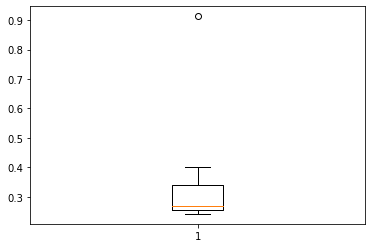
**Topics: Descriptive Statistics and Probability**

1. Look at the data given below. Plot the data, find the outliers and find out

|  |  |
| --- | --- |
| **Name of company** | **Measure X** |
| Allied Signal | 24.23% |
| Bankers Trust | 25.53% |
| General Mills | 25.41% |
| ITT Industries | 24.14% |
| J.P.Morgan & Co. | 29.62% |
| Lehman Brothers | 28.25% |
| Marriott | 25.81% |
| MCI | 24.39% |
| Merrill Lynch | 40.26% |
| Microsoft | 32.95% |
| Morgan Stanley | 91.36% |
| Sun Microsystems | 25.99% |
| Travelers | 39.42% |
| US Airways | 26.71% |
| Warner-Lambert | 35.00% |

mean 0.332713, std 0.169454 & Variance: 0.028715

Outlier is around 0.9136





Answer the following three questions based on the box-plot above.

1. What is inter-quartile range of this dataset? (please approximate the numbers) In one line, explain what this value implies. - Q3-Q1 – 12-5 = 7
2. What can we say about the skewness of this dataset? - Positively skewed
3. If it was found that the data point with the value 25 is actually 2.5, how would the new box-plot be affected? - No Outliers and +ve Skewness will be reduced



Answer the following three questions based on the histogram above.

1. Where would the mode of this dataset lie? - 4.5 - 8
2. Comment on the skewness of the dataset. - Positively Skewed
3. Suppose that the above histogram and the box-plot in question 2 are plotted for the same dataset. Explain how these graphs complement each other in providing information about any dataset. - Having same outliers and +ve skewed
4. AT&T was running commercials in 1990 aimed at luring back customers who had switched to one of the other long-distance phone service providers. One such commercial shows a businessman trying to reach Phoenix and mistakenly getting Fiji, where a half-naked native on a beach responds incomprehensibly in Polynesian. When asked about this advertisement, AT&T admitted that the portrayed incident did not actually take place but added that this was an enactment of something that “could happen.” Suppose that one in 200 long-distance telephone calls is misdirected. What is the probability that at least one in five attempted telephone calls reaches the wrong number? (Assume independence of attempts.)

P(E) – 1/200

P(s) = 1-P(E) = 1-1/200 = 199/200

Wrong number

1-199/200

Attempts = 5

1-(199/200)\*(199/200)\*(199/200)\*(199/200)\*(199/200) = 1 -0.97524 = 0.02476= 2%

1. Returns on a certain business venture, to the nearest $1,000, are known to follow the following probability distribution

|  |  |
| --- | --- |
| x | P(x) |
| -2,000 | 0.1 |
| -1,000 | 0.1 |
| 0 | 0.2 |
| 1000 | 0.2 |
| 2000 | 0.3 |
| 3000 | 0.1 |

1. What is the most likely monetary outcome of the business venture? = 2000 since it having high probability of occurrence

1. Is the venture likely to be successful? Explain Yes, its trending towards success.

Positive values (0.3+0.2+0.1 = 0.6 = 60%), negative (0.1+0.1 = 0.2 = 20%)

1. What is the long-term average earning of business ventures of this kind? Explain

(-2000\*0.1) = -200, (-1000\*0.1) = -100, 0, (1000\*0.2) = 200, (2000\*0.3) = 600, (3000\*0.1) = 300

Average earnings = 800

1. What is the good measure of the risk involved in a venture of this kind? Compute this measure

Std = 1870.828693, Var = 3500000.0

Since the variance is high and the avg earnings is low. There is high risk is involved.