Fluid Simulation

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April 2022

1 Input

The simulator can create multiple sources for velocity and density by a JSON file that works like an input. This file contains each one of the sources and its properties, such as position, and the values for density and velocity. Reading a JSON was simple since there are tons of documentation about it on internet, the largest part was to think about the structure of the objects that conform the input file. The name of the file is sent in the command line right after the source code filename (which is `fluid.py`).

2 Color

To implement color the program just needs a second argument in command line with the name of a color scheme from the Matplotlib list of colors (that can be found in `https://matplotlib.org/stable/tutorials/colors/colormaps.html`). This color is then sent as a parameter for the `imshow` function.

3 Objects

Objects are listed in the input file almost in the same way as sources, avoiding the use of velocities (since they stay in the same position). They are displayed in the grid using their position, their width and height and their density.

4 Behaviours

There were three behaviours implemented: the first one goes only to one direction, the second one creates a wave only in one direction and the third one kind of rotates with waves. They can be configured in the input file for each one of the sources and the code sets this behaviours when declaring the velocities.