**7.1) Initial droplet and the level set field**

A picture containing background pattern

Description automatically generatedNy=30

Chart, surface chart

Description automatically generated

Ny=50

Chart, surface chart

Description automatically generatedA screenshot of a computer

Description automatically generated with low confidence

**7.2) Initial Density and the Viscosity set field**

Ny=30

Graphical user interface, application

Description automatically generated

Graphical user interface

Description automatically generated

Graphical user interface, application

Description automatically generatedNy=50

Graphical user interface

Description automatically generated

A picture containing bubble chart

Description automatically generated7.3**) Advected droplet and the distance field**

Graphical user interface, chart

Description automatically generated

Graphical user interface

Description automatically generated

Chart

Description automatically generated

**Discussion:**The droplet gets advected nicely but the shape gets distorted with the number of timesteps and it is more of a flattened blob when it reaches that 20% domain range. This can be explained due to the fact that this part is without both surface tension and re-initialization which causes severe distortions in the droplet region. Also the solution appears to be unstable and gets blown up whenever fluid is advected alongside the droplet.

Part d and e were attempted but didn’t yield any meaningful results. Pressure at n+1 fails to converge using the basic iterative solver. Probably a more sophisticated solver like CG or GS would help deal with this in a more optimal manner. Working on its implementation.