Details for Python project(File: /Project/index.py)

- Line 1-4 : Importing dependencies. Needs to be installed before project is executed.
  - Instructions for the same can be found in */Project/README.md*
- Line 7-8 : Initialization of root window.
- Line 10-15 : Initialization of global variables.
- Line 29-59 : Creation of Simulation section of window. This section includes:
  - Labels that show entered values of variables.
  - Simulation on tkinter.canvas based on those values.
- Line 61-338 : Creation of Controls section of the window. This section includes:
  - Input fields for entering values of variables.
  - Checks which will show if fields are left empty.
  - Buttons to start, pause or stop stimulation.

Instructions on how to use

- First, fill values of all variables mentioned in ***Controls*** sections (Right pane)
  - When filling values, enter the values in ***SI units*** and press the corresponding ***set buttons***.
  - Only ***after*** clicking corresponding set buttons, are the values set. Conventional enter to set value ***does not*** work.
- Speed button is ***disabled***, it will always be ***1x.***
- Another important section is ***Distance to be mapped***.
  - Currently, size of simulation container is ***328px***. Thus most of the time 1-1 distance mapping(***1px – 1m***) may not provide enough distance for particle to achieve terminal velocity.
  - This issue can be resolved using **distance mapper**. Simply enter the distance that is to be mapped and it will be ***linearly mapped*** to 328px of simulation container.
  - This field can be left blank(or in its default condition). By default, ***1-1*** mapping will be used.
- When the last parameter ***Size Range*** is filled and corresponding set button is clicked, particles representing that size range will appear in simulation container in the left section. The ***colour gradient***(light to dark) of particles are representation of their different sizes (light for small, dark for large). Hence darker ones will take more time to reach their terminal velocities.
- Once all values are provied, click ***S*tart** button to start simulation. To inspect simulation at some point before it ends, click ***Pause*** (click ***Resume*** to resume simulation)**.** To end simulation, click **Stop.** Stop button erases size data, hence particles will disappear from simulation container. To watch again, click ***Set Size Range*** button (particles will reappear), then hit ***S*tart.**