

**Systematic Sample:** A systematic sample is a type of random sample where every  $k$ th item is selected from the population, where  $k$  is a fixed number.

**Convenience Sample:** A convenience sample is a subset of the population that is easily accessible and convenient to select but may not be representative of the entire population.

**Quota Sample:** A quota sample is a type of stratified sample where the sample is designed to match the population in terms of certain characteristics such as age, gender, or location.

**Snowball sample:** A snowball sample is a type of non-probabilistic sample where the selection of participants is based on referrals from existing participants.

**Purposive Sample:** A purposive sample is a type of non-probabilistic sample where the selection of participants is based on the specific characteristic or criteria.

Ans to the ans-2

It is given in the question that the null space of  $A$  is a line thus it can be interpreted that it is 1-dimensional subspace.

Consider the rank-nullity theorem:

$$P(A) + \text{nullity}(A) = \dim(A)$$

Here,  $P(A)$  is the rank of  $A$ .

Putting the values in the above equation.

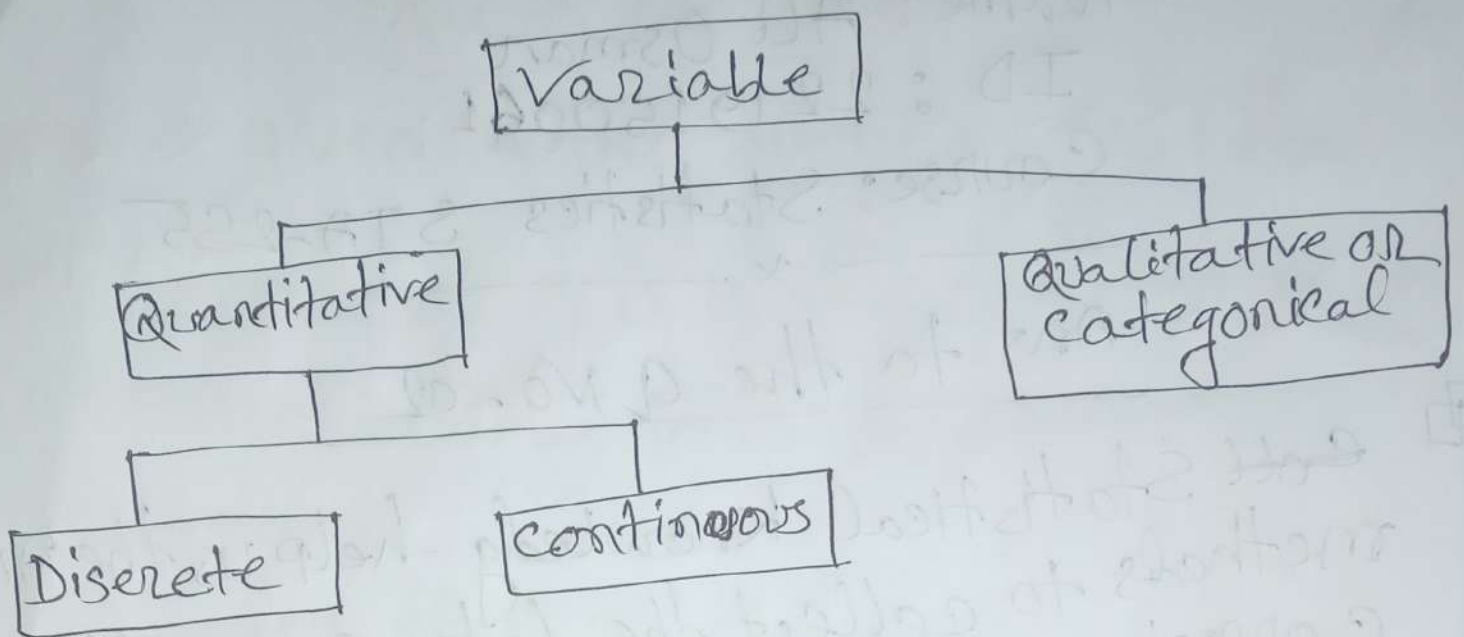
$$P(A) + 1 = 3$$

$$P(A) = 2$$

Hence it can be said that it is the dimension of its row or column space.

Thus it can be said that column space cannot be a line, but it will be a plane.

(3)



Ans to the Q NO 4.

The mean is the average of a set of numbers calculated by adding them up and dividing by the total count.

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Ans to the Q No. 02

Statistical knowledge help us the proper methods to collect the data, employ the correct analyses and effectively present the results. Statistics is a crucial process behind how we make discoveries in science, make decisions based on data and make predictions.

Ans - 01

Variable: A variable is a characteristic under study that assumes different values for different elements in contrast to a variable, the value of a constant is fixed