INSTRUCTIONS TO USE LHT_CI.py

The file LHT_CI.py is a Python3 program that performs the calculations.

1. Data should be in a .csv file with only three columns, for instance:

t	n	h
1	50	0
2	50	0
3	50	0
4	49	0
5	49	0
6	49	0
7	49	0
8	48	0
9	46	0
10	44	28
11	44	28
12	44	10
13	43	118
14	41	111

The **first column** are the units of time. The **second column** contains number of individuals alive at that unit of time. The **third column** contains offspring production in that unit of time.

2. Inside the code, modify the alpha required and change the file name:

    alpha = 0.05   # 1-alpha is the confidence level of CI,
    fnam = "Data.csv"   # Change file name.

3. Change directory path here, live commented if file is in current directory:

    # dir_path = "/Users/datasets/"

4. Run the program, an example output is:

Initial number of individuals N : 50   ----(Initial number of individuals)

Offspring size K : 2430   ----(Total offspring)

$R0$: 48.6   ----($R0$, the basic reproductive number)

Longevity : [28.34   302.0644 23.5226 33.1574]   ---- (mean variance and CI for longevity)

Generation time : [26.884 151.77 26.3945 27.374] ----(mean variance and CI for gen. time)

r : [0.20209, 0.198870, 0.2055]   -----(mean and CI for r)

lambda: [1.223964994, 1.22002366, 1.22814391]   -----(mean and CI for lambda)

Saved to: Data_added.csv   -----(outcome was saved to this file)