# 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.

1. 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.

1. 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.

1. 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)