extract certain particles

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Tags	

In `utils/custom_df.py`, there is a section of code you can modify. You can visualize certain particles based on their scale, ratio, angles or anything. The column in dataframe ‘visibility’ determines whether the particle is visualized or not.

code

```
# extract particles to visualise    # do this by adding column 'visibility'
for i, row in df.iterrows():

    # your code goes here
    {}
    if row['{}'] < {}:
        df.at[i,'visibility'] = 'n'
    else:
        df.at[i,'visibility'] = 'y'
```

example to extract particles which have radius greater than 0.5

```
# extract particles to visualise    # do this by adding column 'visibility'
for i, row in df.iterrows():

    threshold = 0.5  # e.g. if scale is less than 0.5, the particle is not visualised
    if row['scale'] < threshold:
        df.at[i,'visibility'] = 'n'
    else:
        df.at[i,'visibility'] = 'y'
```

Extract line of particles

You can extract a line of particles by specifying plane gradients, origin and width. The parameters and the width creates 2 planes and only particles whose origins are between the 2 planes are visualized.

Plane parameters and width

a, b, c, d, w, x0, y0, z0

Plane equation

$$a \cdot (x - x0) + b \cdot (y - y0) + c \cdot (z - z0) + d = 0$$

Utilize visualization software “GeoGebra” to check your planes

Define 2 boundaries

Boundary 1

$$a \cdot x + b \cdot y + c \cdot z + d - w/2 < 0$$

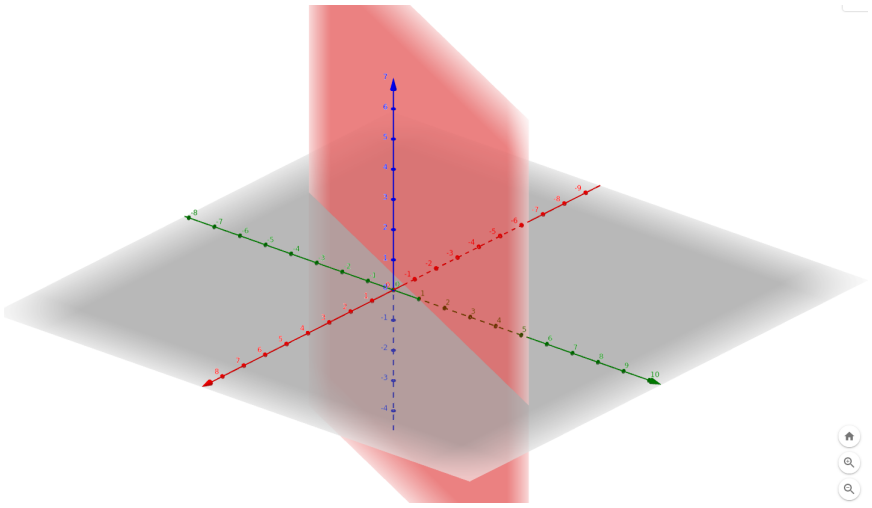
Boundary 2

$$a \cdot x + b \cdot y + c \cdot z + d + w/2 > 0$$

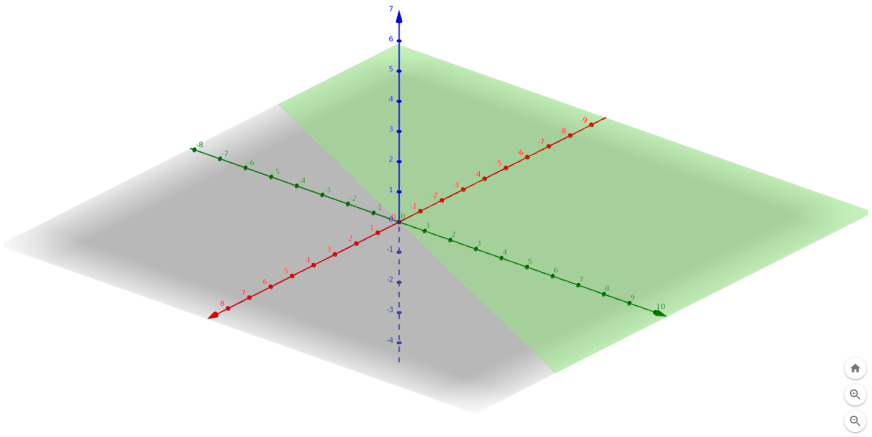
particles with x, y and z satisfying the inequalities above will be assigned “y” in column “visibility” in dataframe

example to extract a particle lying on y = 2x + 1 with w(width) = 1

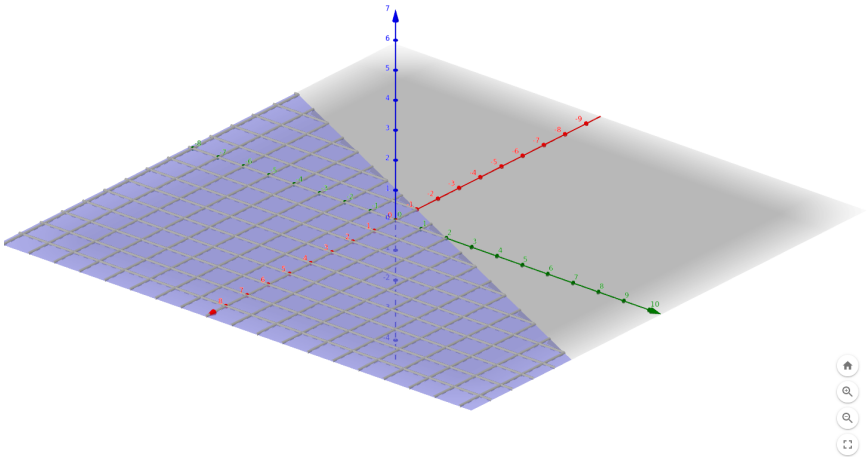
Plane y = 2x+1



Boundary1: 2x -y +1 -1/2 < 0



Boundary1: 2x -y +1 +1/2 > 0



command to run

```
python pipeline.py --input_dir <> --plane_grad 2 -1 0 1 --plane_width 1
```

visualise the output vtk file in Paraview