

# Mid Term Exam 1

March 5, 2019

## 0.0.1 R code

```
In [3]: y<-c(0,10,4,10,8,10,11,18,16,8,10,3,10,12,3,9,10,8,14,10,13,6,8,9,12,7,11,5,10,3,19,9,
            6,13,9,11,11,7,10,13,5,8,11,4,9,8,11,10,7,8,6,11,5,14,11,5,9,10,9,5,5,16,14,5,4,9,
            13,10,11,6,6,9,5,8,7,4,6,6,9,5,4,8,14,5,10,10,13,11,7,5,5,11,12,10,8,9,3,9,5,7,8,8,
            7,8,8,9,13,8,9,6,9,9,8,5,17,9,6,18,13,8,5,6,9,11,8,9,9,7,10,3,0)
```

```
In [4]: x<-c(0:164)
```

```
In [5]: mean(y)#Calculates mean value
```

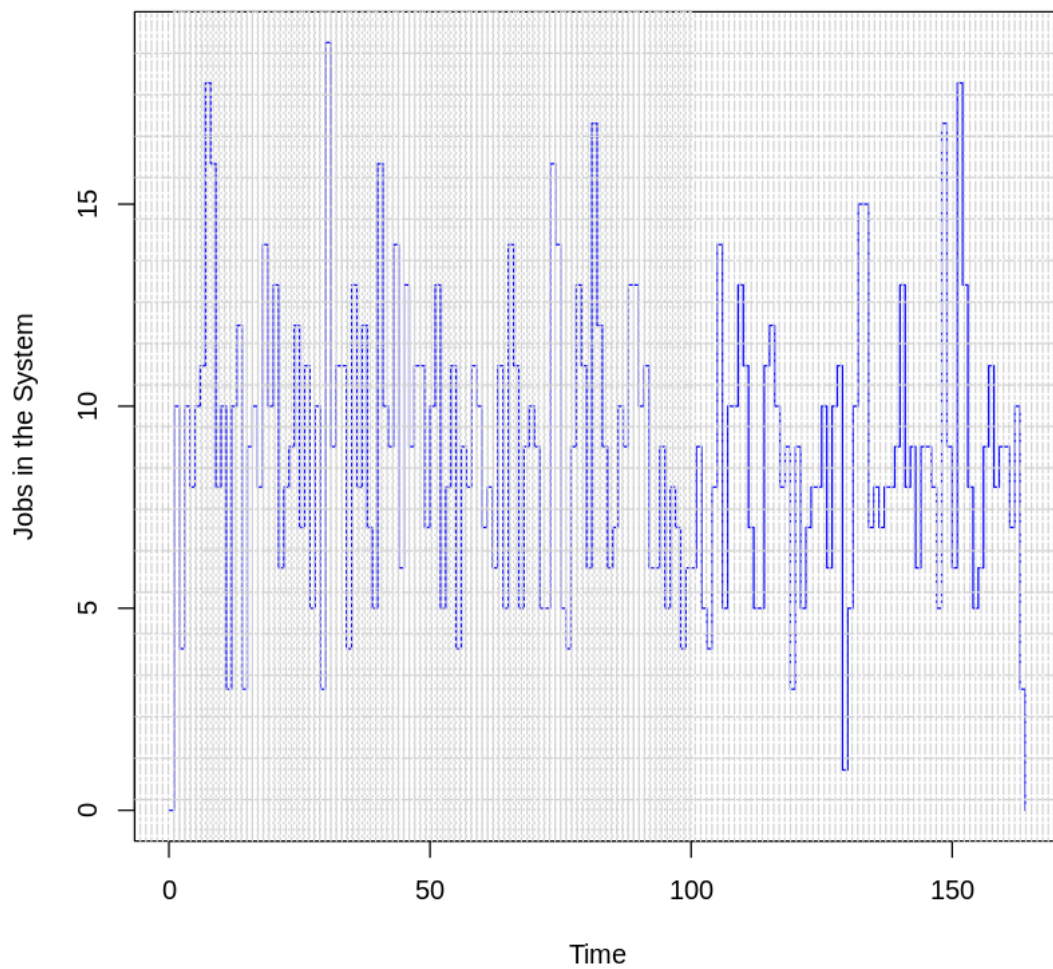
8.84848484848485

```
In [4]: sd(y)#Calculates standard derivation
```

3.51756231523158

```
In [6]: plot(x,y,"s",col="blue", main="System 436-4941. Load Vector", ylab="Jobs in the System",
            grid(165,20,lty=6);
            axis(side=3, at=(1:100),tck=1,lty="dotted",col="lightgray",labels=FALSE)
```

### System 436-4941. Load Vector



#### 0.0.2 Python code

```
In [1]: import matplotlib.pyplot as plt;
import numpy as np
```

```
In [2]: y = (0,10,4,10,8,10,11,18,16,8,10,3,10,12,3,9,10,8,14,10,13,6,8,9,12,7,11,5,10,3,19,9,
6,13,9,11,11,7,10,13,5,8,11,4,9,8,11,10,7,8,6,11,5,14,11,5,9,10,9,5,5,16,14,5,4,9,
13,10,11,6,6,9,5,8,7,4,6,6,9,5,4,8,14,5,10,10,13,11,7,5,5,11,12,10,8,9,3,9,5,7,8,8,
7,8,8,9,13,8,9,6,9,9,8,5,17,9,6,18,13,8,5,6,9,11,8,9,9,7,10,3,0);
x = np.arange(165)
```

```
In [3]: mn = np.mean(y); print(mn) #Calculates mean value with function
```

8.84848484848

```
In [4]: std = np.std(y); print(std) #Calculates std with function
```

3.50688683594

```
In [5]: plt.step(x,y)
plt.grid(b=None,which='both',axis='both')
plt.title('System 436-4941. Load Vector')
plt.xlabel('Time')
plt.ylabel('Jobs in the System')
```

```
Out[5]: Text(0,0.5,'Jobs in the System')
```

