

The third practice

2018/06/15

Please rewrite your code of the second practice and make sure that it admit the following criteria:

- Please write a Crank-Nicolson solver so that we can simply get the solution u^m of the m -th time step from the inputs: $x_{max}, x_{min}, n, u^{m-1}, D, \Delta t$, boundary conditions.
- The code shall equipped with the class: uniform grid.
- The solver shall inherit the uniform grid class.
- To verify your code, please write another main program to call Crank-Nicolson solver.
- Please define a method in the class of Crank-Nicolson solver which output a csv file. The format of output shall be: space, time, solution
- There shall be a metaclass of the solver in the class of uniform grid so that the implementation of the solver is necessary.

Hint:

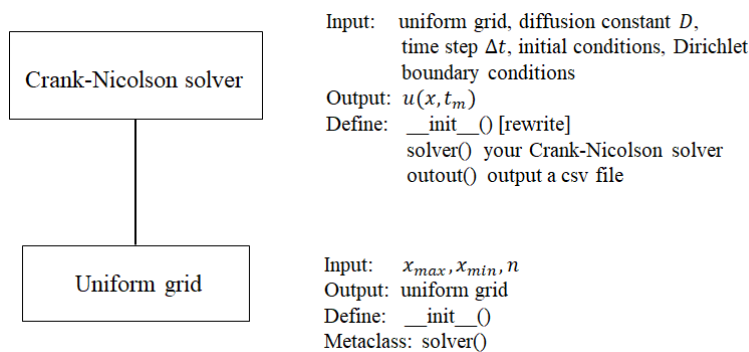


Figure 1: The structure of the Crank-Nicolson solver