Problem Statement 1: You survey households in your area to find the average rent they are paying. Find the standard deviation from the following data: 1550,1700, 900,850, 1000,950.

In [1]:
```
import pandas as pd
# Area Rent data from the given list
areaRent = [1500,1700,900,850,1000,950]
# Let the data frame be df
df = pd.DataFrame(areaRent)
```

	0
0	1500
1	1700
2	900
3	850
4	1000
5	950

In [2]:

	0
count	6.000000
mean	1150.000000
std	357.770876
min	850.000000
25%	912.500000
50%	975.000000
75%	1375.000000
max	1700.000000

In [3]:
```
0    357.770876
dtype: float64
```

357.770876

Problem Statement 2: Find the variance for the following set of data representing trees in California (heights in feet): 3, 21, 98, 203, 17, 9

In [4]:
```
import pandas as pd

height = [3,21,98,203,17,9]

df = pd.DataFrame(height)
```

Out[4]:
```
0    6219.9
dtype: float64
```

In [5]:

Out[5]: 6219.9

Problem Statement 3: In a class on 100 students, 80 students passed in all subjects, 10 failed in one subject, 7 failed in two subjects and 3 failed in three subjects. Find the probability distribution of the variable for number of subjects a student from the given class has failed in.

In [6]:
```
# Percentage and Probablity of the data Total Students = 100 => 100% Passed = 80 => 80
# 1 Subject Failed = 10 => 10% 0.1 Probability
# 2 Subjects Failed = 7 => 7% 0.07 Probability
# 3 Subjects Failed = 3 => 3% 0.03 Probability

import numpy as np
import pandas as pd
import scipy.stats as stats
list=[0.1,0.03,0.07,0.8]
df = pd.DataFrame(list)
display(df.describe())
```

	0
count	4.000000
mean	0.250000
std	0.367786
min	0.030000
25%	0.060000
50%	0.085000
75%	0.275000
max	0.800000

In [7]:
```
mean = 0.250000
standard_deviation = 0.367786
# For accurate values * 100
```

In [8]:
```
# Cummilative Denisty Function
```

Out[8]: 0.9325995038793089

In [10]:
```
# Probability Denisity Function
```

Out[10]: 0.00354570816069708