**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 :33.2713

Standard deviation:16.9454

Variance : 287.14



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.

Answer :- 7(approx)

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

Right-Skewed distribution.

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 data point 2.5,then the points are symmetrically distributed.



Answer the following three questions based on the histogram above.

1. Where would the mode of this dataset lie?

The mode of data set lies Between 5-7

1. Comment on the skewness of the dataset.

Positive skewness ...because the datas are highly distributed to low distribution.

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 these above case,the histogram not following a normal distribution..they have

peaks inside the data. so boxplot causing a distribution on datas to look normal.

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.)

probability of 1 wrong call in 200 calls(Pw)=1/200=0.005

probability of not wrong call(Pn) =1-0.005=0.995

probability of get wrong call in 5 calls=1-probability of not get wrong calls

=1-(0.995)^5

=1-0.975

probability of get wrong call in 5 calls=0.025=2.5%

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?

X=2000 with the probability of 0.3.

1. Is the venture likely to be successful? Explain

If the venture can maintain for long term business then eventually it will be successful since the probability of non-negative return is higher than 0.50 and the expected value for return is a positive number ($800)

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

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

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

The good measure of the risk involved in a venture of this kind is standard deviation