INSTRUCTIONS TO USE LHT_CI.m

The file **LHT_CI.m** is the Matlab© program that performs the calculations.

1. Data should be in a .csv or .xlsx 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. Use one of these two lines and comment the other:

```
alfa = 0.05;               %Change parameter as needed
fnam = "test_data.csv";    % Change file name
```

dir_path = "/Users/datasets/" % Comment this line if data is in current directory.

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 : 26.884 151.773 26.394 27.374 ----(mean variance and CI for Gen. time)
r : 0.2021 0.18258 0.23115 -----(mean and CI for r)
lambda : 1.224 1.2003 1.2601 -----(mean and CI for lambda)

New data saved to: test_data_added.csv -----(Name of file with table with columns added)