# Problem set 2, Part 2
TDT4200, Fall 2016

**Deadline:** 28.09.2016 at 20.00 Contact course staff if you cannot meet the deadline.

**Evaluation:** Graded, counts 10 % towards final grade.

**Delivery:** Use It's Learning. Deliver exactly two files:

- *yourusername_ps2.*{*zip* |*tar.gz* |*tar*} containing your solution to the programming tasks.

**Cooperation:** This problem set is to be done **INDIVIDUALLY, no cooperation of any kind is allowed**. Cooperation will be regarded as cheating on an exam, for details see `https://innsida.ntnu.no/wiki/-/wiki/English/Cheating+on+exams`

**General notes:** Code must compile and run on the course servers. Do not add third-party code or libraries.

## Problem 1, 100%

Implement a MPI-parallelized heat equation solver by completing the following functions in the file *heat.c*:

- `ftcs_solver()` 10%
- `border_exchange()` 20%
- `gather_temp()` 20%
- `scatter_temp()` 20%
- `scatter_material()` 20%
- `commit_vector_types()` 10%

**Further details can be found in the recitation slides for this problem set.**

## Problem 2, Optional, 20%

This problem is optional, and by completing it, you may get a total score exceeding 100%. In this case, the additional score will carry over to future graded assignments/the exam.

Implement support for borders wider than 1, making it possible to perform multiple iterations of computation between each border exchange. **Further details can be found in the recitation slides for this problem set.**