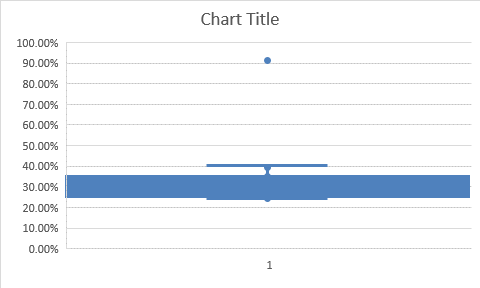
**Topics: Descriptive Statistics and Probability**

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% |



|  |
| --- |
| = 3.27% |
| =0.0268 |
| 0.163708 |

Ans :- Minimum = 24.14%

Maximum = 91.36%

Median = 26.71

Q1= q+1 7+1 8

------- = ---------- = -------- =4

2 2 2

Q1 = 25.41

Q3 = q+1 7+1 8

------- = ---------- = -------- =4

2 2 2

Q3= 35.00

Caculate (IQR)= Q3-Q1= 35.00-25.41= 9.59

To caculate upper bond

Q3+(1.5)(IQR)(which means 9.59)=49.385

To caculate lower bond

Q1-(1.5)(IQR)(which means 9.59)=11.025

Any data value not following from 11.025 to 49.385 are suspected as outliers



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.

Q1=5 ,Q3= 13

IQR=Q3-Q1 13-5=8

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

Right 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?

If the value would be 2.5 the distribution won’t be affected much and there won’t be an outlier



Answer the following three questions based on the histogram above.

1. Where would the mode of this dataset lie?

5-7

1. Comment on the skewness of the dataset.

The data has the right skewness

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.

In fact, the histogram and box plot are drawing with same data type ,they have right skewness

And 25 outliers , and the descript the distribution of the data

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.)

Answer = one in 200 long-distance telephone calls is misdirected

 probability of call misdirecting  p = 1/200

     Probability of call not Misdirecting = 1 - 1/200 = 199/200

Number of Calls = 5

P(x) = ncx p ^r q^n-x

n = 5

p = 1/200

q = 199/200

at least one in five attempted telephone calls reaches the wrong number

1  -  none of the call reaches the wrong number

1  - P(0)

1   -  5c0(1/200)^0(199/200)^5-0

1  -  (199/200)^5

0.02475

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?

P(0.3) is the most monetary with 2000$ value

1. Is the venture likely to be successful? Explain

To say the venture be successful we need to calculate long term average

Sum( P(x)\*x)= = (-2000\*0.1) +(-1000\*0.1) +(0) +(1000\*0.2) +(2000\*0.3) +(3000\*0.1) = 800$

While the result is positive we can say it’s going to be successful

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

Long term average = \sum{P(xi)\*Xi} = (-2000\*0.1) +(-1000\*0.1) +(0) +(1000\*0.2) +(2000\*0.3) +(3000\*0.1) = 800$

Means on an average Return will be 800 $

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