

# MAP55672 Alternate Assignment

April 8, 2024

1. In “two\_level\_driver.m”, compute the coarse grid matrix  $A_c$ , i.e. complete line 13
2. Implement a two level v-cycle solver in “two\_level\_vcycle.m”. Follow the comments and the algorithm on slide 26 of the lecture notes
3. Make a plot of the time to solution using a grid size of  $N_x = 2^p - 1$  and  $N_y = 2^q - 1$  for  $p = q = 4, \dots, 7$  using your completed two level v-cycle solver.

The due date for the assignment is 11:59 PM April 14th 2024. Compress it as a zip file and upload to Blackboard. If you cannot get your code to work, or it gives the wrong result, leave comments explaining what went wrong, what the result should be and how you think you could fix it!