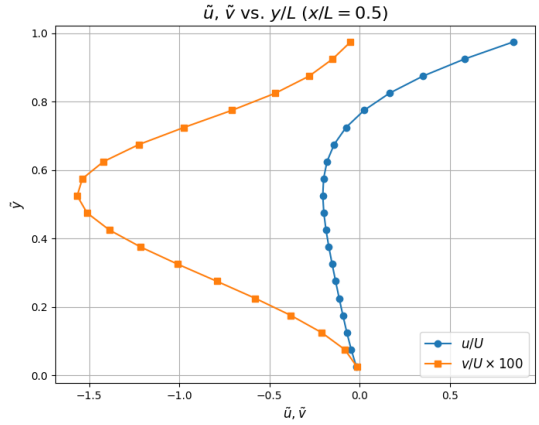
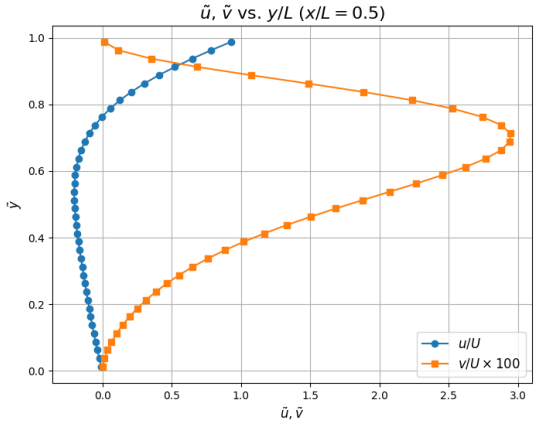
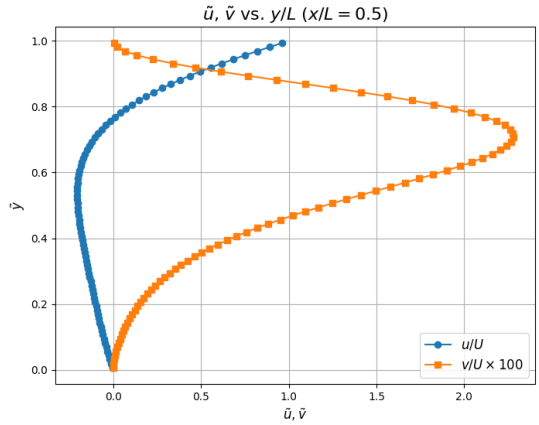


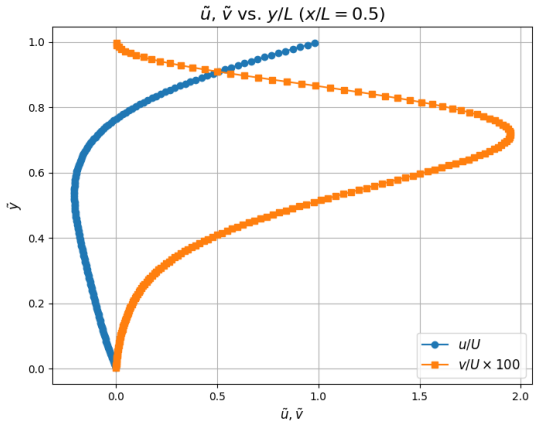
(a) Original



(b) First Refinement



(c) Third Refinement



(d) Fourth Refinement

Figure 1: Effect of increased gridsize and decreased time step size on $\tilde{u}$, $\tilde{v}$ vs. $\tilde{y}$

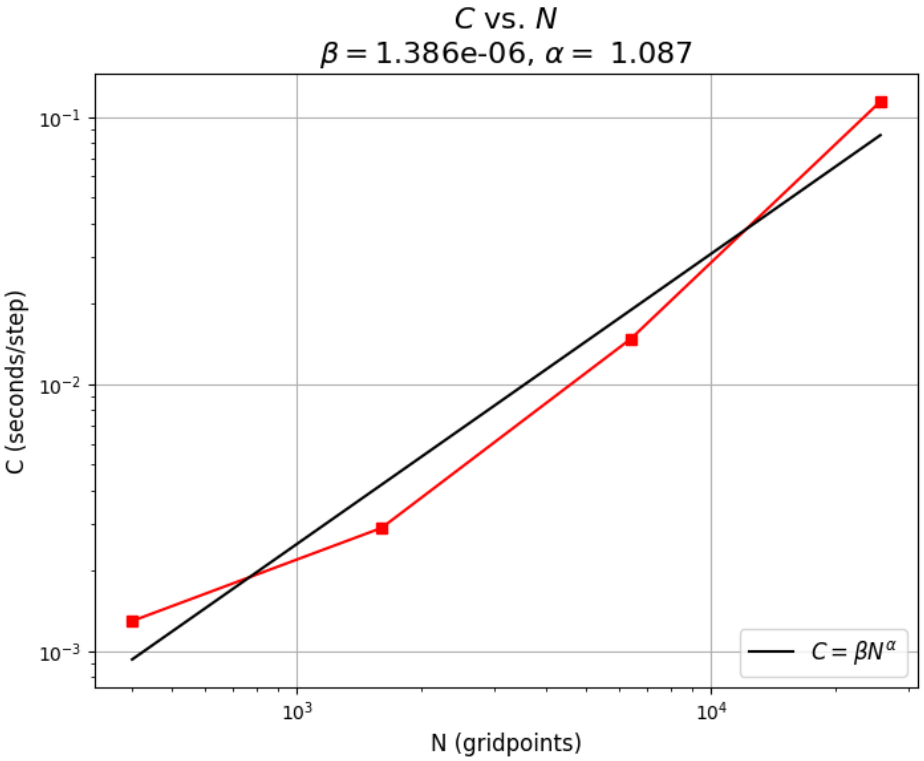


Figure 2: Execution time per step C increases with higher gridpoints N

Q: What can you conclude about the increase in wallclock time as you refine the grid?

A: Higher refinement will take longer per iteration than at lower refinement. It is clear in Fig. 2 with our estimate of $\alpha = 1.087$ in the fit $C = \beta N^{\alpha}$ that with an order of magnitude increase in gridpoints there is an order of magnitude increase in the execution time per step.

4 Force on the Lid

5 Conclusion

Appendix

A Code

PDF of code starts on next page.