```
In [1]: """
        pip install memory_profiler
        pip install psutil
        """

Out[1]: '\npip install memory_profiler\npip install psutil\n'
```

```
In [2]: ! cat 012.Test_py_memory_001.py

        import sys
        n = int(sys.argv[1])

        @profile
        def r():
          import pandas as pd
          import numpy as np
          import time
          N = n
          data = pd.DataFrame(np.random.uniform(1,9,(N, 38)))
          data[data[12] > 5]
          time.sleep(2)


        r()
```

```
In [3]: ! py3 -m memory_profiler 012.Test_py_memory_001.py 10

        Filename: 012.Test_py_memory_001.py

        Line #    Mem usage    Increment   Line Contents
        ================================================
             4    28.727 MiB   28.727 MiB   @profile
             5                              def r():
             6    69.566 MiB   40.840 MiB     import pandas as pd
             7    69.566 MiB    0.000 MiB     import numpy as np
             8    69.566 MiB    0.000 MiB     import time
             9    69.566 MiB    0.000 MiB     N = n
            10    69.566 MiB    0.000 MiB     data = pd.DataFrame(np.random.uniform(1,9,(N, 38)))
            11    69.805 MiB    0.238 MiB     data[data[12] > 5]
            12    69.805 MiB    0.000 MiB     time.sleep(2)
```

```
In [4]: ! py3 -m memory_profiler 012.Test_py_memory_001.py 100

        Filename: 012.Test_py_memory_001.py

        Line #    Mem usage    Increment   Line Contents
        ================================================
             4    28.730 MiB   28.730 MiB   @profile
             5                              def r():
             6    69.570 MiB   40.840 MiB     import pandas as pd
             7    69.570 MiB    0.000 MiB     import numpy as np
             8    69.570 MiB    0.000 MiB     import time
             9    69.570 MiB    0.000 MiB     N = n
            10    69.570 MiB    0.000 MiB     data = pd.DataFrame(np.random.uniform(1,9,(N, 38)))
            11    69.809 MiB    0.238 MiB     data[data[12] > 5]
            12    69.809 MiB    0.000 MiB     time.sleep(2)
```

```
In [5]: ! py3 -m memory_profiler 012.Test_py_memory_001.py 1000

        Filename: 012.Test_py_memory_001.py

        Line #    Mem usage    Increment   Line Contents
        ================================================
             4    28.730 MiB   28.730 MiB   @profile
             5                              def r():
             6    69.574 MiB   40.844 MiB     import pandas as pd
             7    69.574 MiB    0.000 MiB     import numpy as np
             8    69.574 MiB    0.000 MiB     import time
             9    69.574 MiB    0.000 MiB     N = n
            10    69.816 MiB    0.242 MiB     data = pd.DataFrame(np.random.uniform(1,9,(N, 38)))
            11    70.324 MiB    0.508 MiB     data[data[12] > 5]
            12    70.324 MiB    0.000 MiB     time.sleep(2)
```

```
In [6]:  ! py3 -m memory_profiler 012.Test_py_memory_001.py 10000

         Filename: 012.Test_py_memory_001.py

         Line #    Mem usage    Increment   Line Contents
         ================================================
             4    28.723 MiB   28.723 MiB   @profile
             5                              def r():
             6    69.566 MiB   40.844 MiB     import pandas as pd
             7    69.566 MiB    0.000 MiB     import numpy as np
             8    69.566 MiB    0.000 MiB     import time
             9    69.566 MiB    0.000 MiB     N = n
            10    72.641 MiB    3.074 MiB     data = pd.DataFrame(np.random.uniform(1,9,(N, 38)))
            11    72.922 MiB    0.281 MiB     data[data[12] > 5]
            12    72.922 MiB    0.000 MiB     time.sleep(2)


In [7]:  ! py3 -m memory_profiler 012.Test_py_memory_001.py 100000

         Filename: 012.Test_py_memory_001.py

         Line #    Mem usage    Increment   Line Contents
         ================================================
             4    28.727 MiB   28.727 MiB   @profile
             5                              def r():
             6    69.574 MiB   40.848 MiB     import pandas as pd
             7    69.574 MiB    0.000 MiB     import numpy as np
             8    69.574 MiB    0.000 MiB     import time
             9    69.574 MiB    0.000 MiB     N = n
            10    98.691 MiB   29.117 MiB     data = pd.DataFrame(np.random.uniform(1,9,(N, 38)))
            11   100.473 MiB    1.781 MiB     data[data[12] > 5]
            12   100.473 MiB    0.000 MiB     time.sleep(2)


In [8]:  ! py3 -m memory_profiler 012.Test_py_memory_001.py 1000000

         Filename: 012.Test_py_memory_001.py

         Line #    Mem usage    Increment   Line Contents
         ================================================
             4    28.723 MiB   28.723 MiB   @profile
             5                              def r():
             6    69.574 MiB   40.852 MiB     import pandas as pd
             7    69.574 MiB    0.000 MiB     import numpy as np
             8    69.574 MiB    0.000 MiB     import time
             9    69.574 MiB    0.000 MiB     N = n
            10   359.598 MiB  290.023 MiB     data = pd.DataFrame(np.random.uniform(1,9,(N, 38)))
            11   369.070 MiB    9.473 MiB     data[data[12] > 5]
            12   369.070 MiB    0.000 MiB     time.sleep(2)
```