**Topics: Descriptive Statistics and Probability**

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

Ans :

|  |  |
| --- | --- |
| µ | 33.27% |
| α | 0.163708 |
| α2 | 0.0268 |



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: Inter-quartile range is nothing but the 50 % data between 1st QTR. to 3rd QTR.

IQR = 3rd QTR – 1st QTR

12 – 5

= 7

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

Ans: As shown in figure we can conclude that the data which plotted is slightly right skewed also there is a outliers too.

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: If 25 is actually 2.5 then it will no longer outlier in this boxplot.



Answer the following three questions based on the histogram above.

1. Where would the mode of this dataset lie?

Ans: I think it lies between 5 – 10 to be precise 5 – 7

1. Comment on the skewness of the dataset.

Ans: This positively skewed data because its right tail more longer then its left tail. Also there is outlier too.

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: Both graphs has right skewness also there is outlier in boxplot as well as histogram along with that in both graphs we can see most of the datapoints lies between 4 – 10 .

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: As stated that one in 200 long Distance Telephone Calls is Misdirected. Probability of 1 in 200 is 0.005 which is 0.5%. one in 5 Attempted Calls reaches wrong number is 0.005\*5 which is 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?

**Ans:**  Outcome of the business monetary is $2000 with probability of 30%

1. Is the venture likely to be successful? Explain

**Ans:** Probability of being loss making is only 20% and 10% is with no profit and 60% with Profit hence this Venture is Most likely to be Successful.

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

**Ans:**  at the start Company was loss making then with last 4 result Company is in profit with average Earning of Business Venture is $500.

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

**Ans:**  Risk stems from the possible variability in the expected returns. Therefore, a good

Measure to evaluate the risk for a venture of this kind would be variance or

Standard deviation of the variable X.

Standard Deviation = 1870.829

Variance = 3500000

The large value of standard deviation of $1870 is considered along with the average

returns of $800 indicates that this venture is highly risky.