Untitled

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Time Between Student Arrivals at the FEU Library (3rd Floor) from 8:38 AM to 9:38 AM

```
library(readxl)
```

```
## Warning: package 'readxl' was built under R version 4.4.3
```

```
library(ggplot2)
```

```
## Warning: package 'ggplot2' was built under R version 4.4.3
```

```
data = read_excel("FA7 - Data.xlsx")
```

```
## New names:
## * `` -> `...2`
## * `` -> `...3`
## * `` -> `...4`
## * `` -> `...5`
## * `` -> `...6`
## * `` -> `...7`
```
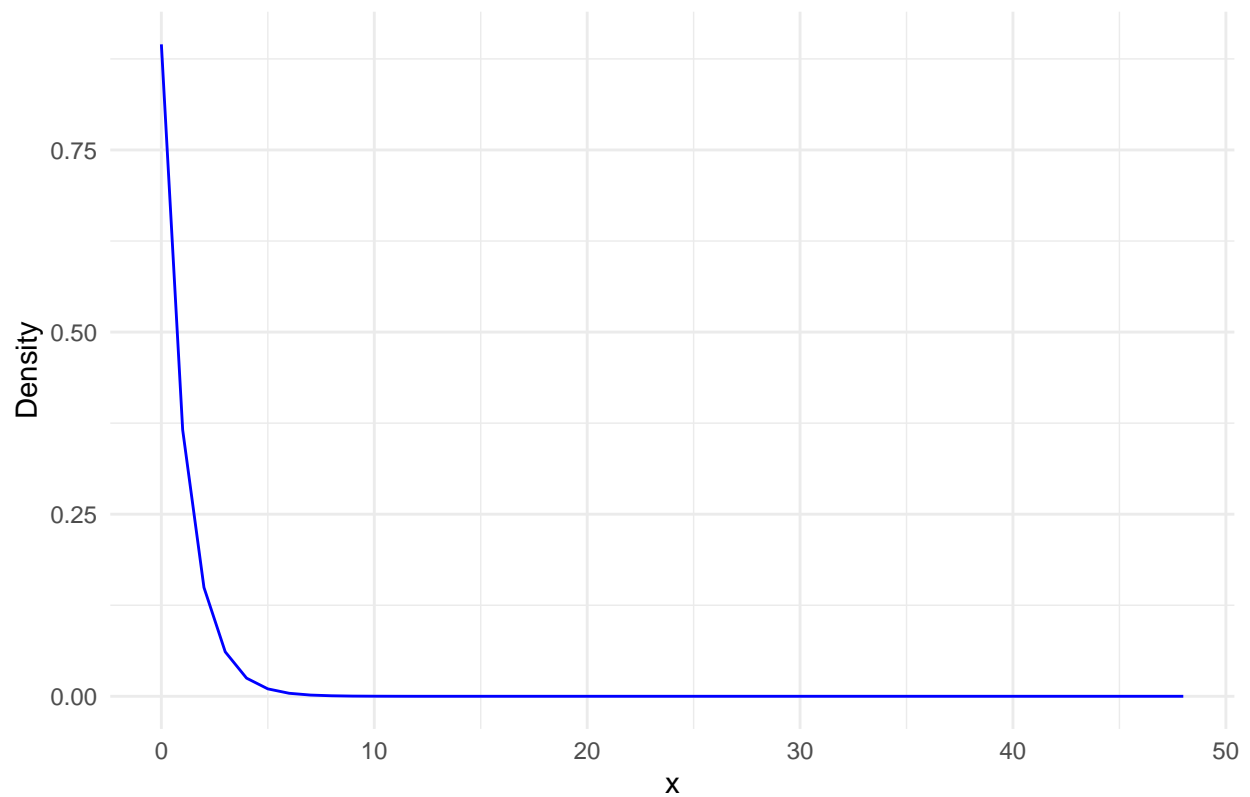
```
mean = 1.1173
lambda = 1/mean
x = seq(0, 48, by = 1)

pdf = dexp(x, rate = lambda)
cdf = pexp(x, rate = lambda)

pdf_data = data.frame(x = x, pdf = pdf)

ggplot(pdf_data, aes(x = x, y = pdf)) +
  geom_line(color = "blue") +
  labs(title = "Probability Density Function of Exponential Distribution",
       x = "x",
       y = "Density") +
  theme_minimal()
```
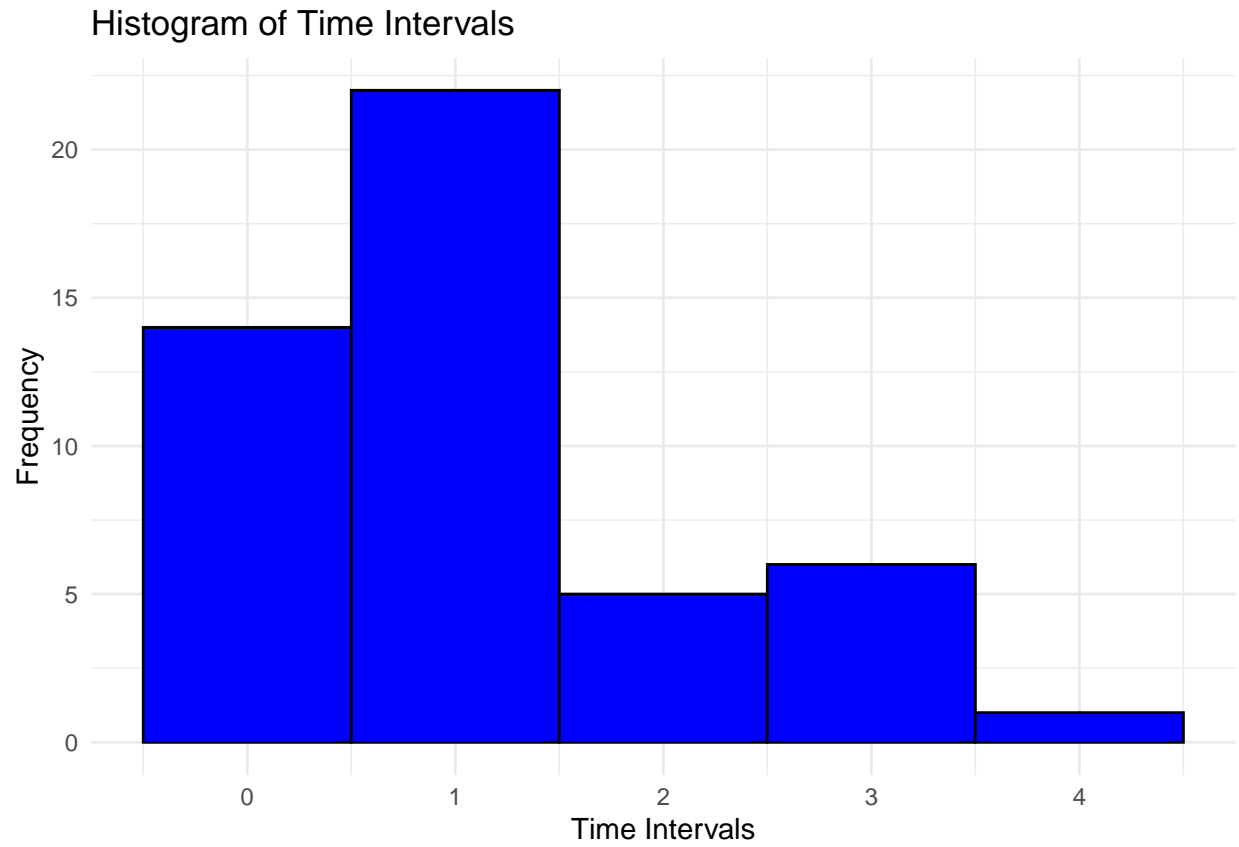
Probability Density Function of Exponential Distribution


```
time_intervals = as.numeric(data$...5[3:50])

ggplot(data.frame(time_intervals), aes(x = time_intervals)) + geom_histogram(binwidth = 1, fill = "blue
```

Histogram of Time Intervals

The average wait time per minute $\mu = 1.1173$ and there is an expected $\lambda = 0.895$ student arrivals per minute.