In [32]:

```python
import pandas as pd
import numpy as np
import seaborn as sns
from matplotlib import pyplot as plt
from scipy import stats
```

Q1.Look at the data given below. Plot the data, find the outliers and find out μ,σ,σ^2

In [12]:

```python
company_data=pd.DataFrame(data={'Name of company' : ['Allied Signal','Bankers Trust','Gener
                'Measure X(%)'       : [24.23,25.53,25.41,24.14,29.62,28.25,25.81,24.39
              })
company_data
```

Out[12]:

	Name of company	Measure X(%)
0	Allied Signal	24.23
1	Bankers Trust	25.53
2	General Mills	25.41
3	ITT Industries	24.14
4	J.P.Morgan & Co.	29.62
5	Lehman Brothers	28.25
6	Marriott	25.81
7	MCI	24.39
8	Merrill Lynch	40.26
9	Microsoft	32.95
10	Morgan Stanley	91.36
11	Sun Microsystems	25.99
12	Travelers	39.42
13	US Airways	26.71
14	Warner-Lambert	35.00

In [14]:

```python
plt.boxplot(x='Measure X(%)',data=company_data)
plt.show()
```
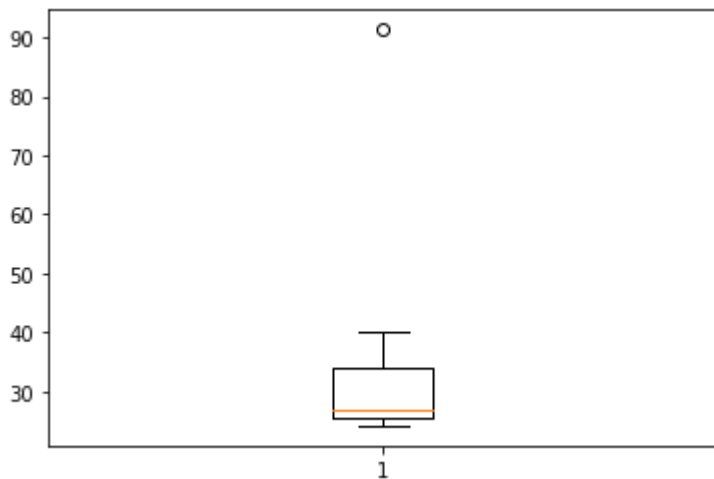

Inference: There is one outlier present in the given data at morgan stanley for measure 91.36 %.

In [16]:

```python
# Mean
company_data['Measure X(%)'].mean()
```

Out[16]:

33.27133333333333

In [17]:

```python
# Standard od deviation
company_data['Measure X(%)'].std()
```

Out[17]:

16.945400921222028

In [18]:

```
# Variance
company_data['Measure X(%)'].var()
```
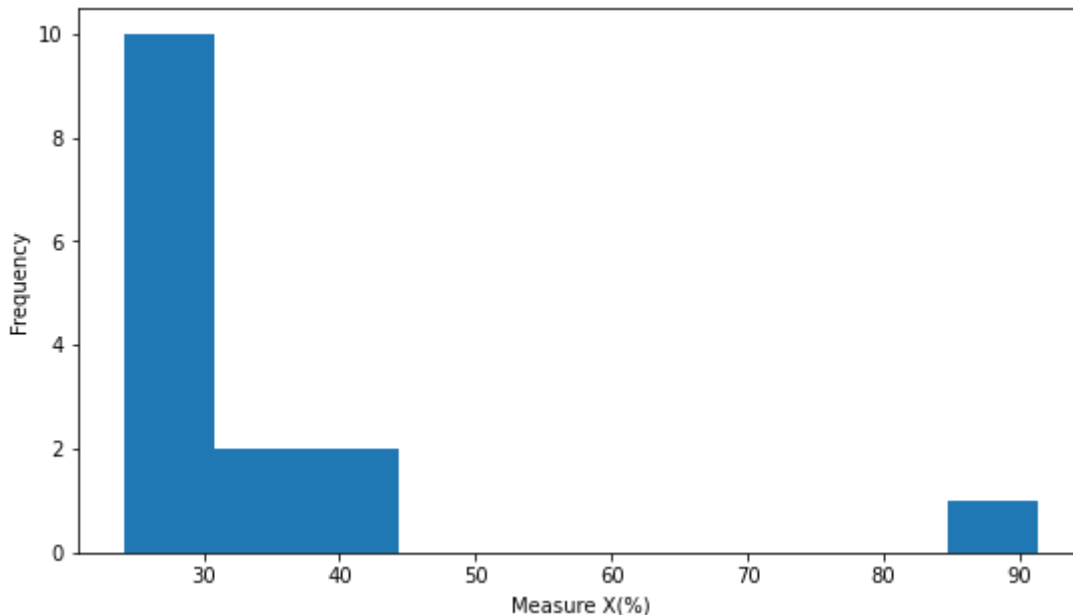
Out[18]:

287.1466123809524

Q3.(iii) 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 [26]:

```
plt.figure(figsize=(9,5))
plt.hist(x='Measure X(%)',data=company_data)
plt.xlabel('Measure X(%)')
plt.ylabel('Frequency')
plt.show()
```

In [29]:

```python
plt.figure(figsize=(10,5))
plt.boxplot(x='Measure X(%)',data=company_data)
plt.show()
```


Inference: From histrogram it is observed that the X is vary between value (20-42) and one value is lie at 90 it mightbe the outlier. From barplot it is found that one outlier lies at point 91 and the distribution is right skewed. Value of median is less than 30.

Q4. 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.)

In [38]:

```python
1-stats.norm.cdf(x=(1/200),loc=1,scale=5)
```

Out[38]:

```
0.5788686277034347
```

In [ ]:

```python
stats.j
```