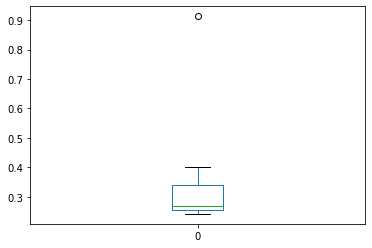
**Topics: Descriptive Statistics and Probability**

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% |

**ANS:**

Plot:



## Outliers:

The outlier is morgan Stanley data point which has the measure of 91.36%

Description:

=0.028715



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.

**Ans:**

IQR=q3-q1=12-5=7,most of the data lies in the INTERQUARTILE RANGE,which has the range of 5 to 7, hence the difference is 7

1. What can we say about the skewness of this dataset?

**Ans:**

The data is positively skewed.

1. If it was found that the data point with the value 25 is actually 2.5, how would the new box-plot be affected?

**Ans:**

There will be no outlier and the box in the plots moves a little left which makes the data yet more positively skewed.



Answer the following three questions based on the histogram above.

1. Where would the mode of this dataset lie?

**ANS:**

The mode lies between 4 to 8 which has the midpoint of 5 and 7.

1. Comment on the skewness of the dataset.

**ANS:**

The data is positively skewed.

1. 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

**ANS:**

1)both the plot shows they are positively skewed.

2)Both the plots helps to detect outliers easily.

3)we get to know median from both the plots.

1. 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.)

ANS:

=1 - Probability =1/200=199/200

Probability that at least one in 5 attempted call reaches the wrong number

= 1 - Probability that no attempted call reaches the wrong number

1-(199/200)^5

7920399001/200^5

0.025

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?
2. Is the venture likely to be successful? Explain
3. What is the long-term average earning of business ventures of this kind? Explain
4. What is the good measure of the risk involved in a venture of this kind? Compute this measure

**ANS:**

1)The probability is more for getting profit of $2000,so the outcome is supposed to be positive.

2)The probability of profit is more than the loss ,so venture is likely to be positive.

3) To find the expected value (μ) multiply each value of the variable by its probability and add the products.

So the answer is $800

4)The good measure of risk is interpreted by standard deviation. since the standard deviation is 294 and it is high, hence it is a risky venture.