Fluid Simulation Notes/Plan

Notes

* All Fluid Particles apply a repelling force to all surrounding particles (not simulating individual collisions). Similar to a sea of particles with equal electric charge but the spatial dependence of the force will be different.
* Force should be set to 0 at some distance to optimise computing power.
* Should understand how physical properties e.g. viscosity are related to this force.

Things to Achieve

* A green and red line on a black background

  Description automatically generatedSpawn in particles
* Be able to continuously track the density at all points in the fluid (related to smoothed particle hydrodynamics).
* Figure out how to calculate pressure force to make particles move from areas of high density to low density.
* Create a grid system such that to calculate the force on a particle we only take into account the particles in adjacent grids (for optimisation).
* Add external forces e.g. gravity, heat sources e.c.t
* Add friction between particles (viscosity)
* Visualisation – Animate 3D fluid, colour key for particle velocities or density.
* UI – allow user to move fluid around (in video), change viscosity, change gravity, speed up / slow down simulation, change number of particles, add obsticles
* Unit Testing??