README

Our codebase has the following files:

1. base.c (Base Code)
2. Main.c (Basic Kernel Implementation)
3. Main_optimized.c (Optimized Kernel Implementation)
4. Conv_mpi.c (OpenMP-based Parallelized Implementation)
5. Makefile (Compiles and Runs all experiments)

Compile and Run:
Inside the MakeFile instructions on how to compile and run each model and corresponding input parameters is given:

For OpenMP:
./filename.x img_size threads runs

For Other Models:
./filename.x img_size runs

Correctness:
For checking the correctness of the implementation:

- uncomment the lines 190-195 in main_optimized.c
- uncomment the lines 73-78 in base.c
- uncomment the lines 76-81 in conv_mpi.c

Run:
./filename.x img_size 1 (for main_optimised.c and base.c)
./filename.x img_size 1 1 (for conv_mpi.c)

The output should be img_size-3 x img_size matrix-3 with each value = 32.0 double floating point.
Explanation:
Image matrix is an all ones matrix.
Kernel is a 4 x 4 matrix with all values = 2.0
Each output cell in output matrix = 4 x 2 x 4 = 32.0