lab3_danhe178_rical803

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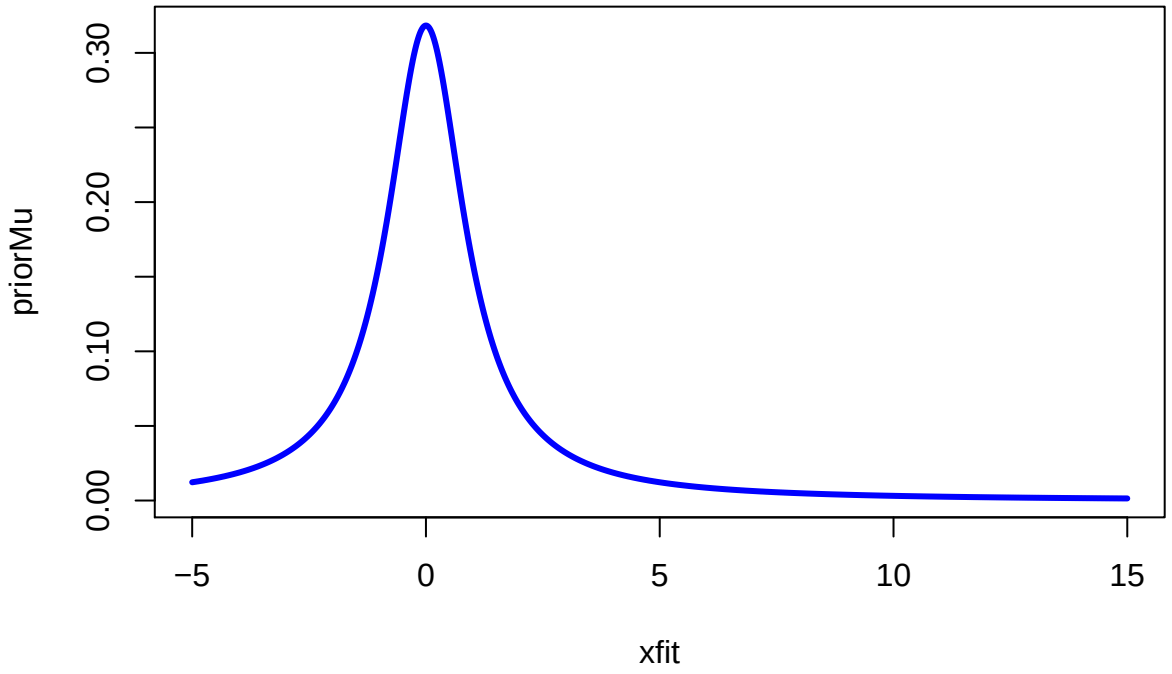
Uppgift 1 Visualisera posteriorn

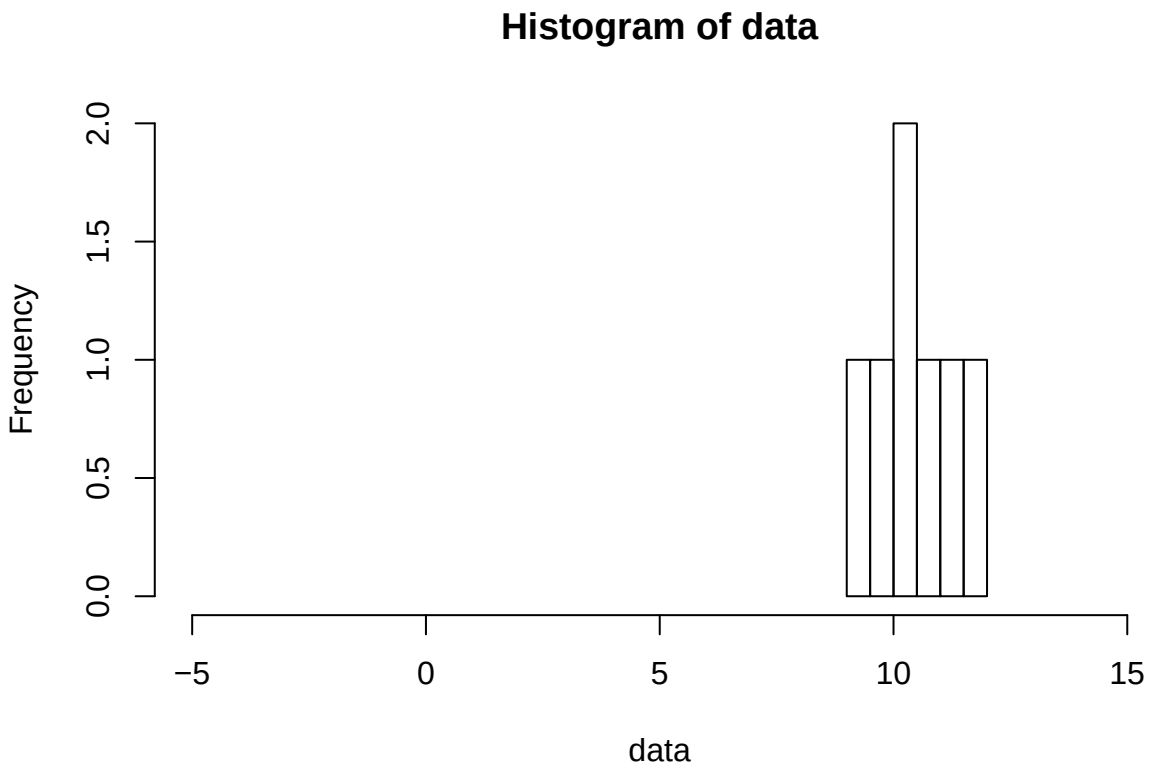
a)

```
#prior for Mu
xfit <- seq(-5, 15, 0.01)
priorMu <- dt(xfit, df = 1)
plot(xfit, priorMu, type = 'l', lwd = 3, col = "blue")
```



b)

```
data <- c(11.3710, 9.4353, 10.3631, 10.6329, 10.4043, 9.8939, 11.5115)
hist(xlim = range(-5, 15), x = data)
```

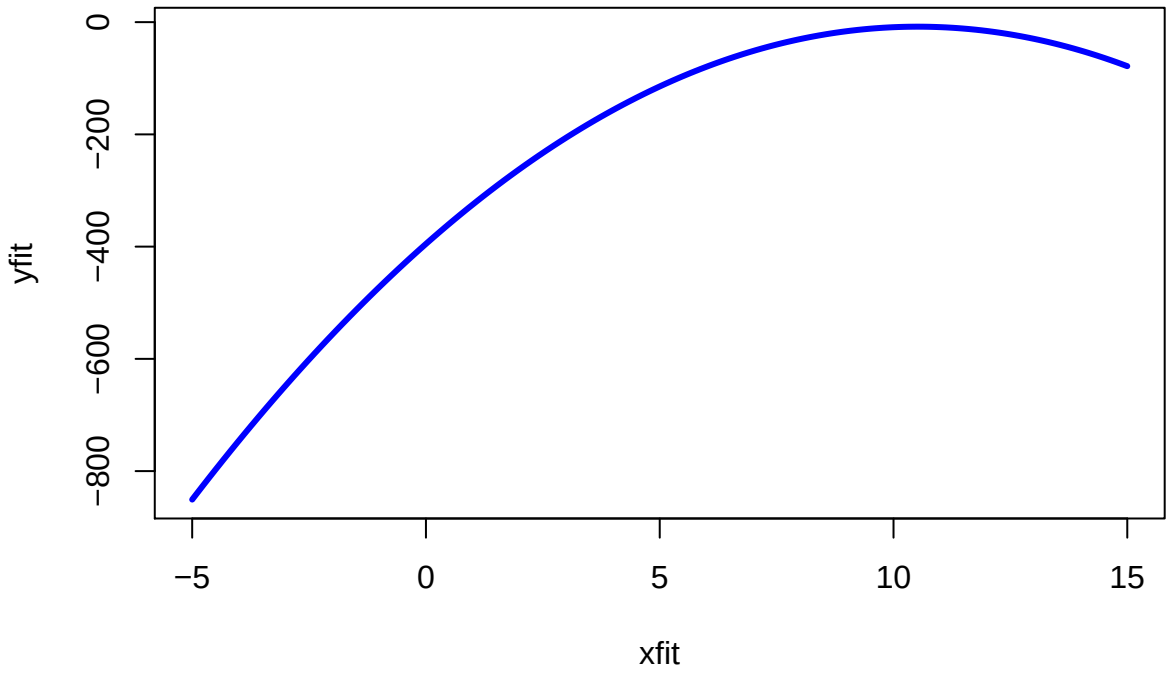


c)

```
normal_log_likelihood <- function(mu, data, sigma2 = 1) {
  xsum <- sum((data - mu)**2)
  return(-length(data)/2*log(2*pi) - length(data)/2 * log(sigma2) - 1/(2 * sigma2) * xsum)
}

xfit <- seq(-5, 15, 0.01)
i <- 1
yfit <- c(xfit)
while(i <= length(xfit)) {
 yfit[i] <- normal_log_likelihood(xfit[i], data)
 i <- i + 1
}

likelihoodplot <- plot(xfit, yfit, type = 'l', lwd = 3, col = "blue")
```



d)

e)

```r
#posterior
xfit <- seq(-5, 15, 0.01)
posterior <- yfit + log(priorMu)
plot(xfit, posterior, type = 'l', lwd = 3, col = "red")
```