Tutorial 4

Madeline Ahn

2022-10-14

```
library(ggplot2)
```

1(a)-i

```
pnorm(75,70,10)
```

```
## [1] 0.6914625
```

1(a)-ii

```
pnorm(60,70,10)
```

```
## [1] 0.1586553
```

1(a)-iii

```
pnorm(75, 70, 10) - pnorm(60, 70, 10)
```

```
## [1] 0.5328072
```

1(a)-iv

```
(1 - pnorm(85, 70, 10)) + pnorm(65, 70, 10)
```

```
## [1] 0.3753447
```

1(b)-i

```r
qnorm(0.9911, 40, 6)
```

```
## [1] 54.21851
```

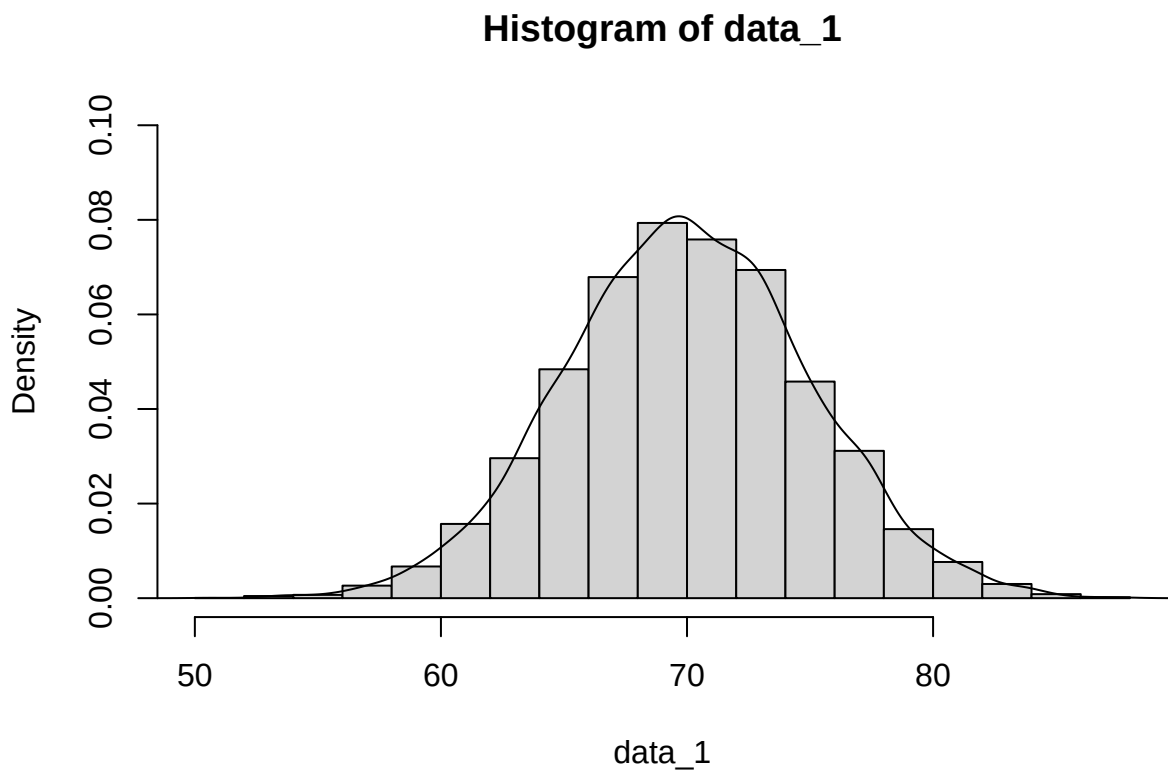
1(b)-ii

```r
qnorm((1 - 0.7995), 40, 6)
```

```
## [1] 34.96098
```

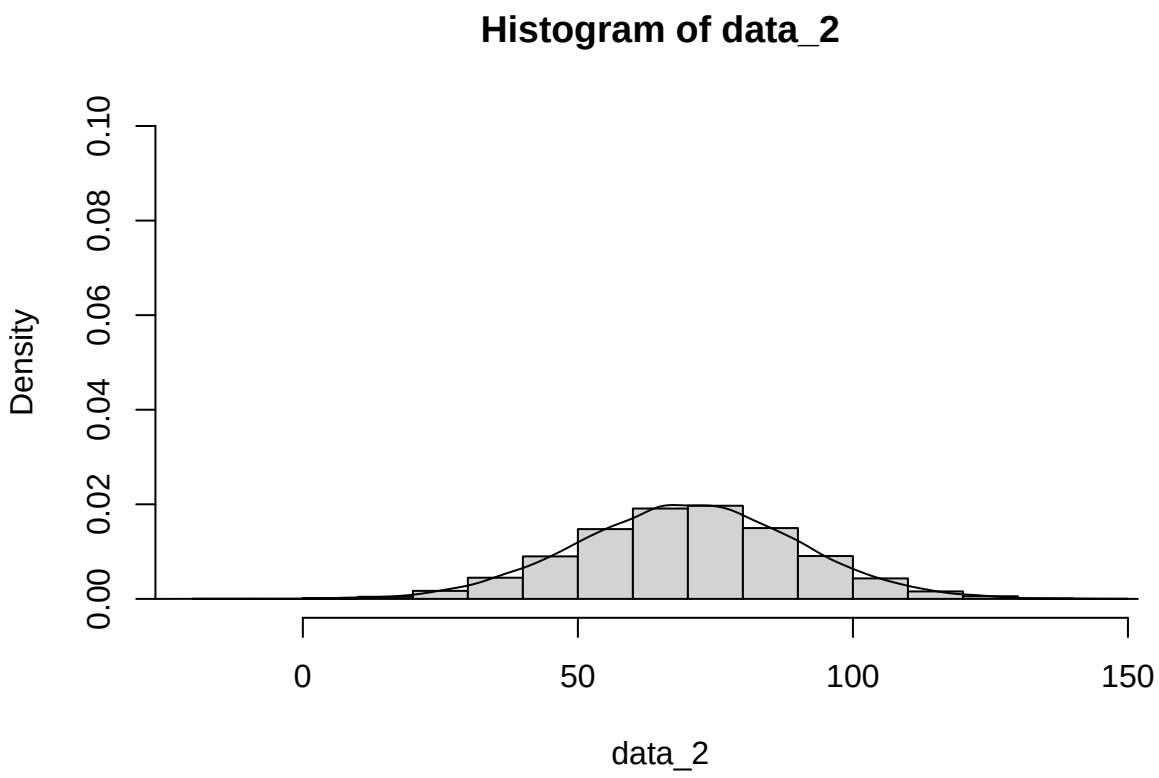
1(c)-i

```r
data_1 <- rnorm(10000, 70, 5)

hist(data_1, prob=TRUE, ylim=c(0,0.1))
lines(density(data_1))
```



i(c) - ii

```
data_2 <- rnorm(10000, 70, 20)

hist(data_2, prob = TRUE, ylim = c(0,0.1))
lines(density(data_2))
```



1(c)-iii

The spread of the data is wider in Data 1, where the density reaches an upper limit around 0.08, whereas in Data 2, the density only reaches about 0.03. The mean of the graphs are the same between the two datasets.