

MA5601 — Assignment 1

Michaelmas term — 2020-21

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Instructions

Complete all parts of the assignment by **Friday 6th November**. You should submit all C/C++ source files and a pdf of any written part via `msc.tchpc.tcd.ie`. Do not submit executables. Marks will be deducted for late submissions and any submission more than a week late will not be marked.

1 Hello World!

Write a simple hello-world C program that prints the two words Hello and World on separate lines using two separate calls to the `printf` statement. Add the OpenMP directives needed to execute this code on 4 threads. What is the output? Now add the directive

```
#pragma omp barrier
```

between the two `printf` calls and recompile. How does the output change?

2 Parallel sum

Write a C program that prints the sum of the square of every integer from $100 \times k$ to $100 \times (k + 1) - 1$ on thread k and execute it for six threads. Modify your code so the partial sum is stored in a length-six array for the sum evaluated by each thread and then add code to print the sum of the result at the end.