

lab11

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```
library(dplyr)

##
## Attaching package: 'dplyr'
## The following objects are masked from 'package:stats':
##
##   filter, lag
## The following objects are masked from 'package:base':
##
##   intersect, setdiff, setequal, union
library(ggplot2)
```

Q13

```
file <- "population_data.txt"

data <- read.table(file)
geno <- as.factor(data$geno)
table(geno)

## geno
## A/A A/G G/G
## 108 233 121

summary(data %>% filter(geno == "A/A"))

##      sample      geno      exp
## Length:108      Length:108      Min.   :11.40
## Class :character Class :character 1st Qu.:27.02
## Mode  :character Mode  :character Median  :31.25
##                                     Mean   :31.82
##                                     3rd Qu.:35.92
##                                     Max.   :51.52

summary(data %>% filter(geno == "A/G"))

##      sample      geno      exp
## Length:233      Length:233      Min.   : 7.075
## Class :character Class :character 1st Qu.:20.626
## Mode  :character Mode  :character Median  :25.065
##                                     Mean   :25.397
```

```
##                               3rd Qu.:30.552
##                               Max.    :48.034
```

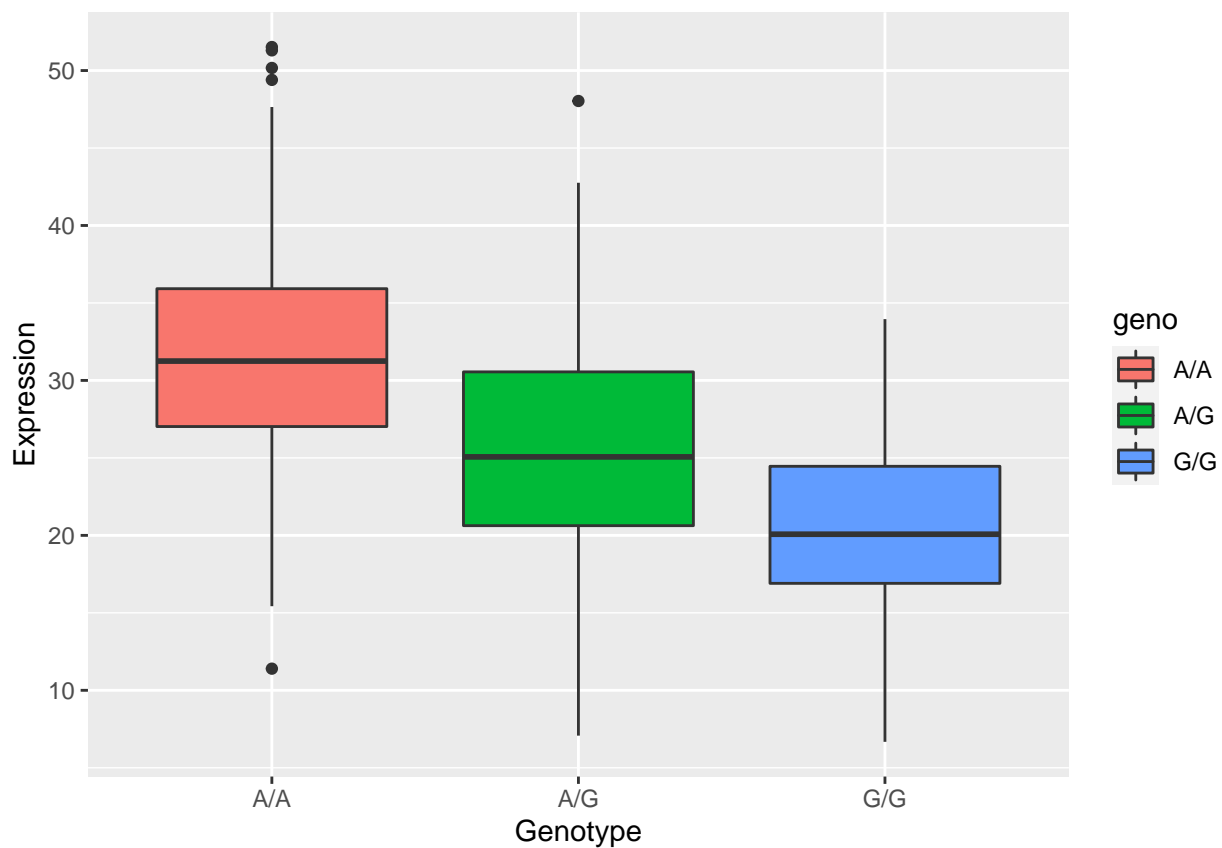
```
summary(data %>% filter(geno == "G/G"))
```

```
##      sample      geno      exp
## Length:121      Length:121      Min.   : 6.675
## Class :character Class :character 1st Qu.:16.903
## Mode  :character Mode  :character Median :20.074
##                                     Mean  :20.594
##                                     3rd Qu.:24.457
##                                     Max.   :33.956
```

Genotype A/A: sample size 108, median expression level 31.25 Genotype A/G: sample size 233, median expression level 25.065 Genotype G/G: sample size 121, median expression level 20.074

Q14

```
ggplot(data, aes(geno, exp, fill = geno))+
  geom_boxplot()+
  xlab("Genotype")+
  ylab("Expression")
```



Genotype A/A group generally have higher expression of ORMDL3 compared to genotype G/G group. The SNP does affect the expression of ORMDL3.