Assignment 6

Write a C+MPI-OpenMP program to simulate Conway's game of Life; see details here `https://en.wikipedia.org/wiki/Conway%27s_Game_of_Life`. Your code should be in a single file: P6.c

```
mpicc P6.c -o P6
mpirun -np <num procs> ./P6 <threads per proc> \
  [Seed] [Rows] [Columns] [Generations] [opt-filename]
```

Executing the above commands should populate a two-dimensional array of boolean entries, in row-major order, run the simulation for `Generations` number of generations and output the final output using a code similar to

```
for (i=0;i<Rows;++i)
  for (j=0;j<Columns;++j)
   printf ("%d\n",A[i][j]);
```

The initial data can be either read from (i) the last argument: a file containing `Rows` $\times$ `Columns` number of 0s and 1s, or (ii) generated by repeatedly invoking the `random()%2` expression, which is seeded using `srandom(Seed)`; both functions declared in `stdlib.h`.

Notes: 1) We will test the program for varying number of processes, and matrix sizes and see (i) the correct o/p is generated all the times, (ii) how it scales, (iii) the approach you have used to parallelize (submit it in a README-P6.txt file in the submission), (iv) overall performance [30 + 30 + 20 + 20].