**THE REPORT**

**Data summary:**

Three dataset were introduced in order to access the comprehensive understanding of some statistical techniques and their application. A global dataset of water temperature, a classical N, P, K (nitrogen, phosphate, potassium) factorial experiment and The classic Box & Jenkins airline data. Monthly totals of international airline passengers, 1949 to 1960 were introduced in order to test how statistical concepts show significant solution to real life problems

**Aim:**

Demonstrating some statistical concepts on our introduced dataset in order to gain a comprehensive understanding and critical awareness of their application to real life problems

**Evidence:**

All dataset collected and being tested were originated from a reliable source (R studio and kaggle) therefore each dataset is being used to demonstrate the use of statistical concept (to be shown in the R markdown)

**Assumptions:**

For the first dataset, Recent significant warming of water temperatures have raised unclear doubts about what factor contributes to this effect. Are there any concluding factors or there's a change in a particular factor leading to this effect?.

Second dataset, the N,P,K factorial experiment demonstrate the yield of each block based on some combination of fertilizer listed above, is there any significant difference or interaction between this fertilizer?

Third dataset, a monthly time series data displaying air passenger each month from the year 1949-1960, does air passengers varies each month or does time (month or year) have any effect on the number of air passenger

**Procurement:**

After studying our dataset and identifying the problems based on our assumptions being backed with evidence, easy and fast treatment should be applied to factors acclaiming the problems therefore the aim is to better understand the causes and effect to the changes in our ecosystem structure and function

**Technique:**

Different technique are introduced to each dataset which are Hypothesis Testing, Linear Regression, Post Hoc test, Analysis of variance and Ljung-Box

**Justification:**

Each factor of every dataset introduced were tested and assumption were checked (shown in the R markdown), showing the statistical concept are broadly used and correctly tested

**Conclusion:**

Every statistical technique have its own unique purpose and clearly stated. Therefore statistical concept can be use to solve real life problems in any field (engineering, agriculture, transportation, medicine and so on)

**Data Source**

Imperial College, London, M.Sc

**REFERCENCES**

www.dataone.org

BMC Health Services Research

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