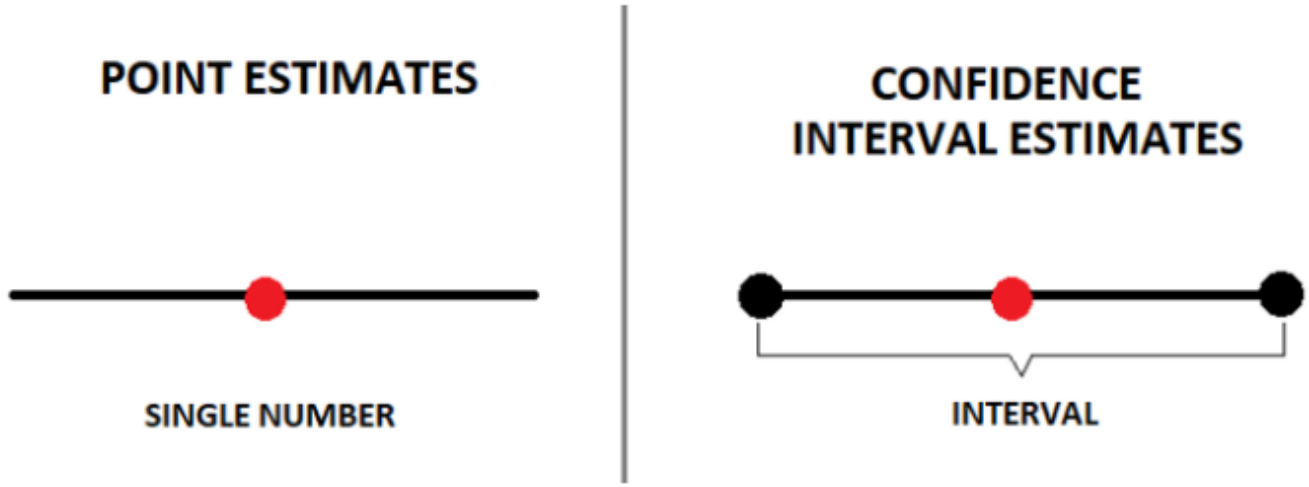
71. What is the difference between Point Estimate and Confidence Interval Estimate?

Ans.

- Point Estimate is a single value estimate for a parameter. For instance a sample mean is a point estimate to the population mean.
- An interval estimate gives you a range of values where the parameter is expected to lie. A confidence interval estimate is a most common type of interval estimate.

- **Point Estimates** — single number.
- **Confidence Interval Estimates** — provide much more information, and are preferred when making inferences.

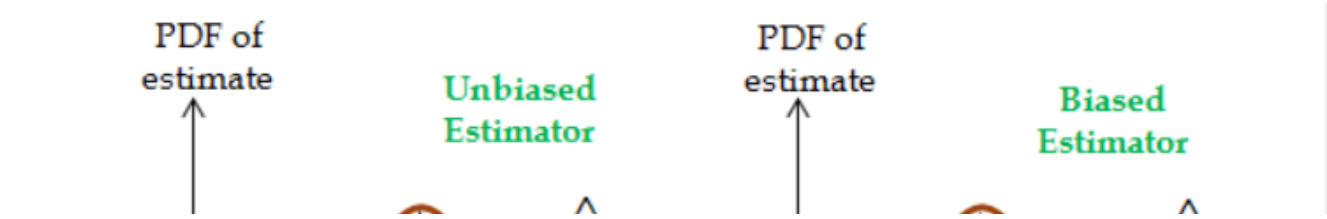


72. What do you understand about biased and unbiased terms?

Ans.

In statistics the bias of an estimator is the difference between estimator's expected value and actual value. An estimator with zero bias is called unbiased.

In other words if there is any deviation in the estimation about population is called biased. It can be overestimate or underestimate. If the estimation is accurate it is called unbiased.



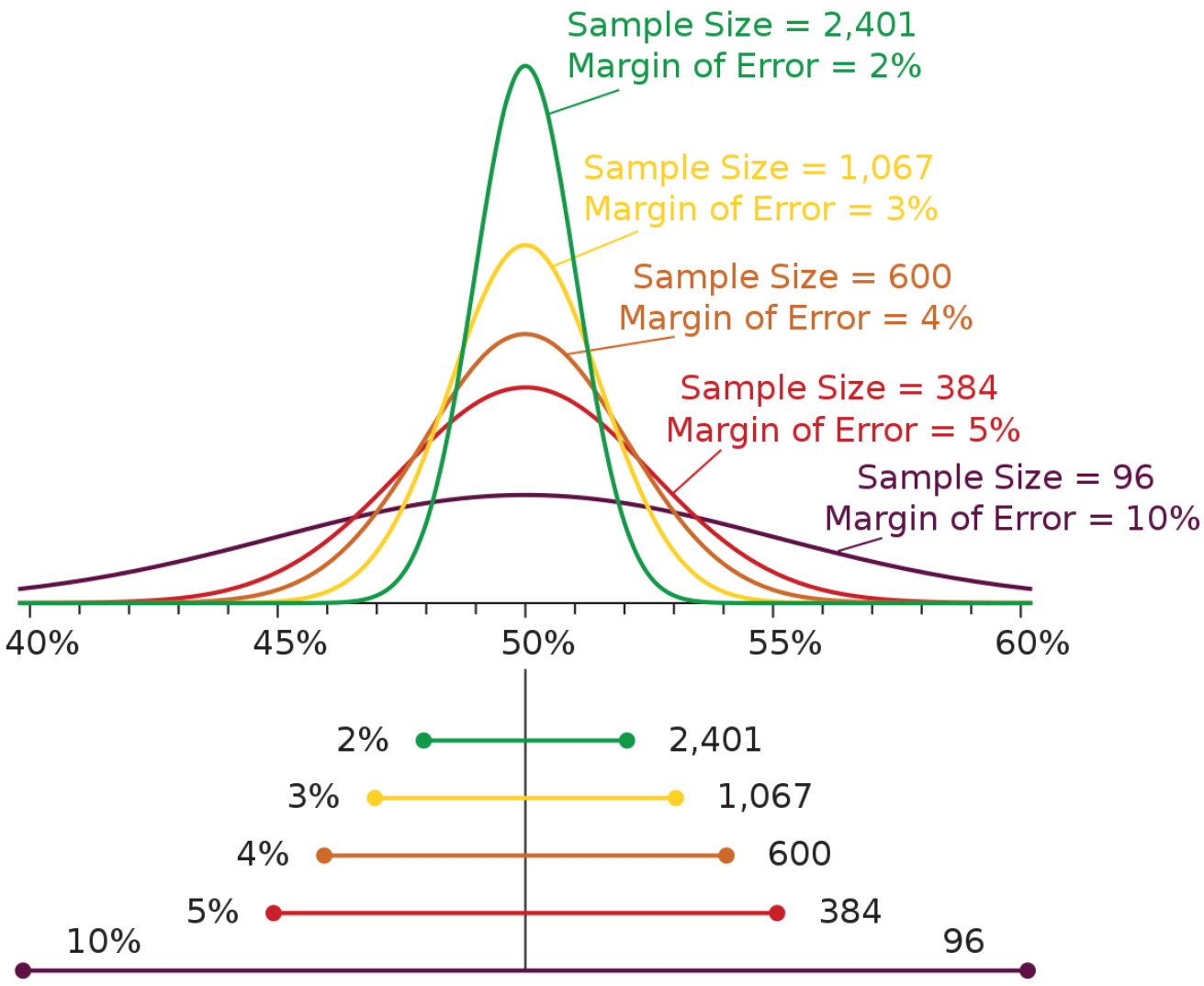
73. How does the width of the confidence interval change with length?

Ans.

The width of the confidence interval depends upon two elements:

i. Confidence level
ii. Sampling error

The greater the confidence level the wider the confidence interval. If the variance between data or standard deviation value increases then also confidence interval width increases. Increase in sample size decreases the sampling error, and increases the confidence interval width.



74. What is the meaning of standard error?

Ans.

Standard error indicates how different the population mean is likely to be from sample mean. It tells you how much the sample mean vary if you were to repeat study using new samples from same population.

75. What is a Sampling Error and how can it be reduced?

Ans.

Sampling error is defined as the amount of difference between sample value and population value, where the sample value doesn't represent the population value. It can be reduced by increasing the sample size.

76. How do the standard error and the margin of error relate?

Ans.

Standard error is the standard deviation from population mean to sample mean. In simple words how much population mean is deviating from sample mean.

$$SE = \frac{\sigma}{\sqrt{n}}$$

Margin of error is the amount added or subtracted to the confidence interval.

To calculate margin error we need to find out :

i. z-score =

$$z = \frac{x - \mu}{\sigma}$$

$\mu =$ Mean
$\sigma =$ Standard Deviation

ii. Standard error =

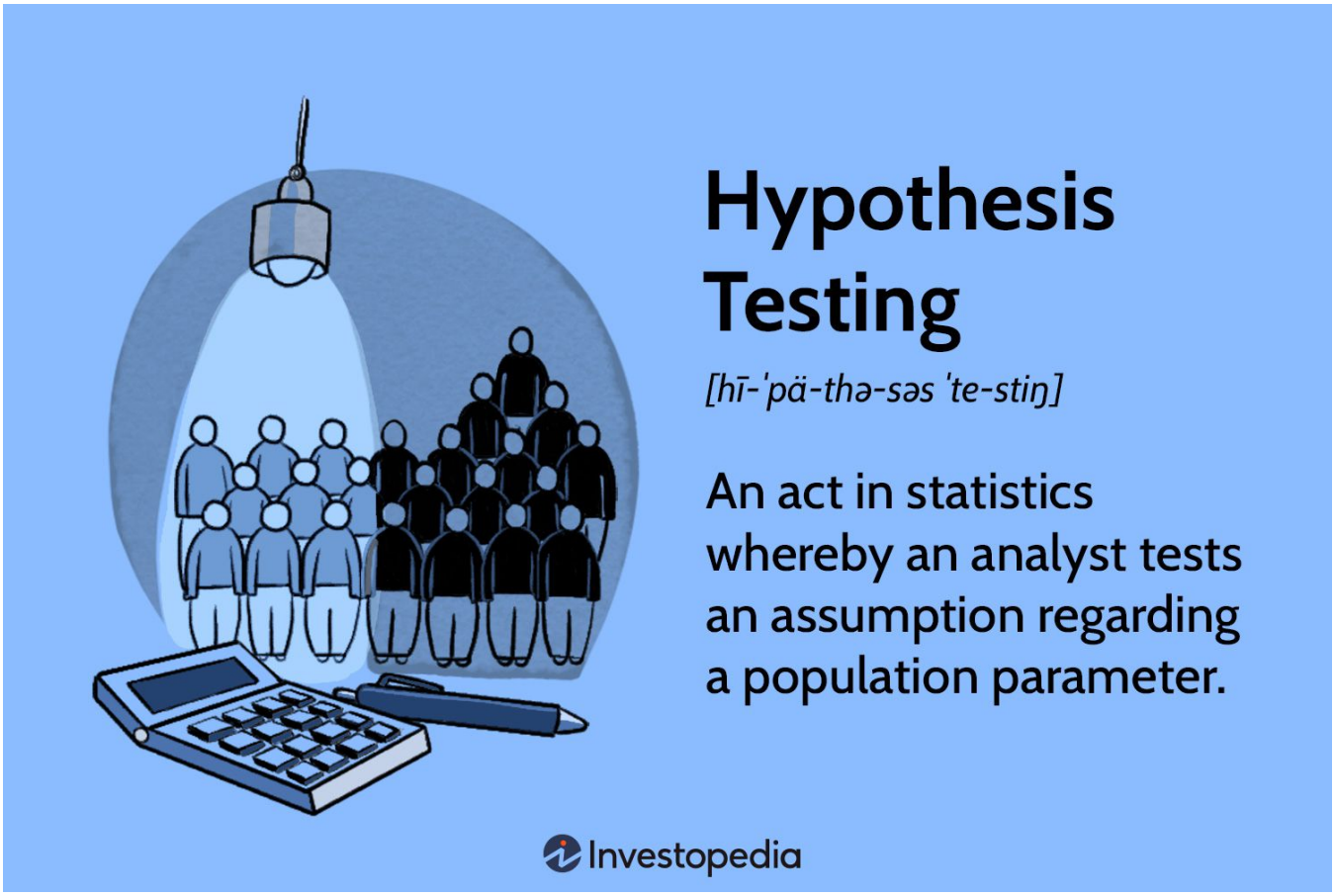
$$SE = \frac{\sigma}{\sqrt{n}}$$

iii. Margin error = z-score * standard error

77. What is hypothesis testing?

Ans.

Hypothesis testing is a type of statistical inference that uses data from a sample to conclude about the population data. Before performing the testing, an assumption is made about the population parameter. This assumption is called the null hypothesis and is denoted by H0. An alternative hypothesis (denoted Ha), which is the logical opposite of the null hypothesis, is then defined. The hypothesis testing procedure involves using sample data to determine whether result value lie in the confidence interval or not, if not then H0 should be rejected. The acceptance of the alternative hypothesis (Ha) follows the rejection of the null hypothesis (H0).



78. What is an alternative hypothesis?

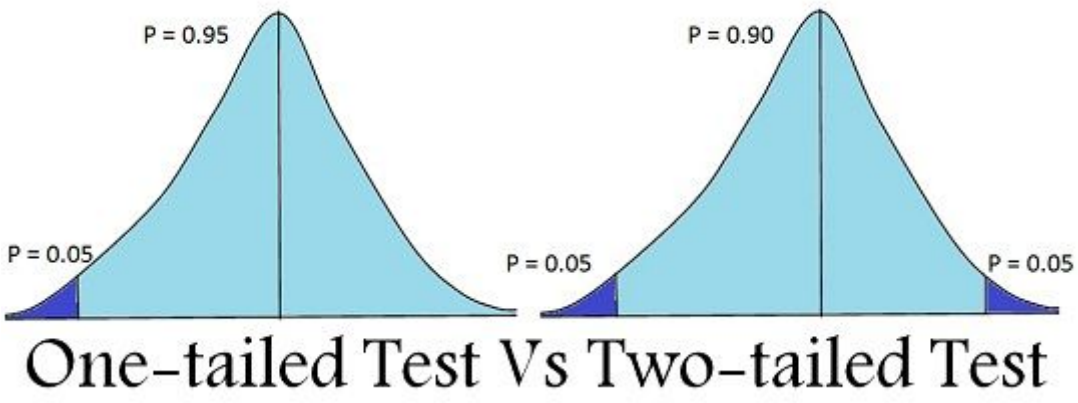
Ans.

Alternate hypothesis states that there is a relationship or effect. And null hypothesis stated that there is no relationship between variables.

79. What is the difference between one-tailed and two-tail hypothesis testing?

Ans.

One tailed testing allows the possibility of effect in one direction. Two tailed testing allows the possibility of effect in two direction- positive and negative.



80. What is one sample t-test?

Ans.

One sample t-test is used when we want to know whether our sample comes from particular population or not, but we don't have full information about population.

Eg: If we want to know particular sample of college students is similar or different from entire college students.

We have sample n < 30, population standard deviation is not given and sample standard deviation is given.

In [ ]:

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1
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Thanks

Github: https://github.com/saisubhasish (https://github.com/saisubhasish)

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