# Chapter 1

## What is Statistic?

Statitstic can referred to numerical fact such as the number of cars in a building. It can also be referred to a discipline of study which is a method to collect, analyse, present, and interpret a data. Then making decision based on that analysis.

## Types of Statistic

Theres two (2) types of statistics which are qualitative/categorical statistics and quantitative statistics. qualitative statistics is something that can’t be measured by number while quantitative statistics is something that can be measured using numerical. quantitative statistics can be further split into two (2) categories which are discrete and continuous. Discrete is something that can be counted such as the number of students in a class while continuous is something that is in an interval and can’t be counted such as the age of a person.

## Basic terms in stat and then draw a table?

There are 4 basic terms in statistics which are elements/member, variable, observation and dataset,

## Types of variables

## Cross-section VS Time-series data

## What is Population, Sample, Census, Sample survey, and Representative sample?

## Why use sample instead of population?

## Techniques for random sampling

# Chapter 2 –

# Chapter 3 –

# Chapter 4 – Probability

## Properties of probability

## What is the law of large numbers

Law of large numbers is the law when the larger the sample, the nearer it is to the population.

## Approach to probability

* 1. Classical approach  
     - All outcomes in a sample are equally likely to occur
  2. Empirical approach  
     - Event are not equally likely to occur
  3. Subjective approach  
     - Individual subjective belief

## What is marginal probability

Probability of a single event, eg: P(A)

## What is joint probability

Probability of multiple events, eg: P(A and B)

## What is conditional probability

Probability of an event given another event, eg: P(A|B)

## What is complementary probability

## What is mutually exclusive

2 events are mutually exclusive if those events cannot occur together. Does not intersect in a venn diagram

## What is independent probability

2 events are independent if the outcome of one event does not affect the outcome of another event

## What is dependent probability

2 events are said to be dependent is the outcome of an event affecting the outcome of another event

## Union of event

If mutually exclusive:

## Combination

## Permutation

# Chapter 5 – Discrete Random Variable

## Probability distribution

* 1. Probability Mass Function (pmf) - Discrete Random
  2. Probability Distribution Function (pdf) – Continuous Random
  3. Cumulative Density Function (cdf0 – Discrete & Continuous Random

## Probability mass function / probability distribution properties

## Sample variance and sample mean