

**Tribhuvan University  
Institute Of Science and Technology**

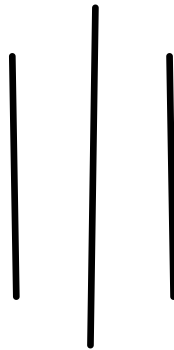
**Prithvi Narayan Campus**

**BSc.CSIT Program**



**PRACTICAL REPORT**

( Statistics II )



**Submitted To**

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**Submitted By**

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**2080 Batch**

2<sup>nd</sup> Year / 3<sup>rd</sup> Semester

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Faculty: BSc.CSIT

Semester: Third

Subject: Statistics II

Year : Second

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## EXE 1: Confidence Interval Estimation Using SPSS.

**OBJECTIVE:** The objective of this lab is to estimate the 95% confidence interval for the mean height of a given dataset using SPSS software.

### QUESTION:

Find confidence interval of mean assuming normal distribution for following data.

Height:

78, 55, 68, 48, 65, 76, 57, 55, 65, 75, 51, 61, 68, 67, 76, 78, 71, 56, 57, 67, 58, 51, 50, 58, 50, 77, 55, 48, 70, 55, 58, 69, 76, 61, 68, 78, 56, 78, 57, 66, 66, 74, 62, 74, 76, 50, 69, 75, 65, 48, 70, 56, 52, 74, 61, 66, 48, 73, 71, 70

### WORKING EXPRESSION:

The confidence interval for the mean is calculated using the formula:

$$CI = \bar{X} \pm Z \times \frac{\sigma}{\sqrt{n}}$$

where:

$\bar{X}$  = sample mean

Z = critical value for 95% confidence level (1.96 for a normal distribution)

$\sigma$  = standard deviation

n = sample size

### CALCULATION:

From SPSS output:

#### Case Processing Summary

	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
height	60	100.0%	0	0.0%	60	100.0%

#### Descriptives

		Statistic	Std. Error
height	Mean	63.8833	1.23327
	95% Confidence Interval for Mean	Lower Bound	61.4156
		Upper Bound	66.3511
	5% Trimmed Mean	63.9815	
	Median	65.5000	
	Variance	91.257	
	Std. Deviation	9.55287	
	Minimum	48.00	
	Maximum	78.00	
	Range	30.00	
	Interquartile Range	16.50	
	Skewness	-.136	.309
	Kurtosis	-1.258	.608

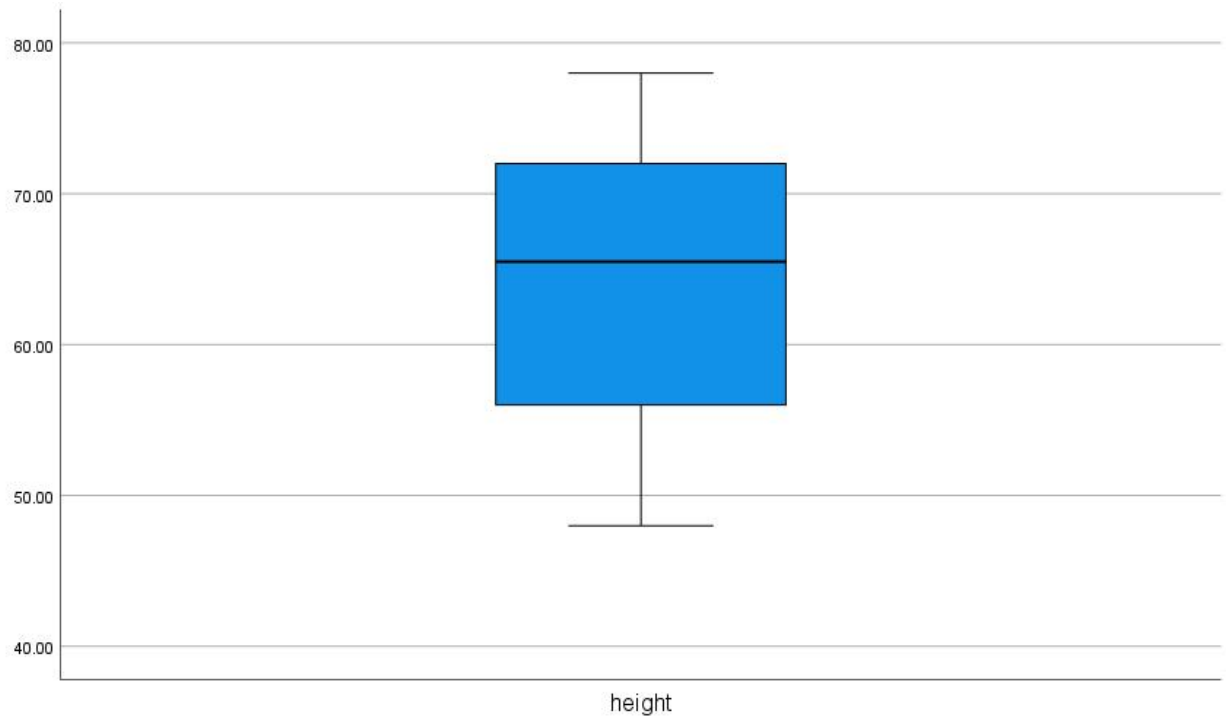


Figure: Boxplot of the given question.

**RESULT:**

The computed 95% confidence interval for the mean height is (61.42, 66.35).

**CONCLUSION:**

The results indicate that we can be 95% confident that the true mean height of the population falls within the interval (61.42, 66.35). The data appears to be normally distributed, making the confidence interval estimation valid.