Intro Stats Normal Models

A normal model can be a useful tool for interpreting what data have to say – sometimes. Your task here is to check the usefulness of such a model for the data that you collect. There are three parts to the “project”.

1. Collect the Data.

You need between 30 and 50 pieces of quantitative data, preferably something that you have an interest in.

1. Describe the Data

Write a brief but thorough description of your data. Start with the “W’s” and remember to include some visual representation, numerical analysis and description of the data.

1. Check the Normal Model

Use the mean and the standard deviation of your data to create a Normal Model. (Sketch a normal model and label the x-axis going out three standard deviations in each direction) Compare your model to the normal model and compare the Empirical Rule (68-95-99.7) to the actual percentages of data that lies within one, two and three standard deviations of the actual mean.

Notes:

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**Scoring Rubric**

**Show:**

1. Data, Display, Statistics
* Collected Appropriate Data
* Shows a well-constructed histogram or other graphical display
* Scale for graph is appropriate for comparison
* Calculates summary statistics (5-Number Summary, Mean, Standard Deviation and IQR)
1. Normal Model
* The sketch of the normal model is centered at the mean
* Has correct cutoffs based on the standard deviation
* Clearly shows and explains the 68%-95%-99.7% rule.

**Tell:**

1. Describe the Data
* Describes all the “W’s” as thoroughly as possible
* Describes the shape of the actual distribution in detail
* Describes the best measure of center and spread for the distribution.
* Mentions any unusual features (if applicable) and checks for outliers (Show work)
1. Evaluates the Usefulness of the Normal Model.
* Compares the shape of the actual distribution to the normal model’s shape
* Compares the actual distribution of the data to the 68%, 95%, 99.7% rule.
* States a Valid conclusion as to whether or not a normal model appears to be a “good fit” for the data by using supportive evidence.

Each of the four components makes up 25% of the grade for the project, and partial credit can be given on some or all of the bullet points.

**PROJECT #1 is Due** No Later Than: **March 20th 2021**

**There will be a 10% deduction each day it is late.**