MidTermExam1

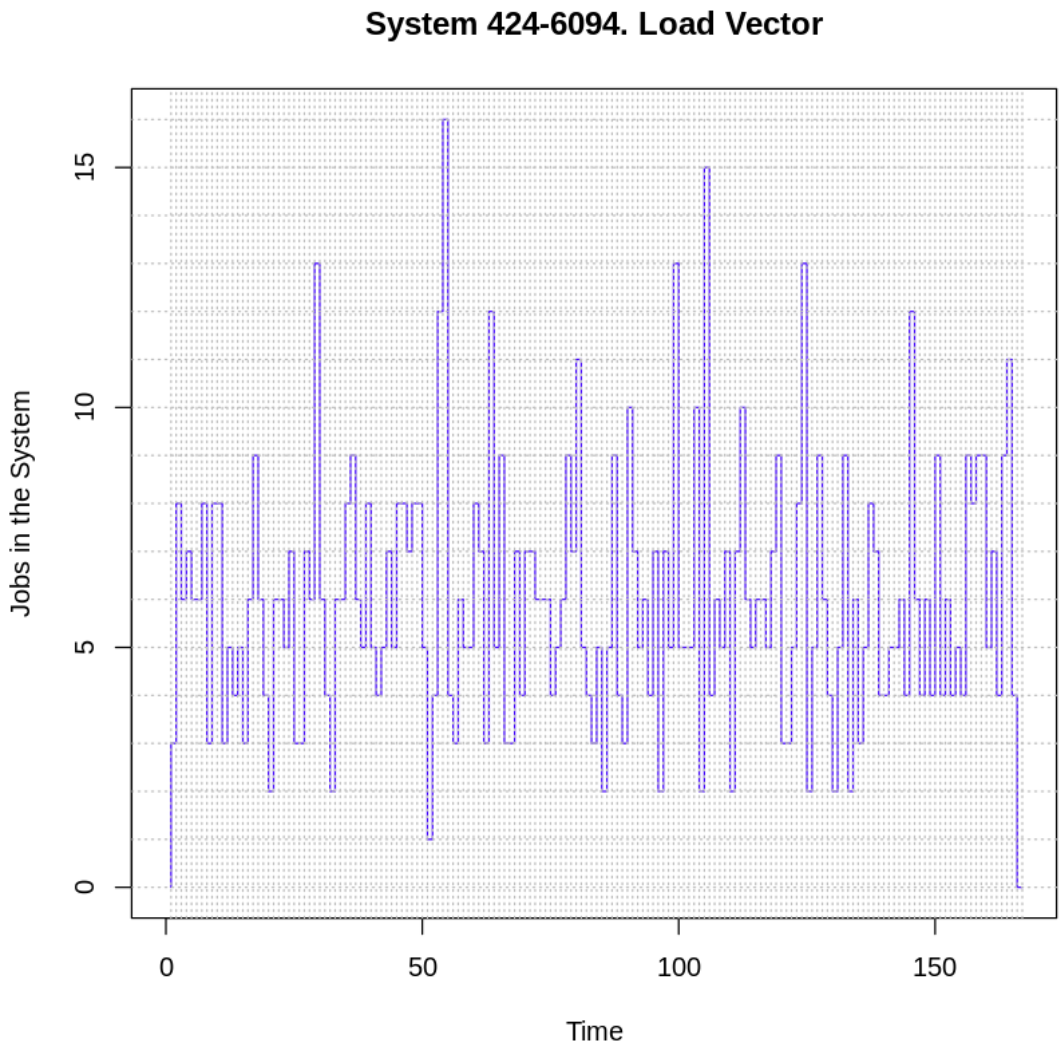
March 5, 2019

1 R SECTION CODE

```
In [1]: load_vector <- c(0,3,8,6,7,6,6,8,3,8,8,3,5,4,5,3,6,9,6,4,2,6,6,5,7,3,3,7,
                         6,13,6,4,2,6,6,8,9,6,5,8,5,4,5,7,5,8,8,7,8,8,5,1,4,12,16,
                         4,3,6,5,5,8,7,3,12,5,9,3,3,7,4,7,7,6,6,6,4,5,6,9,7,11,5,
                         4,3,5,2,5,9,4,3,10,7,5,6,4,7,2,7,5,13,5,5,5,10,2,15,4,6,
                         5,7,2,7,10,6,5,6,6,5,7,9,3,3,5,8,13,2,5,9,6,4,2,5,9,2,6,
                         3,5,8,7,4,4,5,5,6,4,12,6,4,6,4,9,4,6,4,5,4,9,8,9,9,5,7,4,
                         9,11,4,0)
```

```
In [4]: plot(load_vector, type = "S",xlim = c(0,167), col = "#4000ff",
             main = "System 424-6094. Load Vector", xlab= "Time",
             ylab= "Jobs in the System")

        abline(v = 1:167,  lty = "dotted", col = "grey")
        abline(h = 0:16, lty = "dotted", col = "grey")
```




```
In [5]: #Mean of the system
        mean_lv <- mean(load_vector)
        mean_lv
```

5.94011976047904

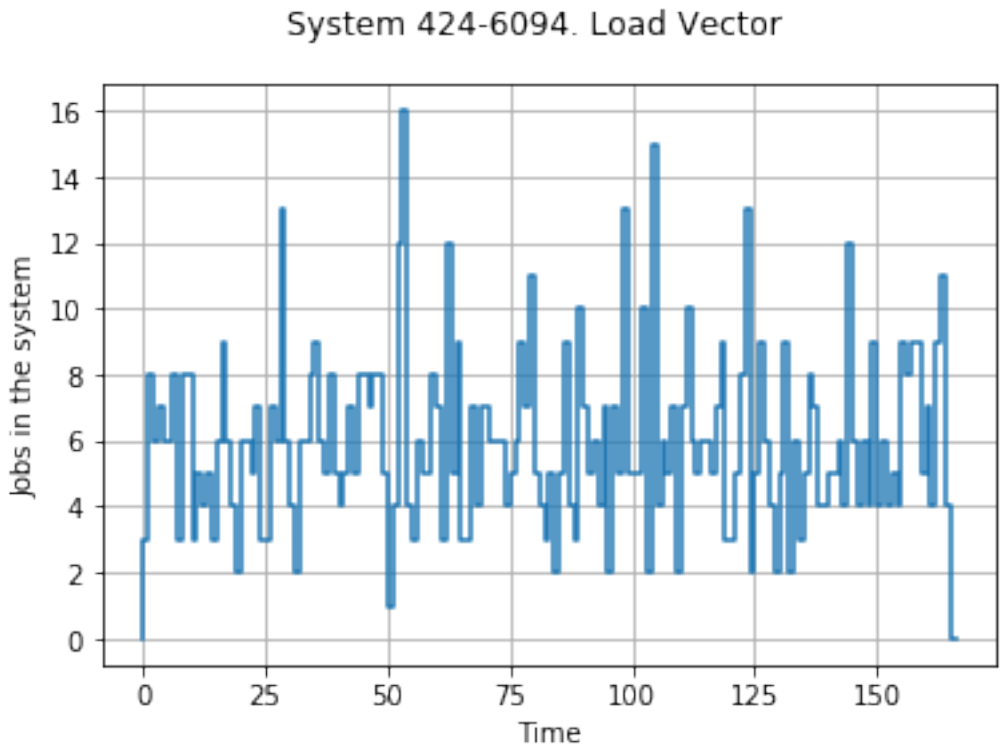
```
In [6]: #Standard Deviation of the system
        std_lv <- sd(load_vector)
        std_lv
```

2.71475353072042

2 PYTHON SECTION CODE

In [1]:
```
import statistics
import numpy
load_vector = [0,3,8,6,7,6,6,8,3,8,8,3,5,4,5,3,6,9,6,4,2,6,6,5,7,3,3,7,6,
               13,6,4,2,6,6,8,9,6,5,8,5,4,5,7,5,8,8,7,8,8,5,1,4,12,16,4,3,
               6,5,5,8,7,3,12,5,9,3,3,7,4,7,7,6,6,6,4,5,6,9,7,11,5,4,3,5,
               2,5,9,4,3,10,7,5,6,4,7,2,7,5,13,5,5,5,10,2,15,4,6,5,7,2,7,
               10,6,5,6,6,5,7,9,3,3,5,8,13,2,5,9,6,4,2,5,9,2,6,3,5,8,7,4,
               4,5,5,6,4,12,6,4,6,4,9,4,6,4,5,4,9,8,9,9,5,7,4,9,11,4,0]
x = range(len(load_vector))
```

In [6]:
```
import matplotlib.pyplot as plt
plt.step(x,load_vector)
plt.suptitle('System 424-6094. Load Vector')
plt.ylabel('Jobs in the system')
plt.xlabel('Time')
plt.grid(True)
plt.show()
```



In [3]:
```
#Mean of the system
statistics.mean(load_vector)
```

Out[3]: 5.940119760479042

In [4]:
```
#Standard Deviation of the system
numpy.std(load_vector)
```

Out[4]:
```
2.7066133218988231
```