Politecnico di Milano
Scuola di Ingegneria Industriale e dell'Informazione
Applied Statistics
July 6th, 2021

Problem n.1

The manager of Pizzeria Chicca wants to optimize the reservation scheduling. The file `chicca.txt` collects, for 150 groups of clients, the delay of the clients with respect to the time of reservation [min] (negative values correspond to clients arriving earlier than the reservation time) and the duration of the stay at the restaurant [min].

a) Perform a statistical test of level 99% to verify the hypothesis that the clients are in mean on time and that the mean duration of a stay is 90 minutes. Verify the assumptions required to perform the test. Provide a plot of the rejection region of the test and the test statistics. Report the mathematical expression and the centre of the rejection region and value of the test statistics.

b) Compute and report the p-value of the test at point (a).

c) Support the conclusions of the test at point (a) with appropriate Bonferroni intervals (global level 99%). Comment the results.

d) The current reservation scheduling allocates 90 minutes for each reservation. Perform a statistical test of level 10% to verify if the scheduling policy is appropriate, taking into account both the delay and the stay time.

Upload your results here:
`https://forms.office.com/Pages/ResponsePage.aspx?id=K3EXCvNtXUKAjjCd8ope612LHtvIHvFEsEi2L6mhPglUMVJMUENURTJVNFYzUE9NOTVUWkVGUUhGRC4u`