ACADGILD

SESSION 3: STATISTICS (CONTD.)

Assignment 2

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1. Introduction

This assignment will help you understand the concepts learnt in the session.

2. Objective

This assignment will test your skills on the concepts of statistics.

3. Prerequisites

Not applicable.

4. Associated Data Files

Not applicable.

5. Problem Statement

Practical Application of CLT

1. Engineers must consider the breadths of male heads when designing motorcycle helmets for men. Men have head breadths that are normally distributed with a mean of 6.0 inches and a standard deviation of 1.0 inch

a. If one male is randomly selected, what is the likelihood that his head breadth is less than 6.2 inches? **.5793**

b. b. The Safeguard Helmet company plans an initial production run of 100 helmets. How likely is it that 100 randomly selected men have a mean head breath of less than 6.2 inches?

c. The production manager sees the result in part b and reasons that all helmets should be made for men with head breadths of less than 6.2 inches, because they would fit all but a few men. What is wrong with that reasoning? **42.1% of men have heads that are 6.2 inches or larger.**

Two-tailed Test Of Population Mean With Known Variance

2. Suppose the mean weight of King Penguins found in an Antarctic colony last year was 15.4 kg. In a sample of 35 penguins same time this year in the same colony, the mean penguin weight is 14.6 kg. Assume the population standard deviation is 2.5 kg. At .05 significance level, can we reject the null hypothesis that the mean penguin weight does not differ from last year?

Yes, we can.

6. Expected Output

N/A

7. Approximate Time to Complete Task