exp_dist-clt

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```
{r setup, include=TRUE} knitr::opts_chunk$set(echo = TRUE)
```

R Markdown

```
set.seed(1337)
lambda = 0.2
exponentials = 40

simMeans = NULL
for (i in 1 : 1000) simMeans = c(simMeans, mean(rexp(exponentials, lambda)))
mean(simMeans)

lambda^-1
abs(mean(simMeans)-lambda^-1)
var(simMeans)
(lambda * sqrt(exponentials))^-2
abs(var(simMeans)-(lambda * sqrt(exponentials))^-2)
library(ggplot2)
ggplot(data.frame(y=simMeans), aes(x=y)) +
  geom_histogram(aes(y=..density..), binwidth=0.2, fill="#0062B2",
                 color="black") +
  stat_function(fun=dnorm, arg=list(mean=lambda^-1,
                                    sd=(lambda*sqrt(exponentials))^-1),
                size=2) +
  labs(title="Plot of the Simulations", x="Simulation Mean")
```

```
{r pressure, echo=true} plot(pressure)
```