

STAT-S 610 Homework 1

Nahid Hasan Sagar

2025-09-05

STAT-S 610 Homework 1

Loading necessary packages

```
library(ggplot2)
library(wesanderson)

typeof(wes_palettes)

## [1] "list"
typeof(names(wes_palettes))

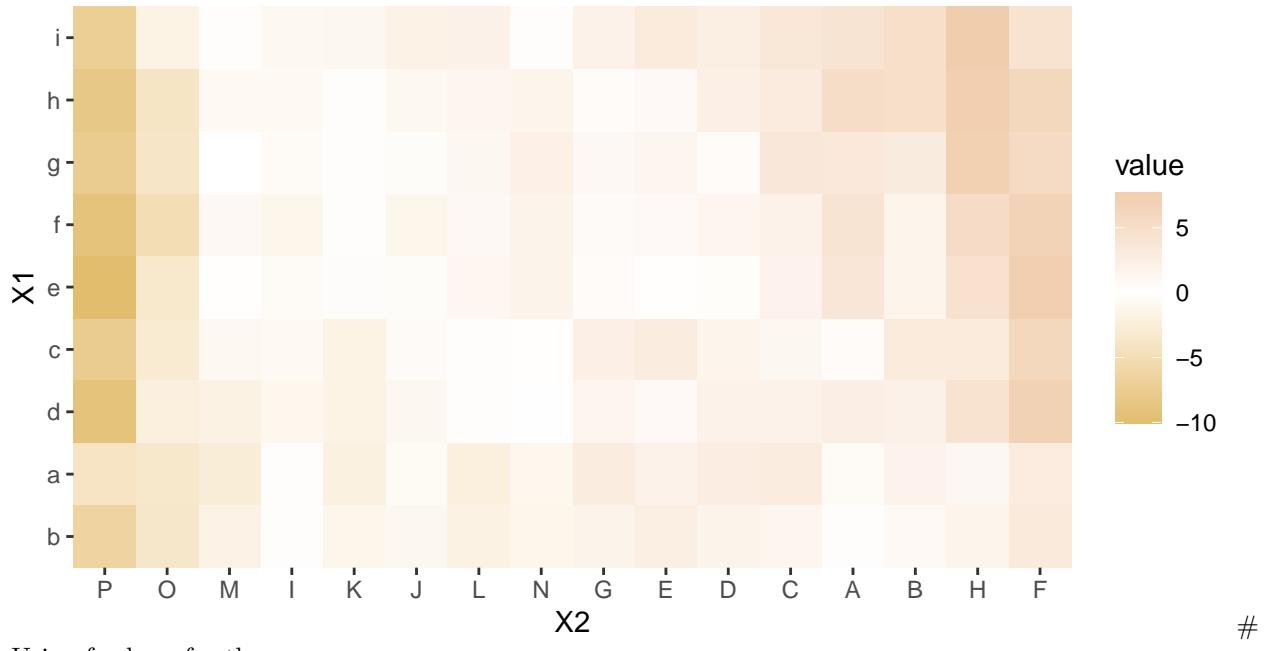
## [1] "character"
typeof(wes_palettes['AsteroidCity2'])

## [1] "list"
```

Role of pal[1] and pal[2]

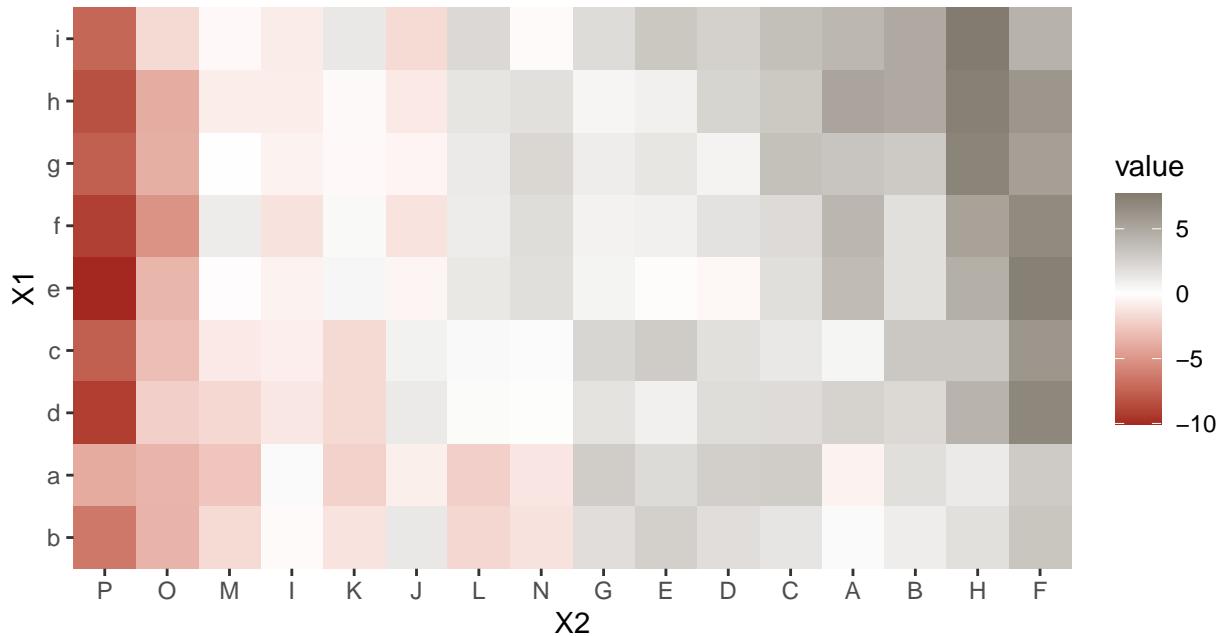
So, in the code below pal is taking three color from wes_palettes and among those three color we are using two color to make a gradient on the following codes. Where pal[1] is the lower color middle one is white and higher color is pal[2]. So, pal[1] and pal[2] are used for setting lower and upper color in the gradient of a three color gradient.

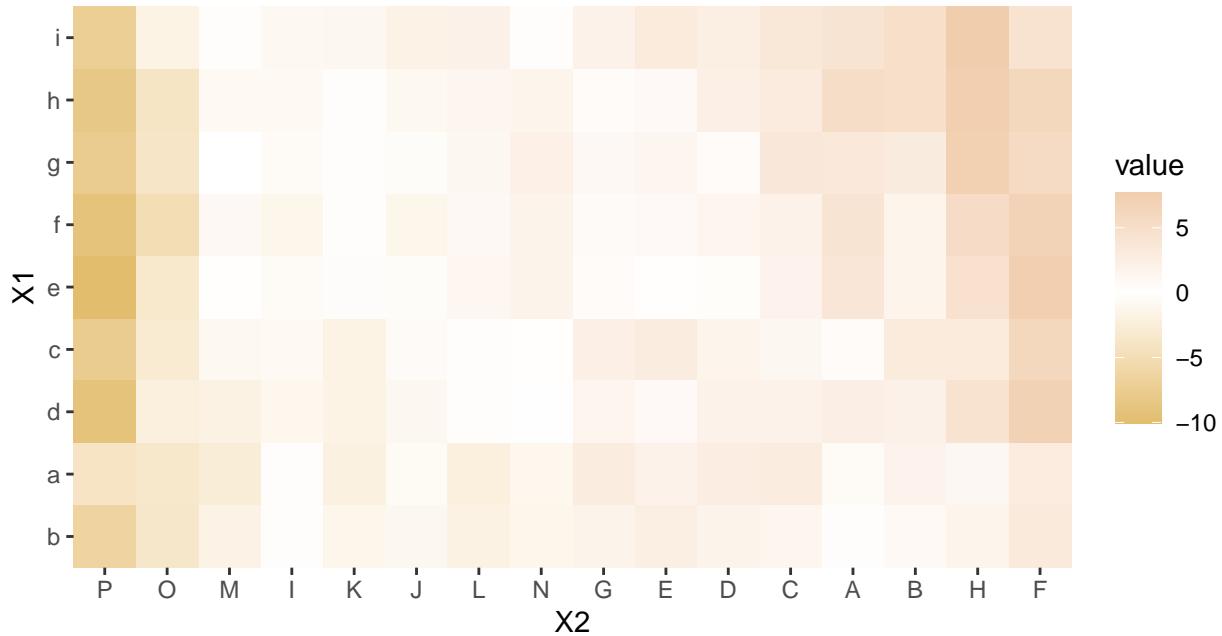
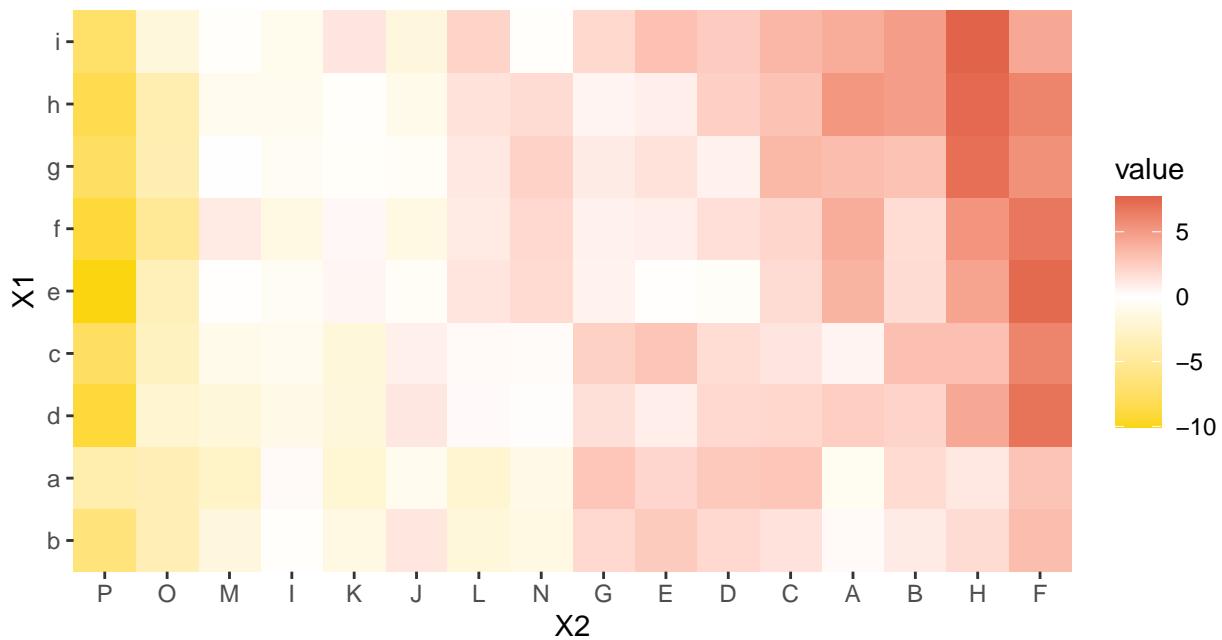
```
data(heatmap)
pal <- wes_palette("Rushmore", 3, type = "discrete")
ggplot(heatmap, aes(x = X2, y = X1, fill = value)) +
  geom_tile() +
  scale_fill_gradient2(
    low = pal[1],
    mid = "white",
    high = pal[2],
  ) +
  scale_x_discrete(expand = c(0, 0)) +
  scale_y_discrete(expand = c(0, 0)) + coord_equal()
```

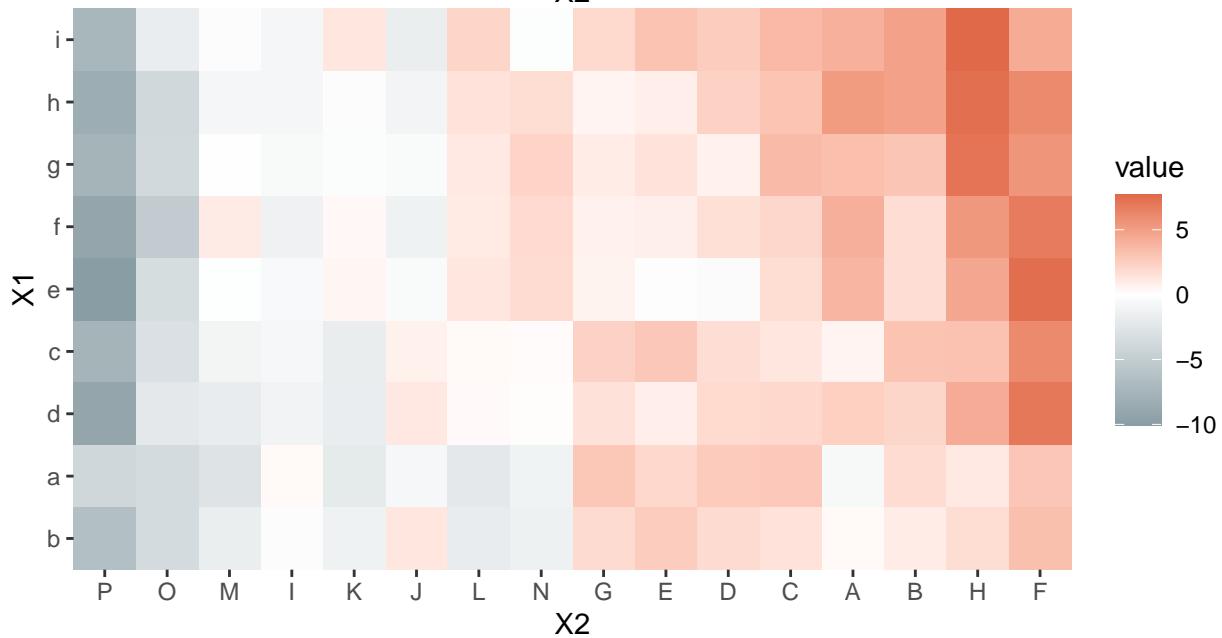
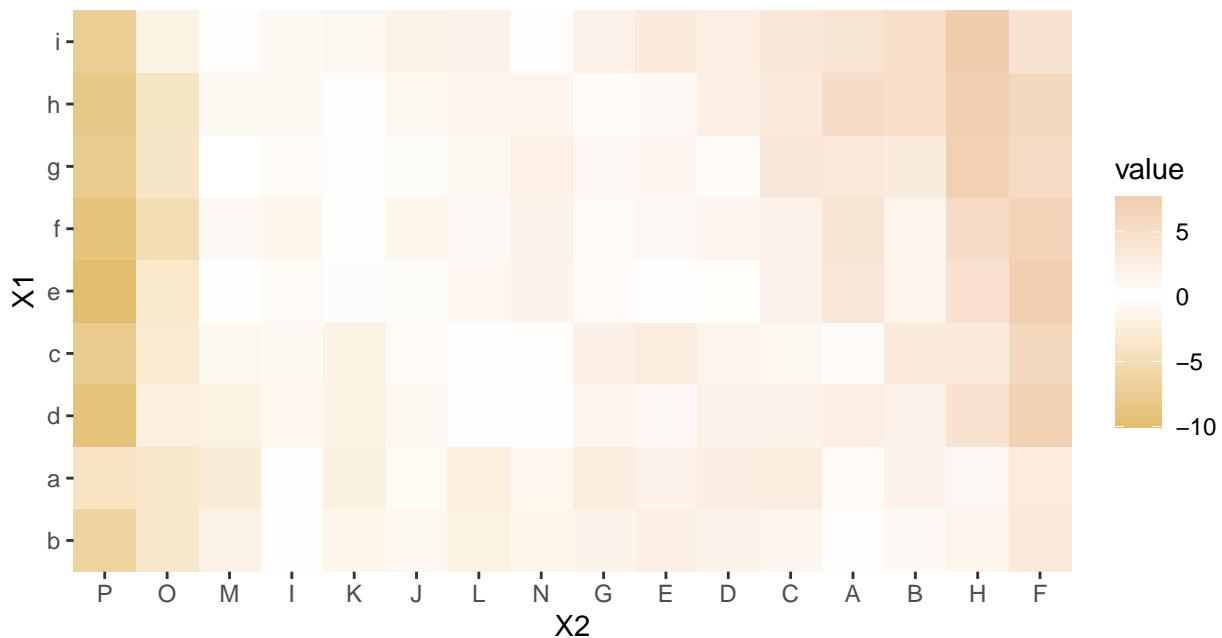


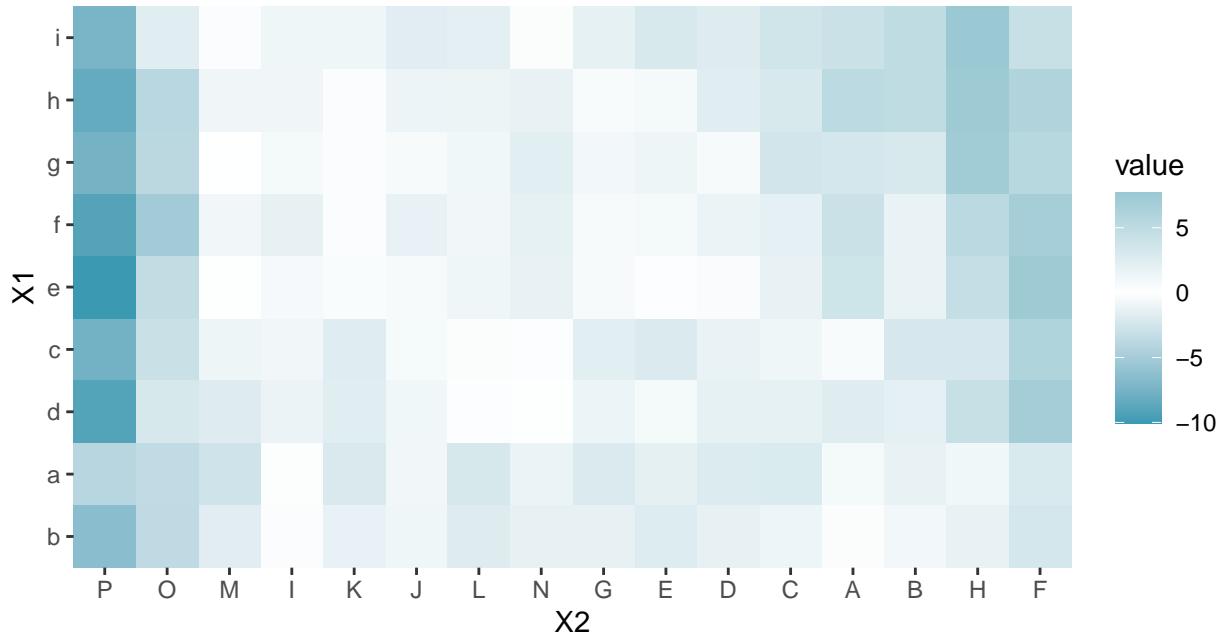
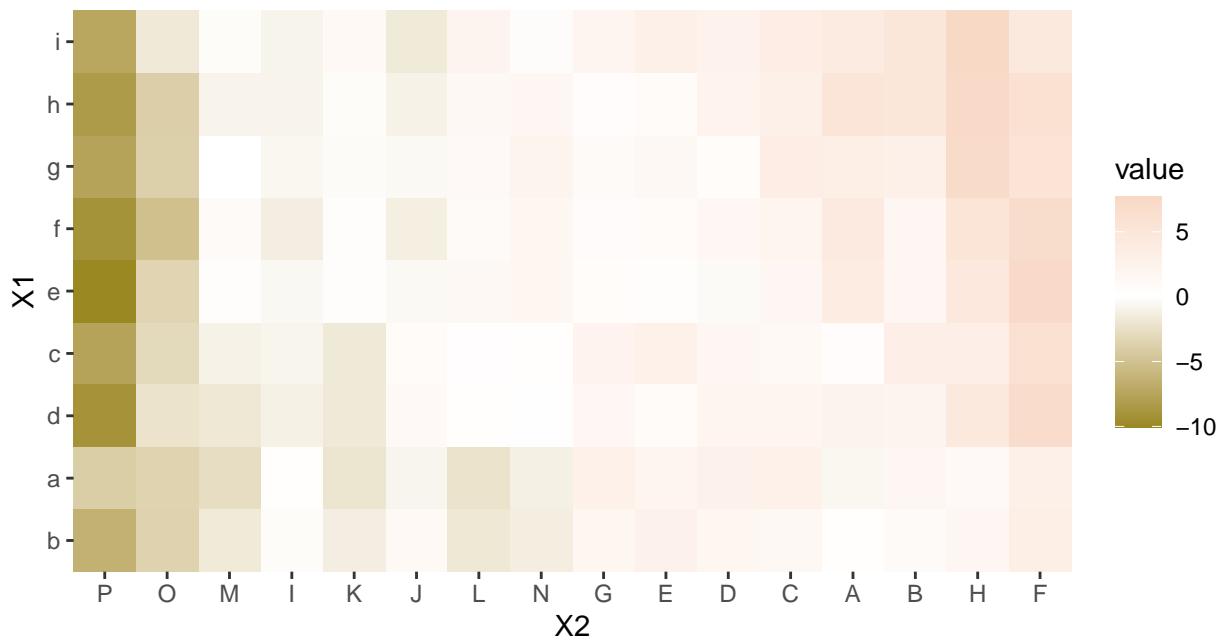
Using for loop for the

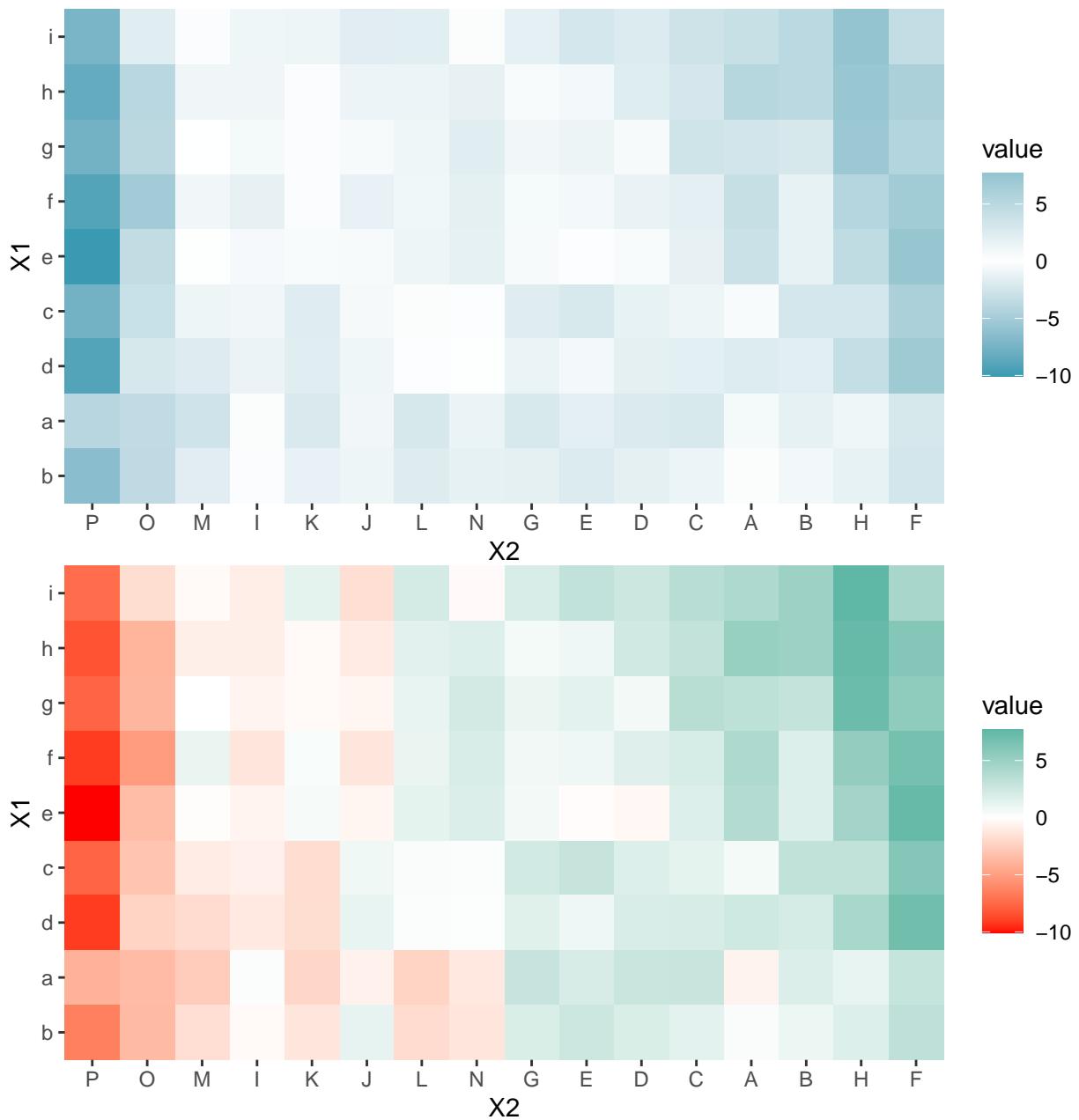
```
for (i in 1:length(wes_palettes)) {
  pal <- wes_palette(names(wes_palettes)[i], 2, type = "discrete")
  print(ggplot(heatmap, aes(x = X2, y = X1, fill = value)) +
    geom_tile() +
    scale_fill_gradient2(
      low = pal[1],
      mid = "white",
      high = pal[2],
    ) +
    scale_x_discrete(expand = c(0, 0)) +
    scale_y_discrete(expand = c(0, 0)) + coord_equal())
}
```

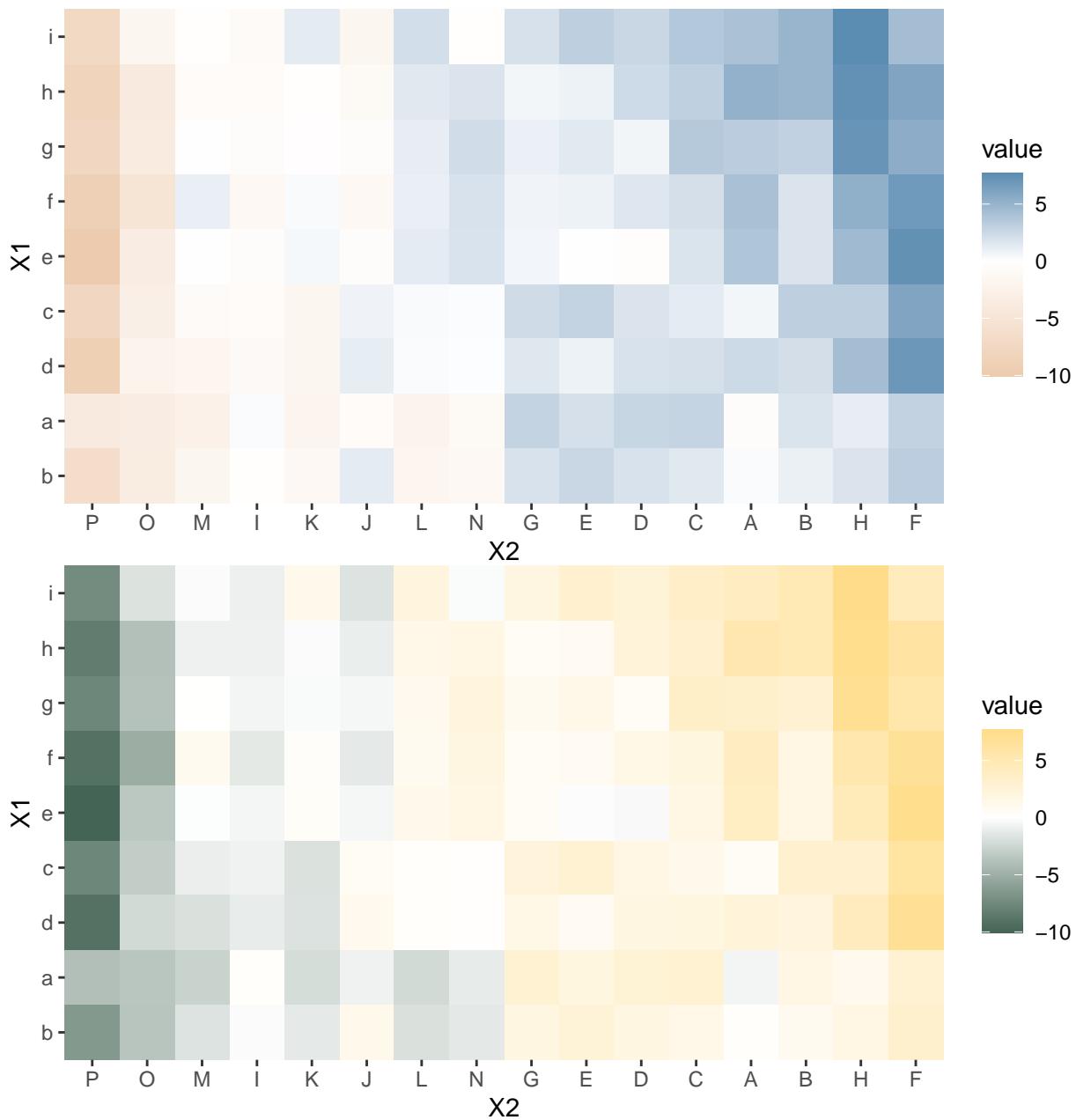


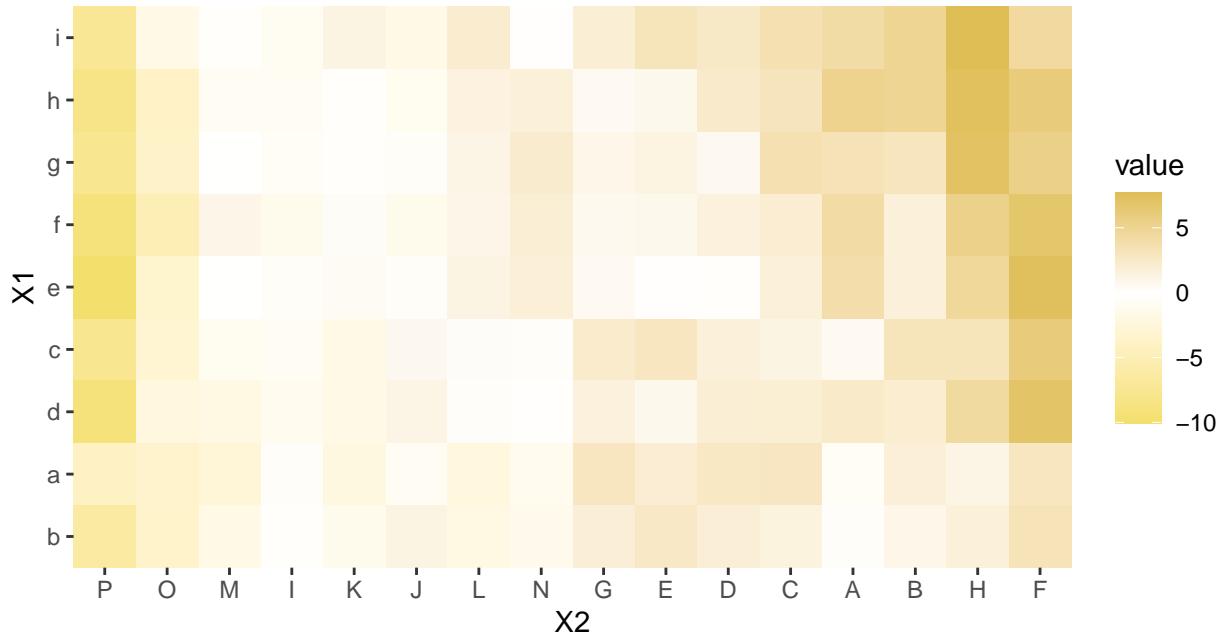
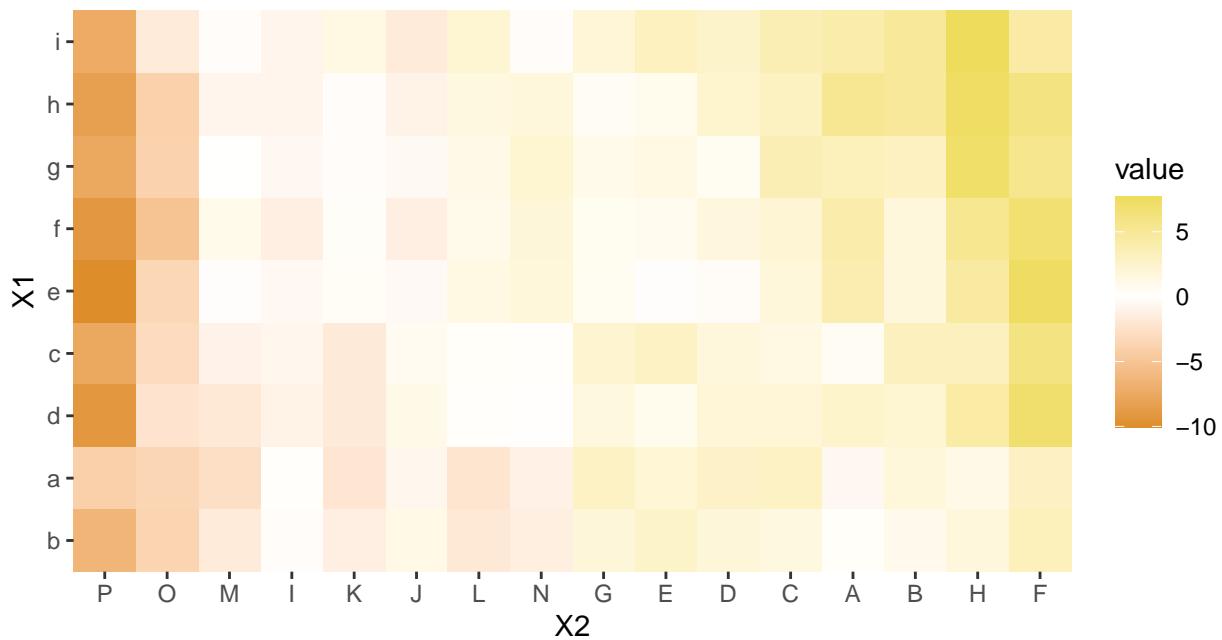


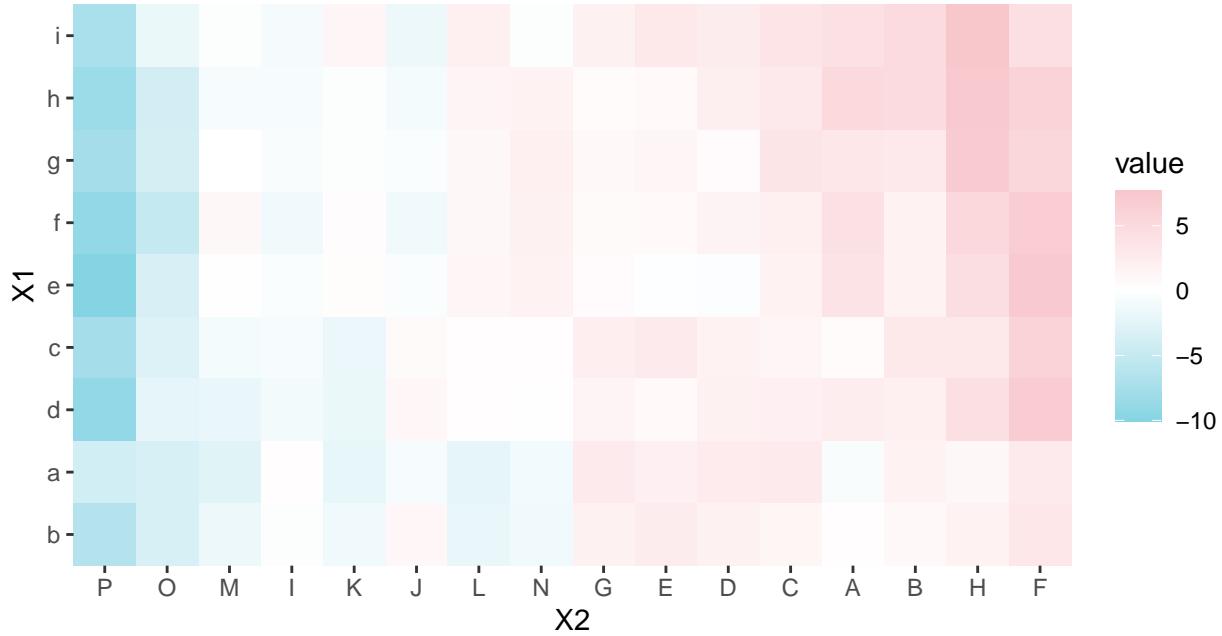
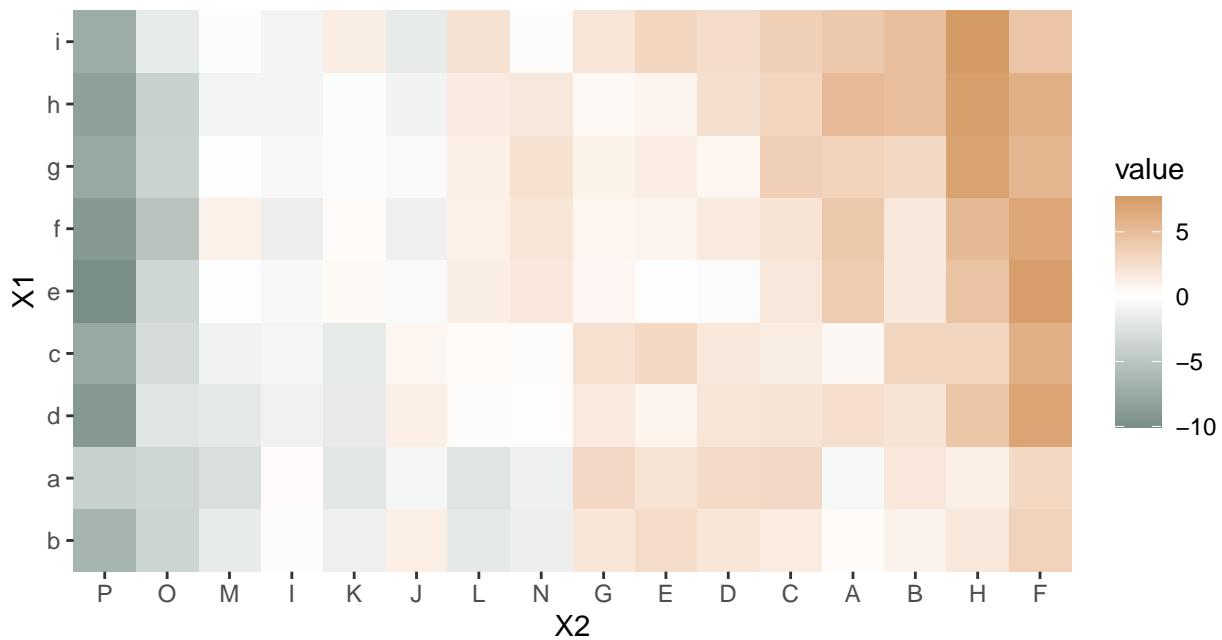


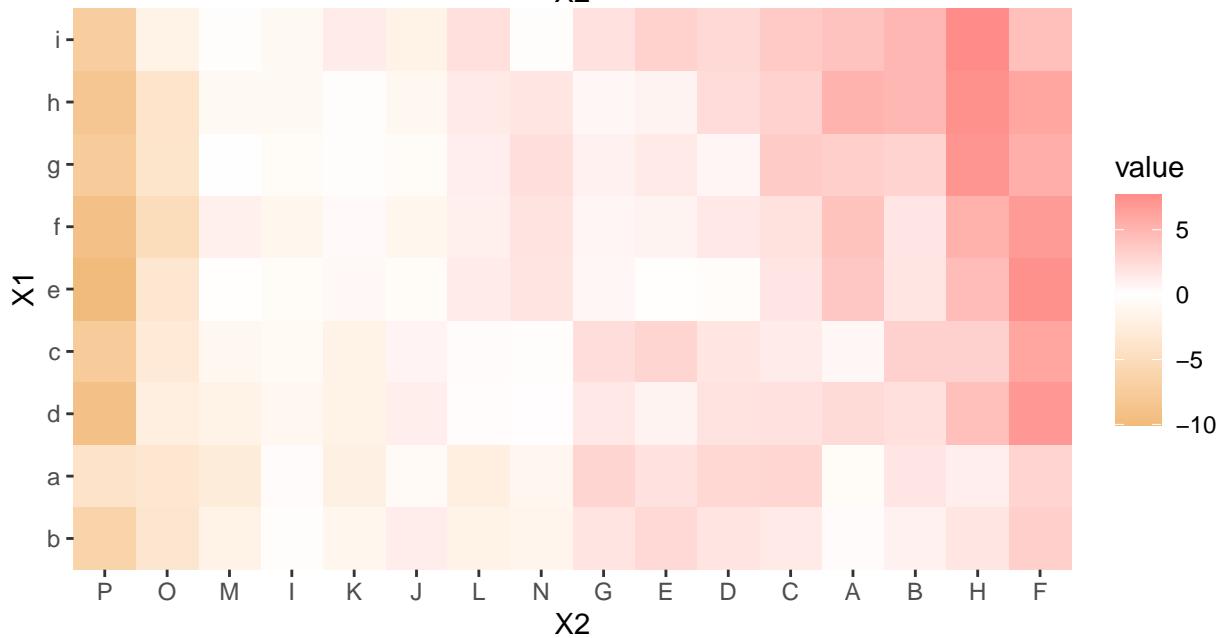
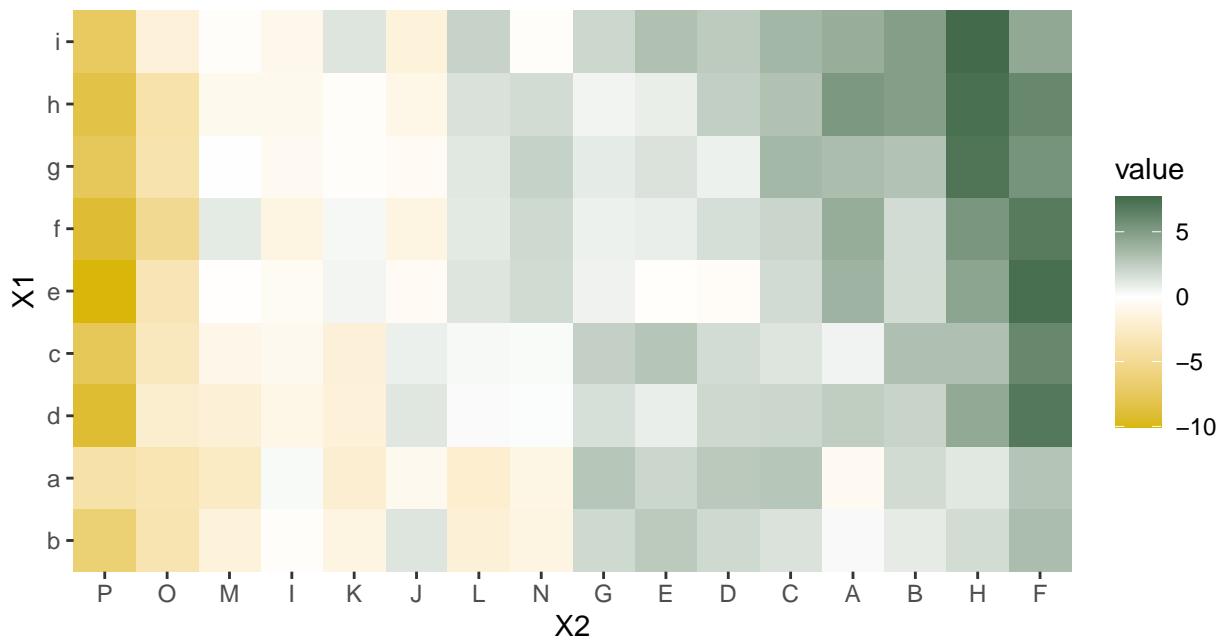


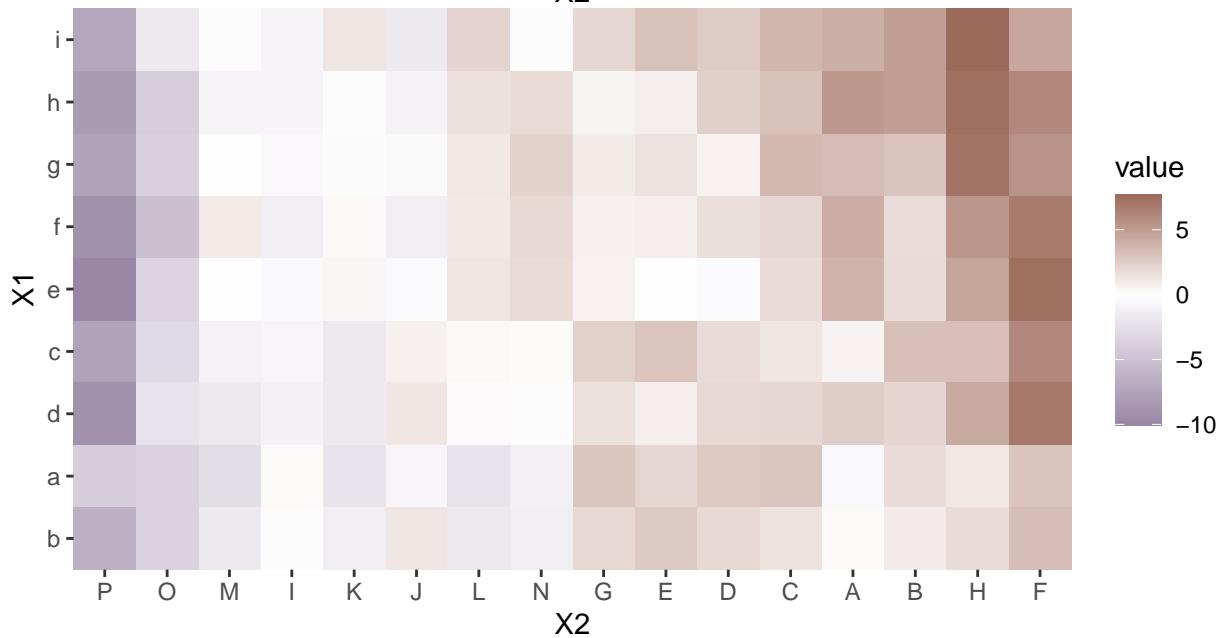
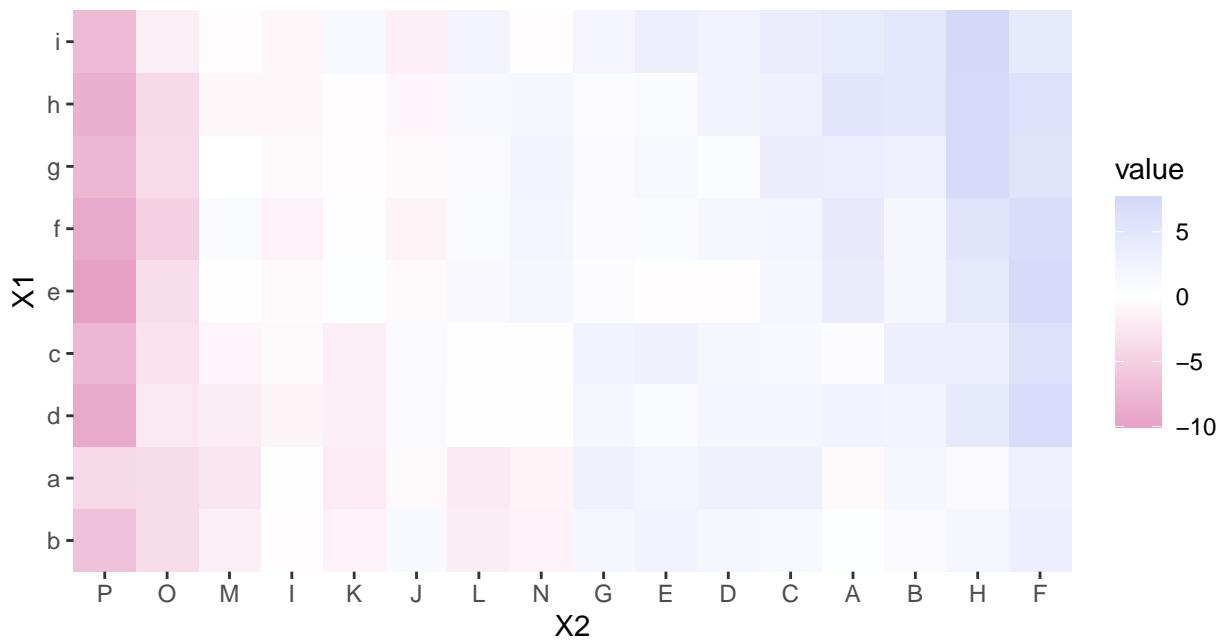


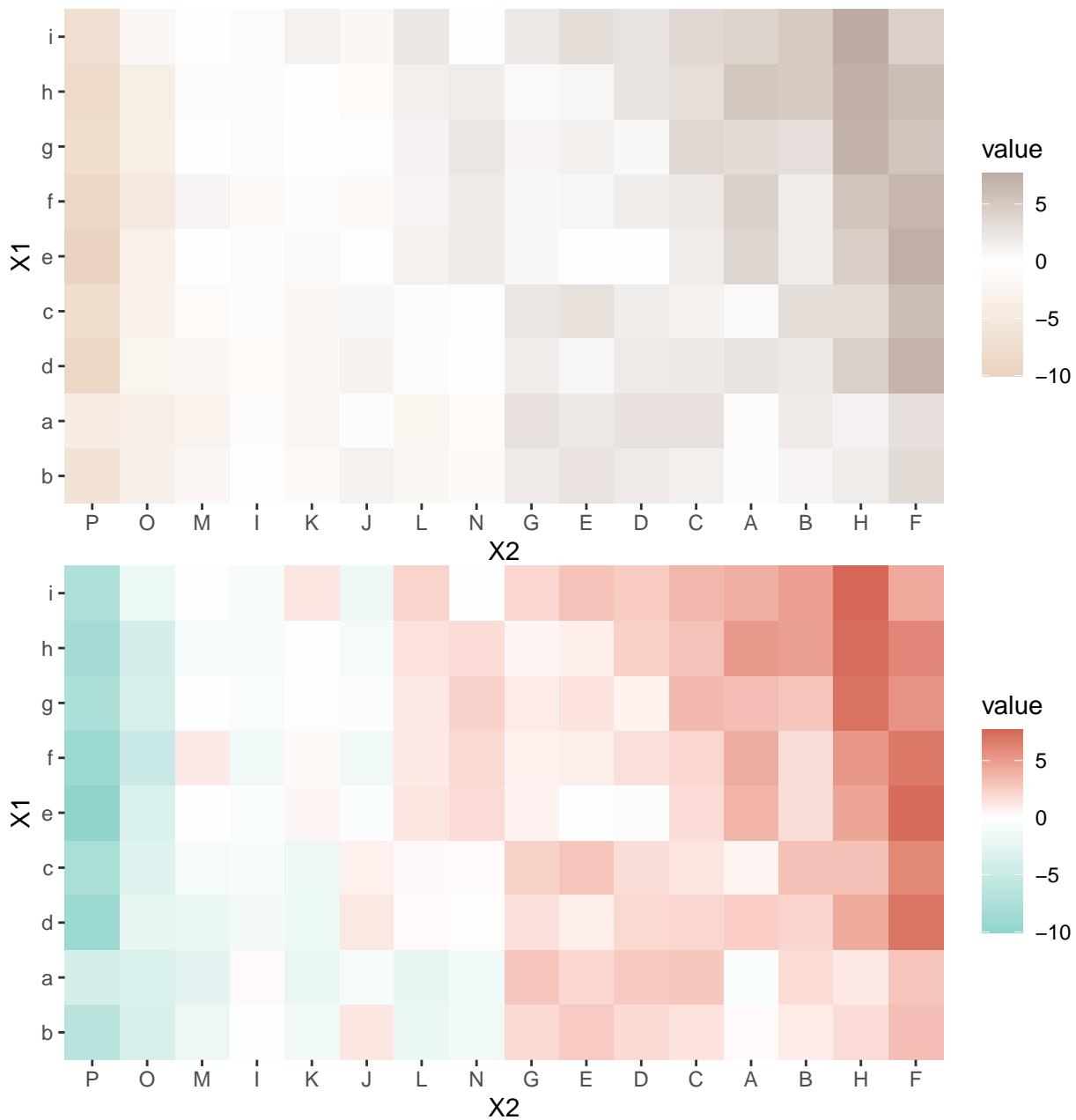


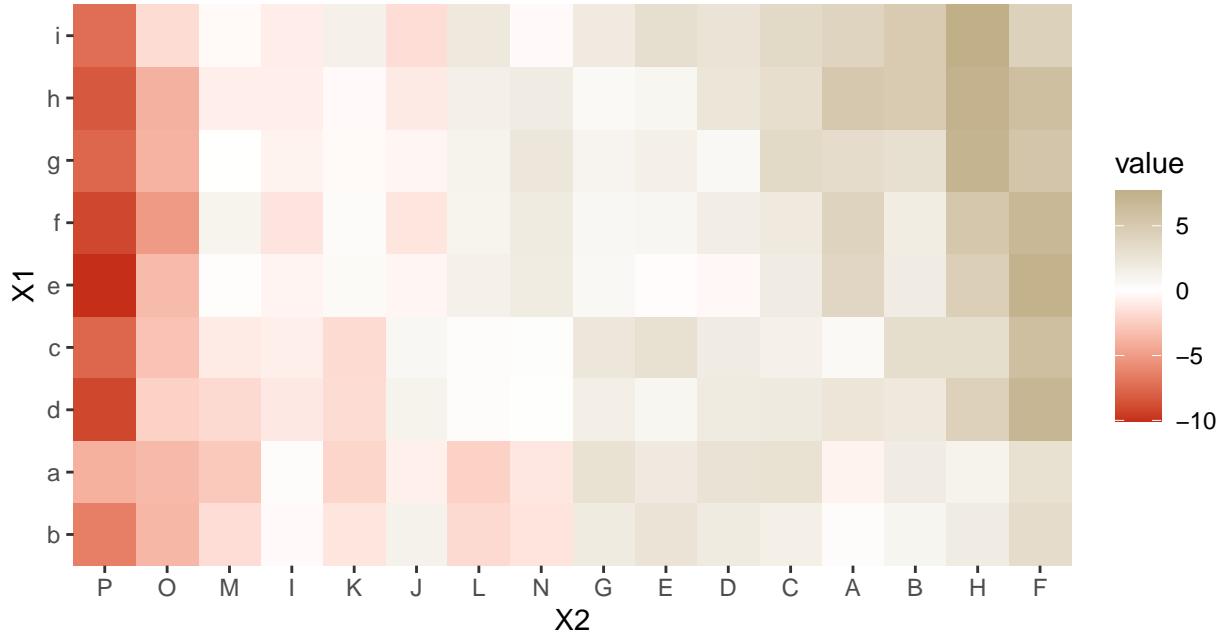
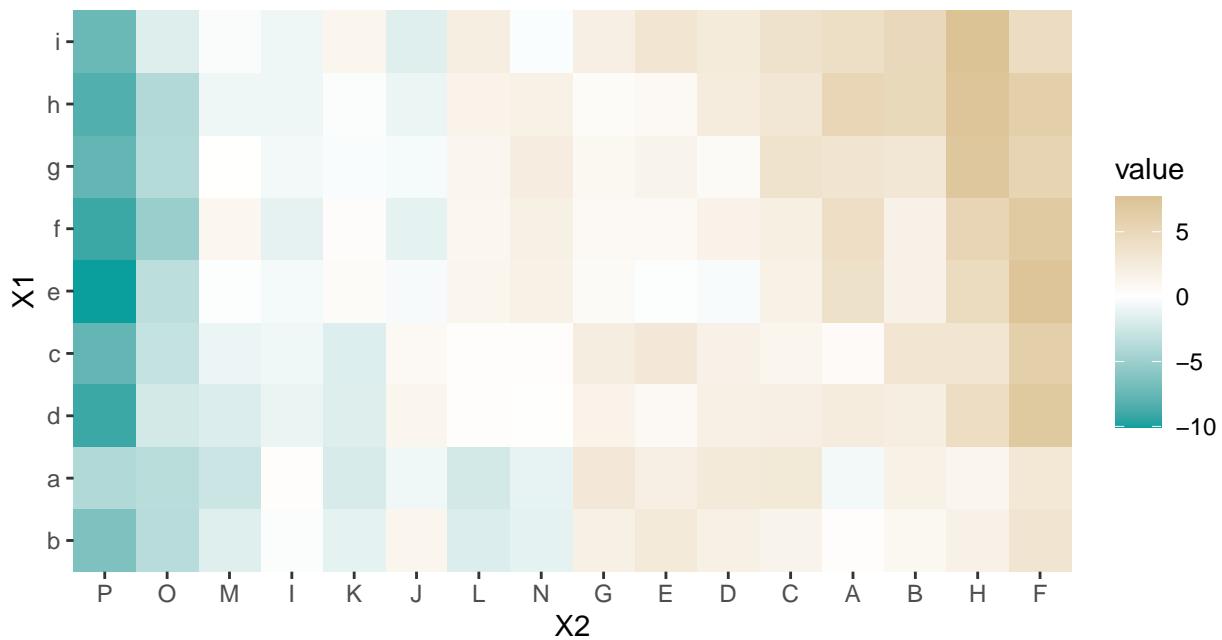


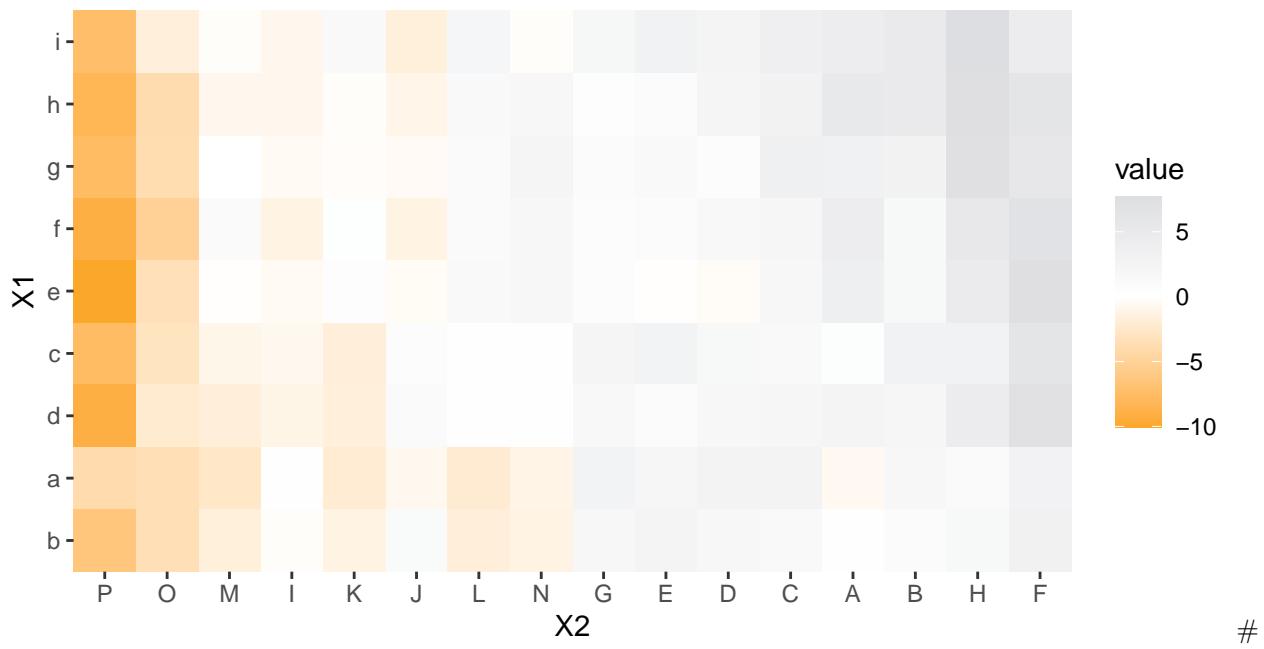






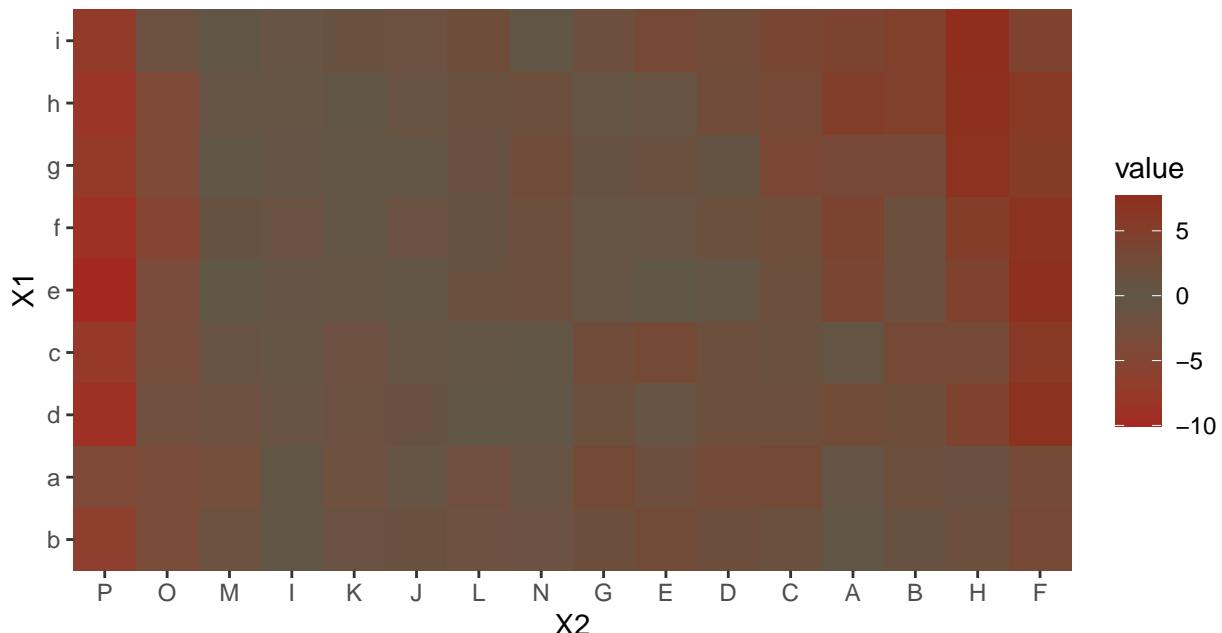


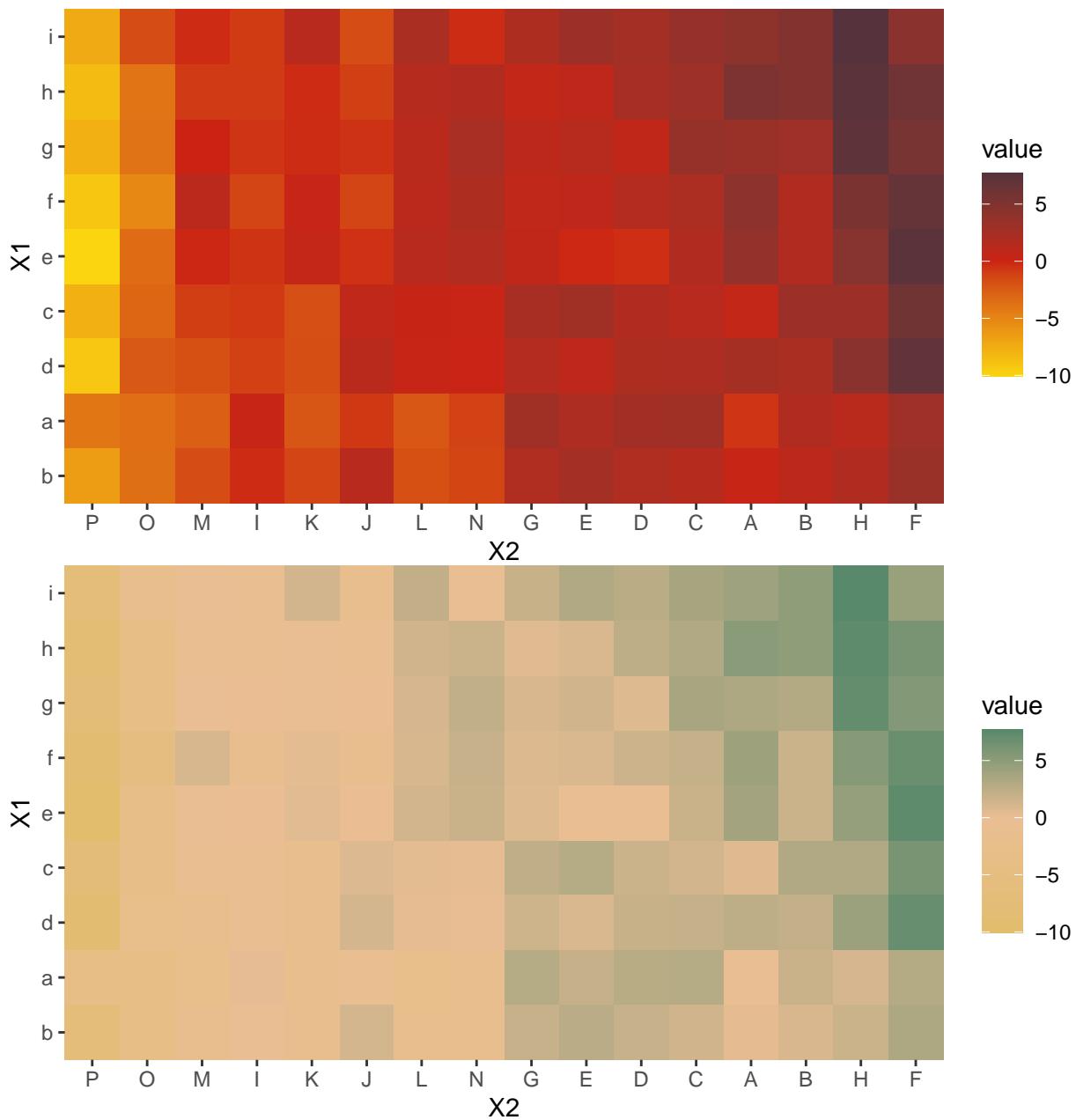


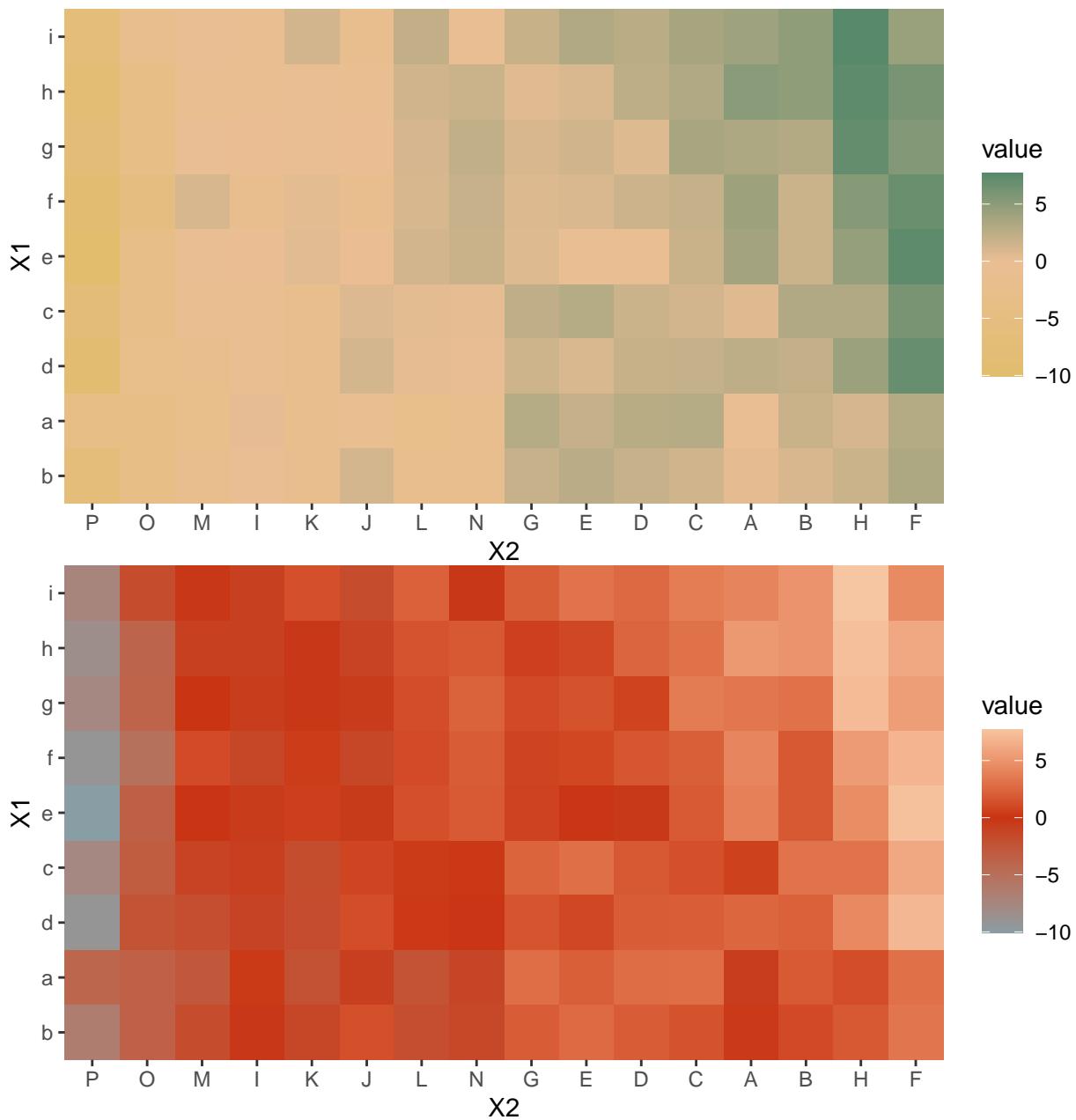


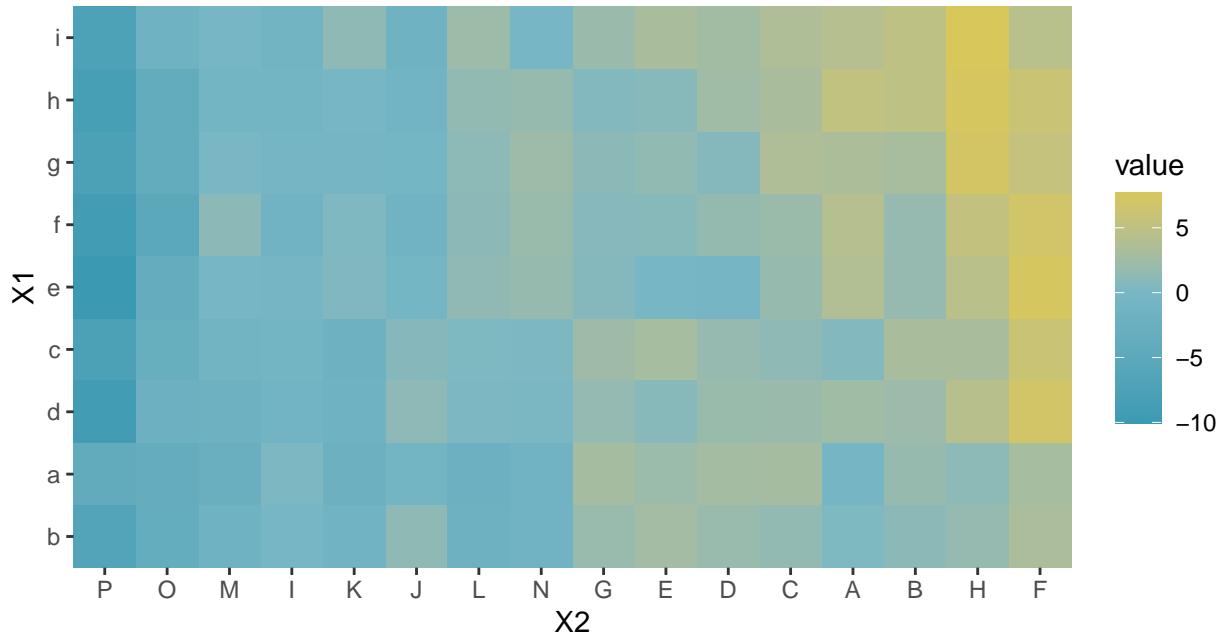
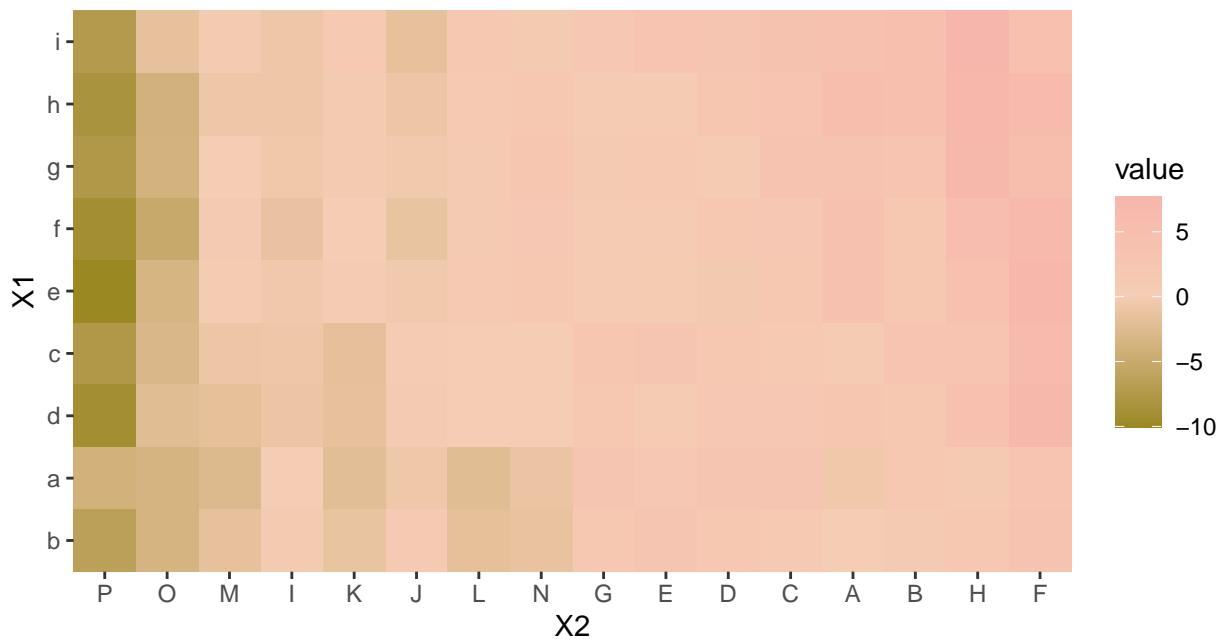
With three different color

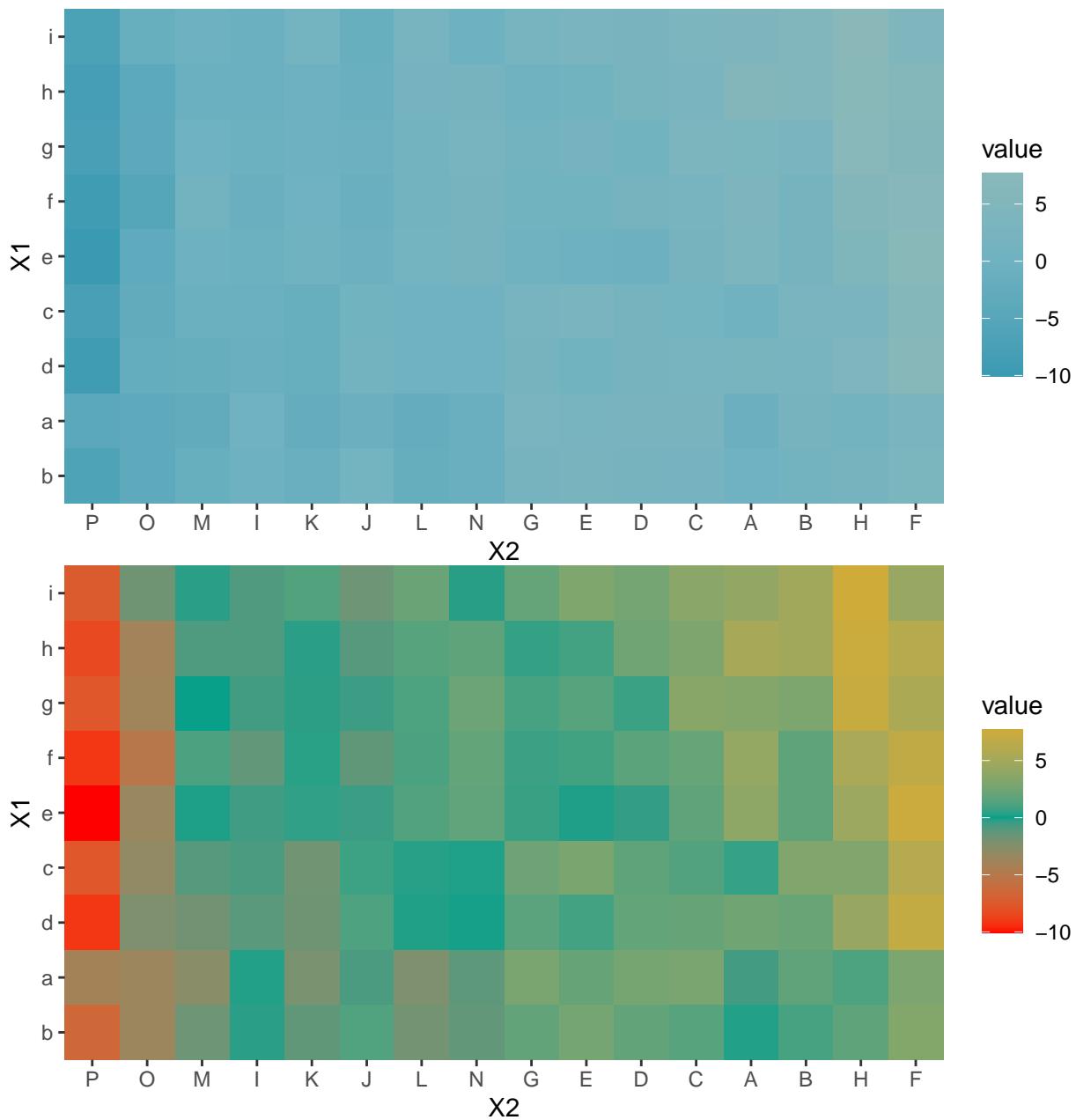
```
for (i in 1:length(wes_palettes)) {
  pal <- wes_palette(names(wes_palettes)[i], 3, type = "discrete")
  print(ggplot(heatmap, aes(x = X2, y = X1, fill = value)) +
    geom_tile() +
    scale_fill_gradient2(
      low = pal[1],
      mid = pal[2],
      high = pal[3],
    ) +
    scale_x_discrete(expand = c(0, 0)) +
    scale_y_discrete(expand = c(0, 0)) + coord_equal())
}
```

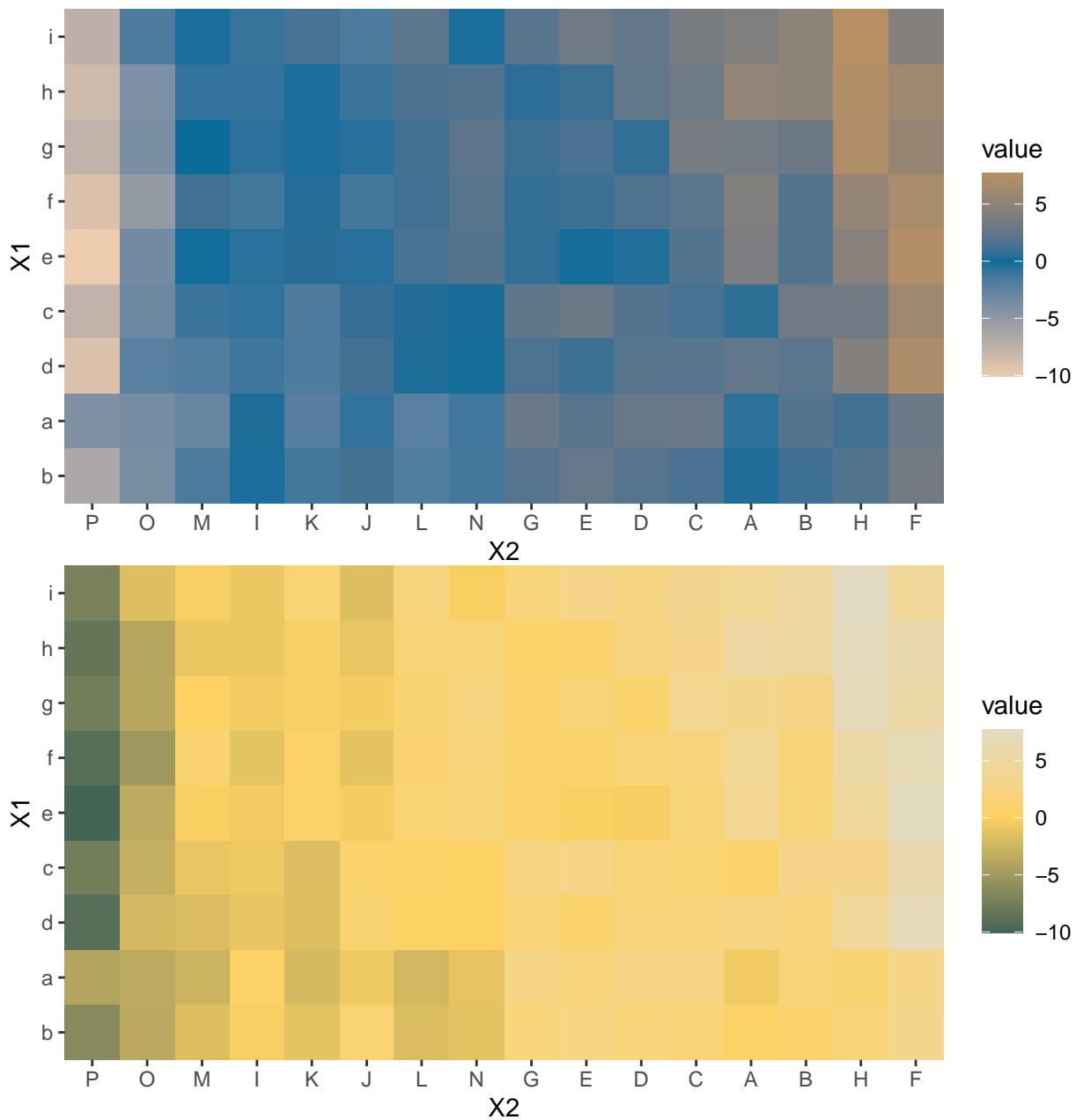


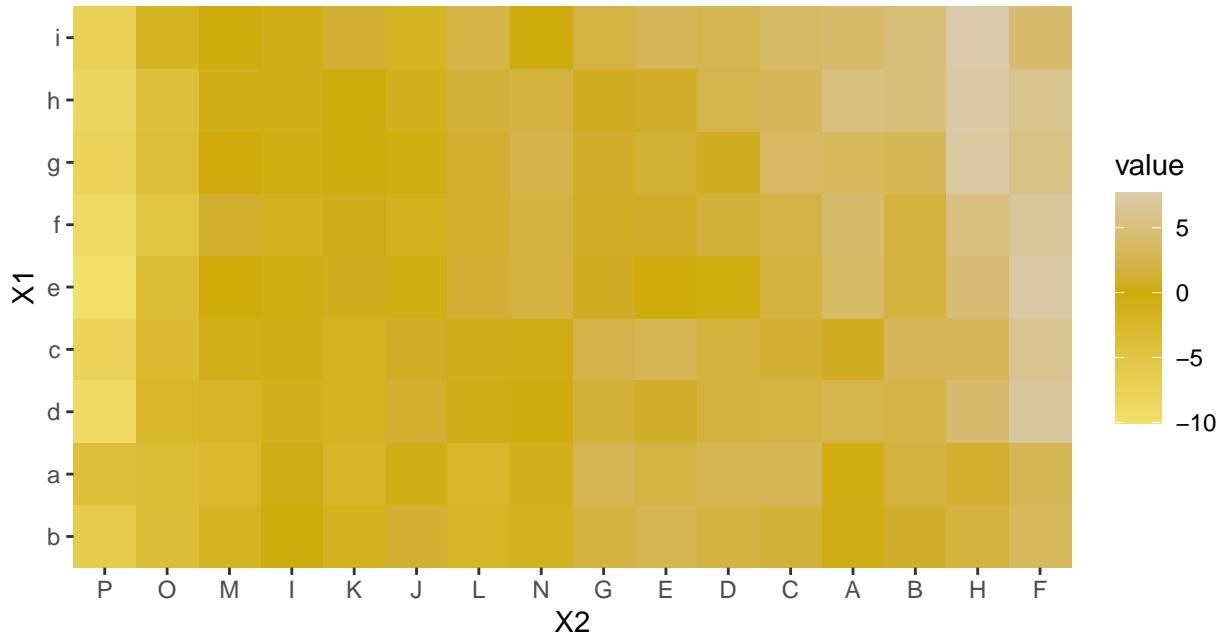
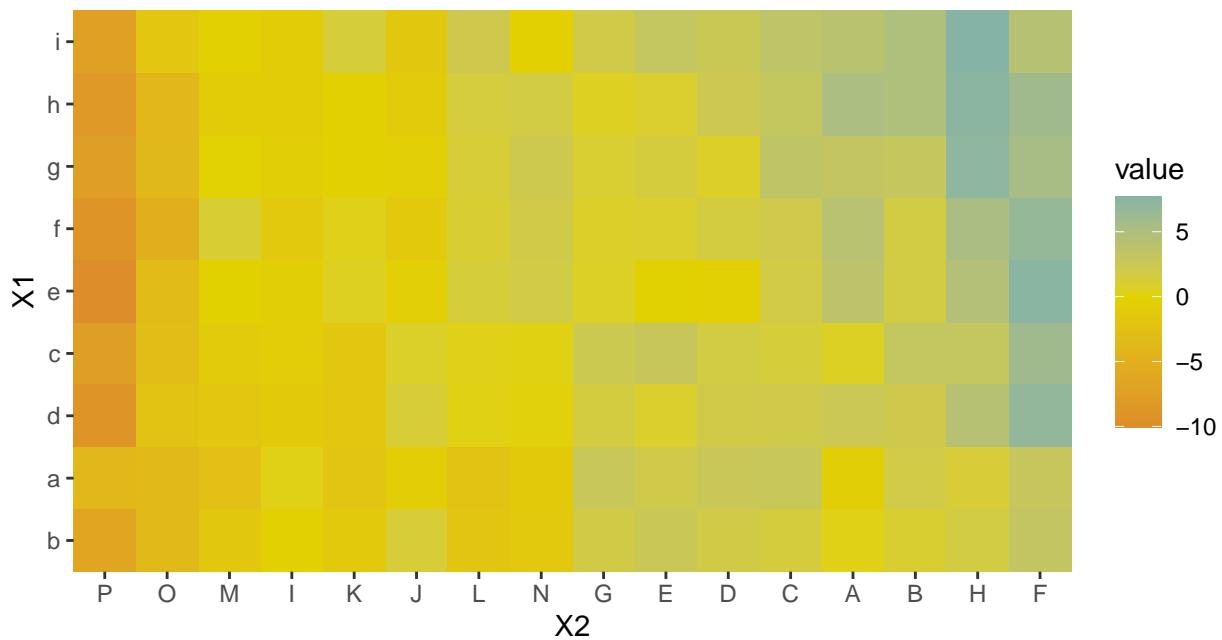


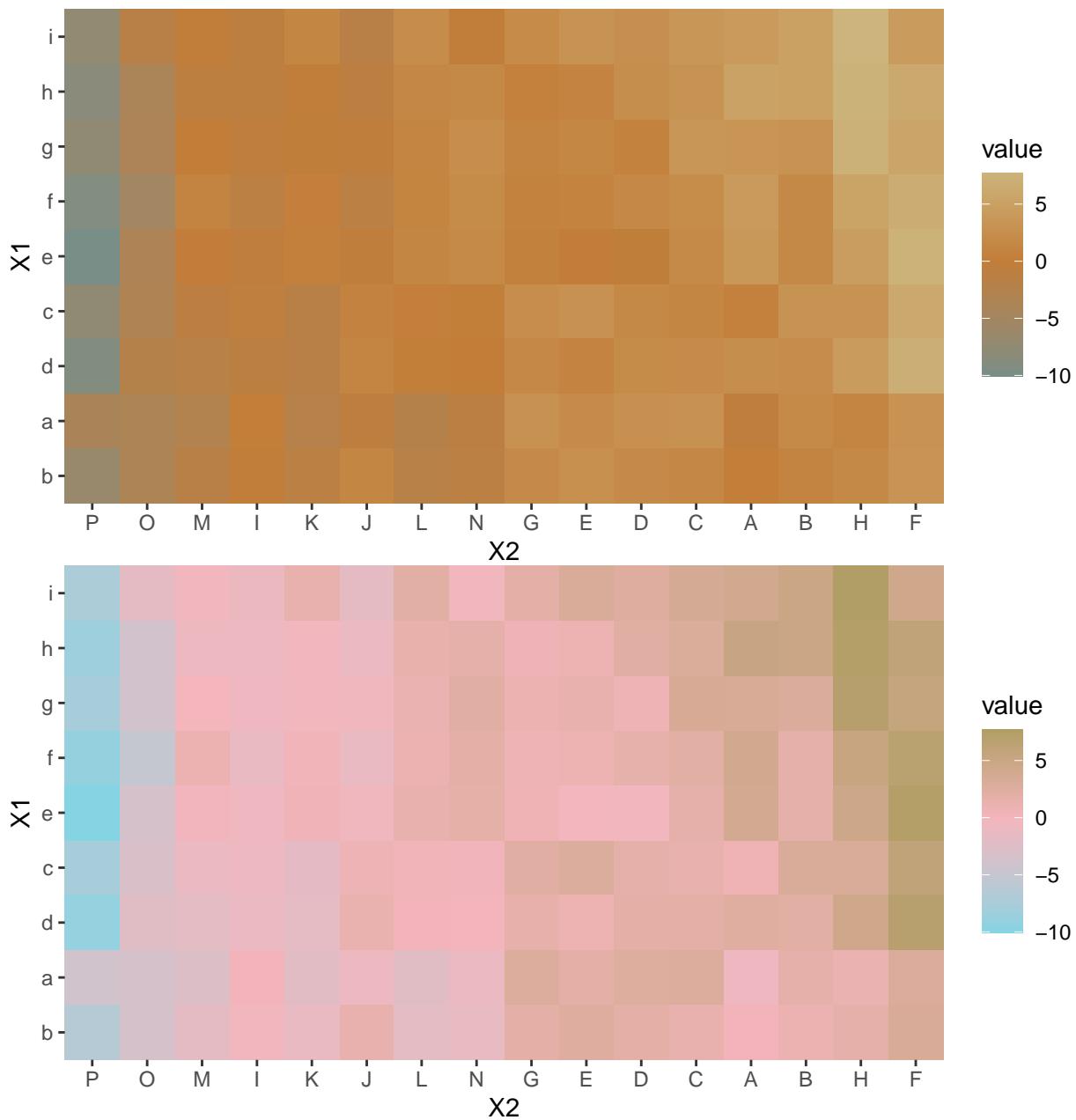


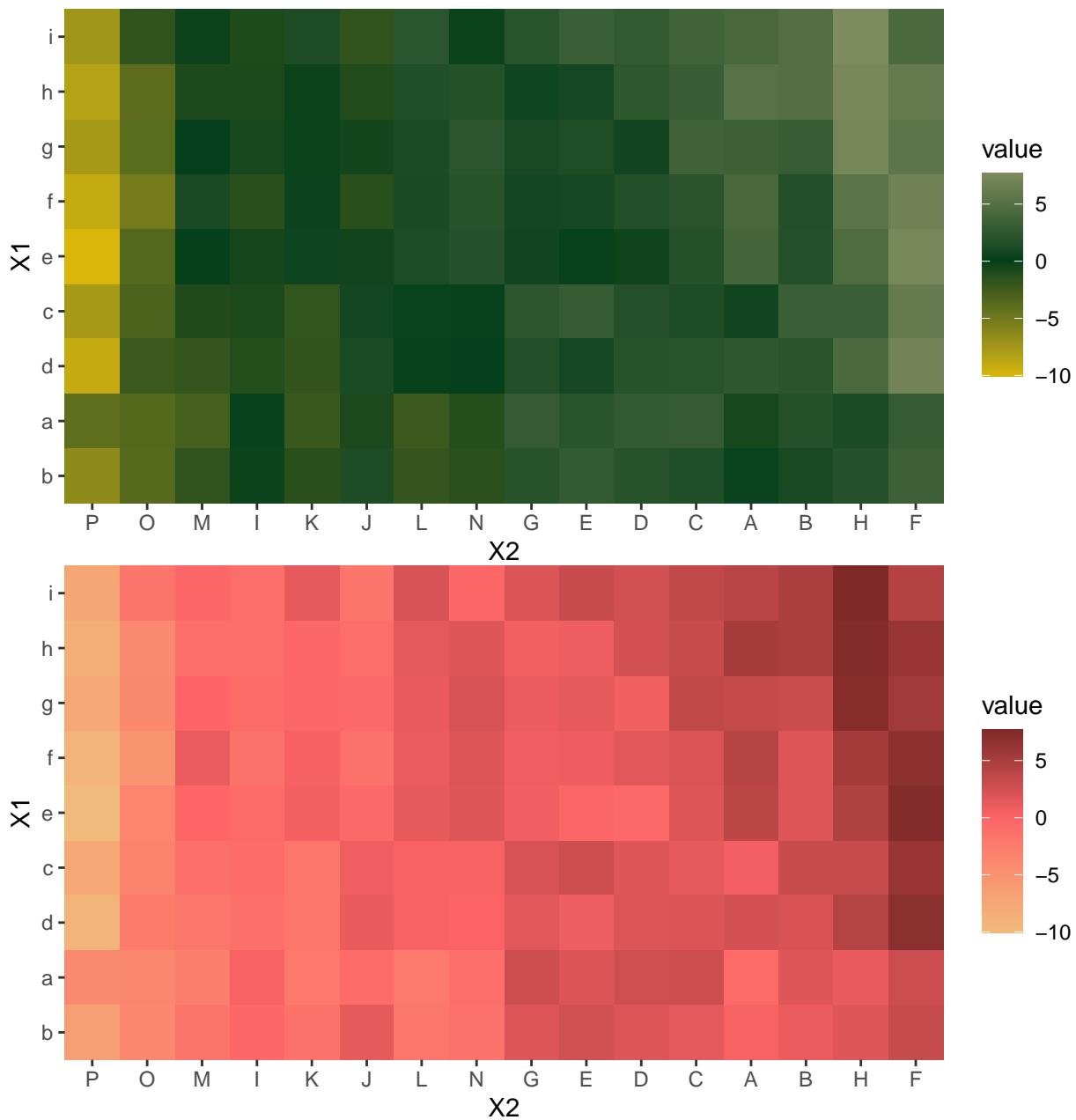


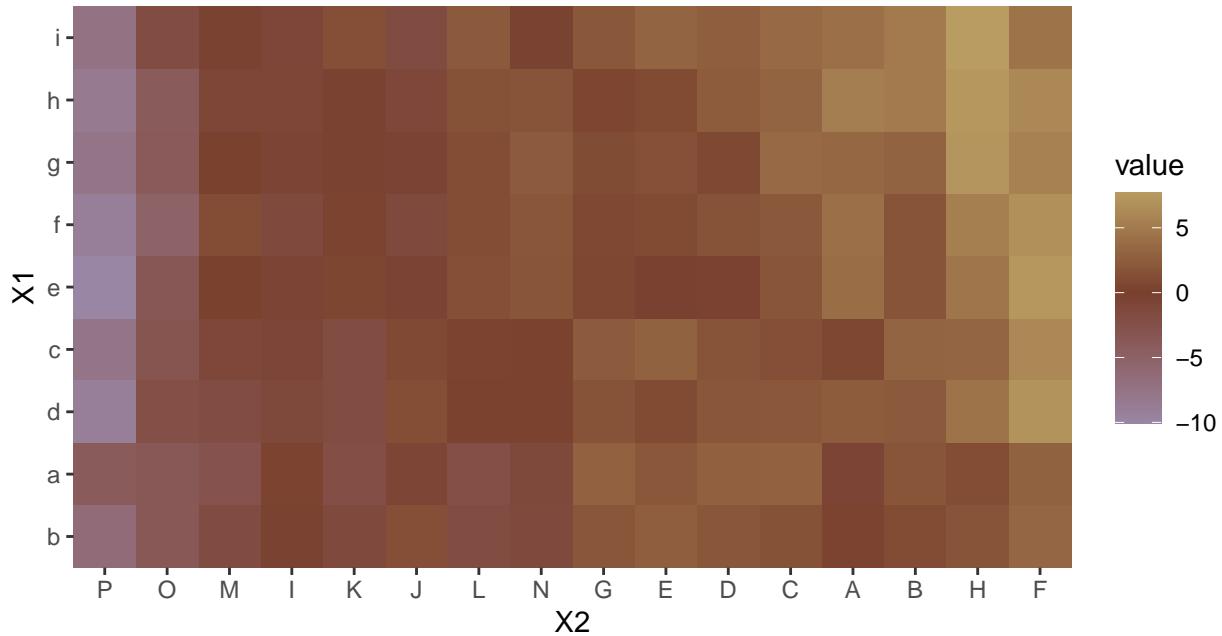
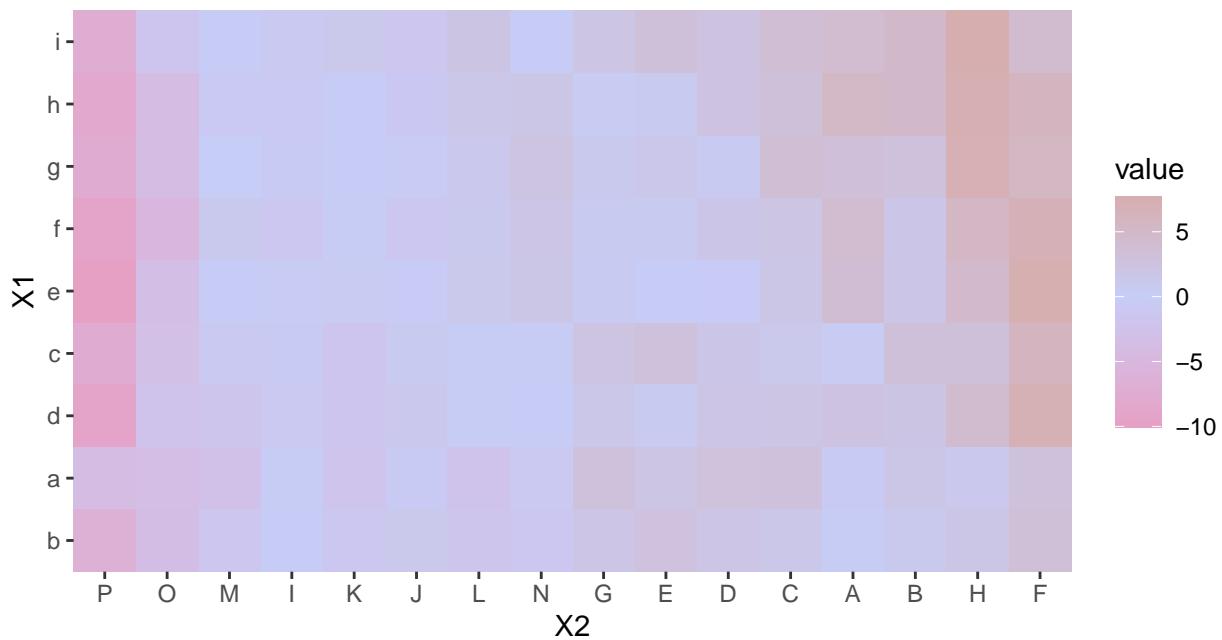


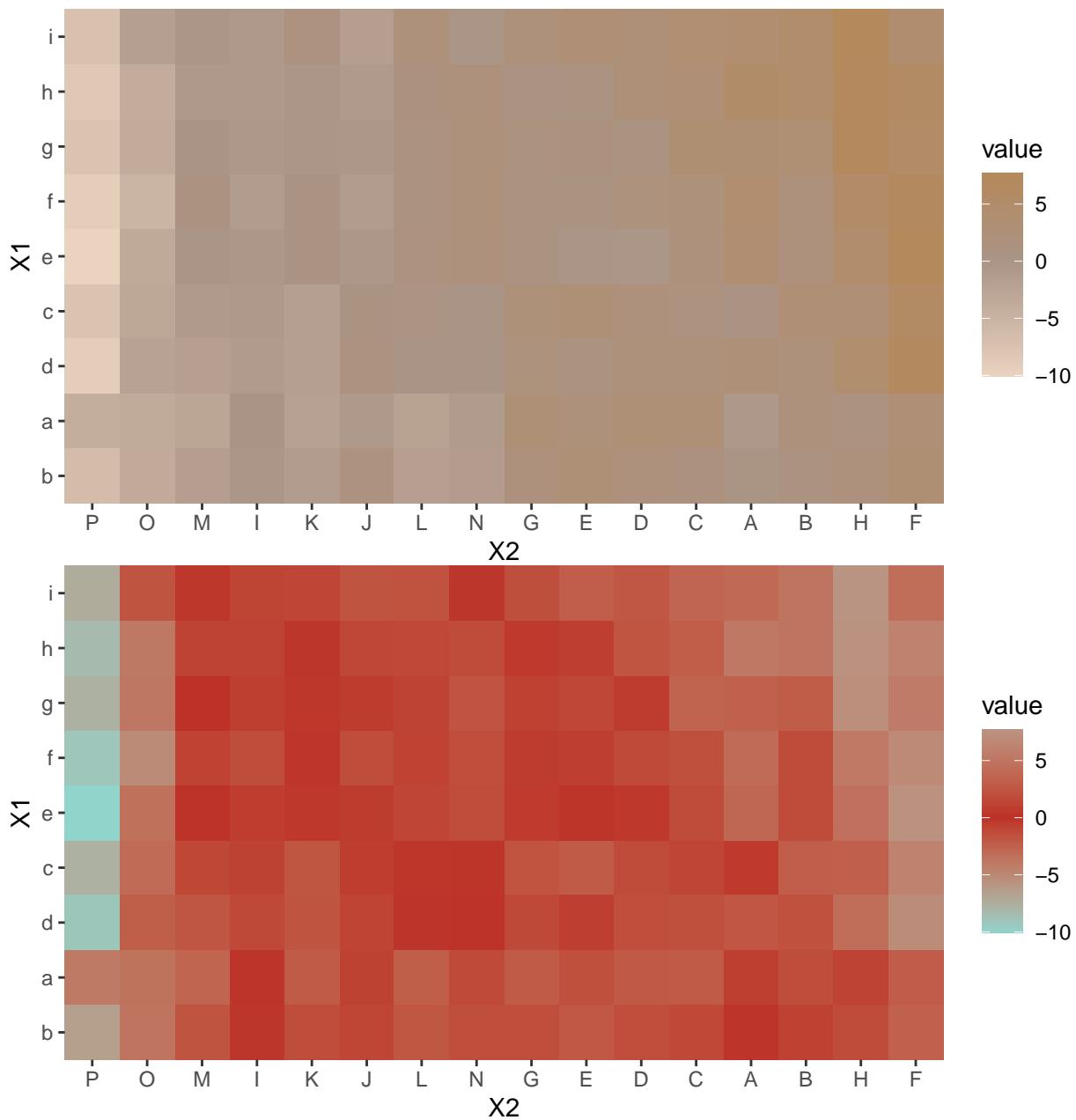


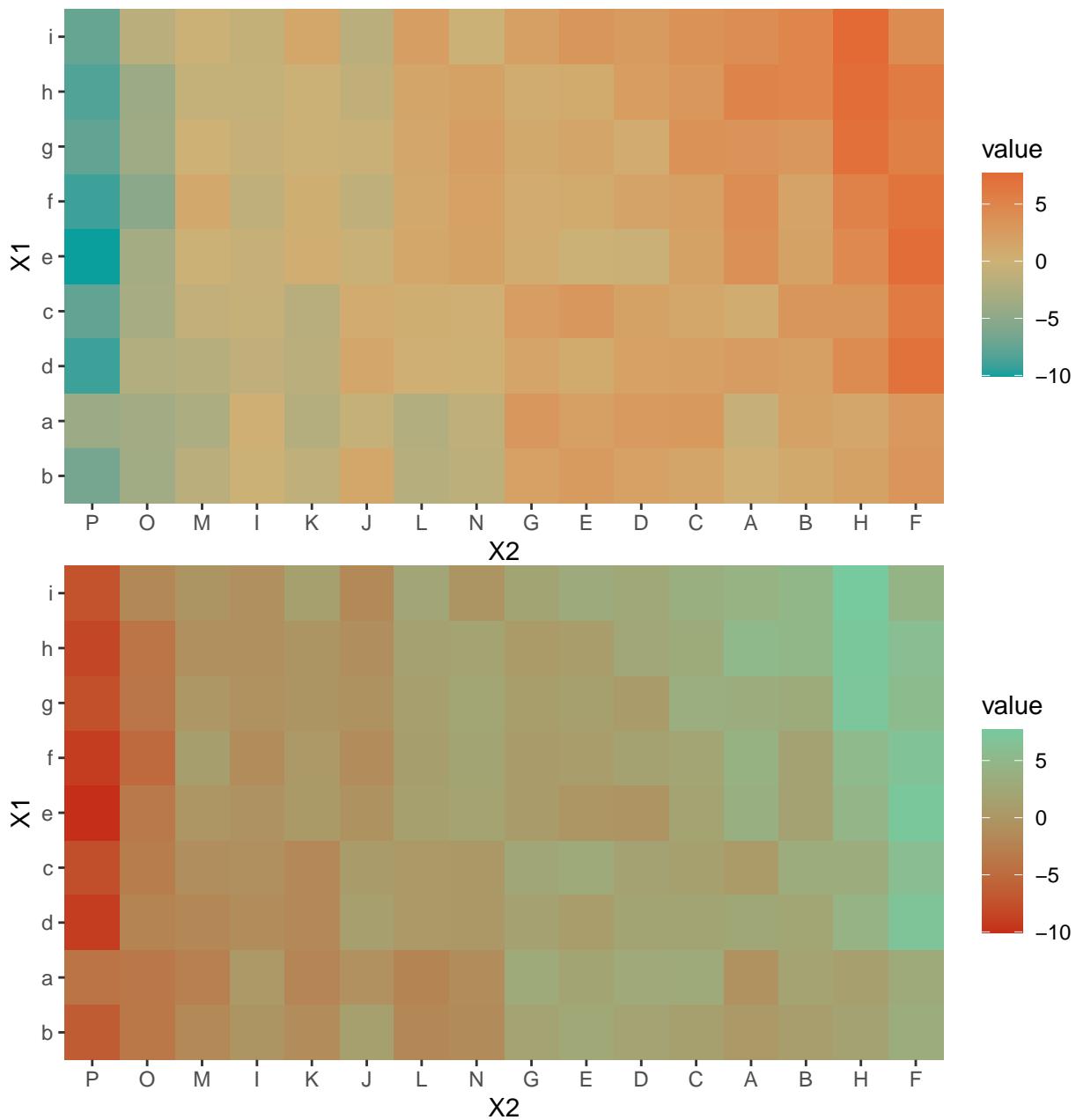


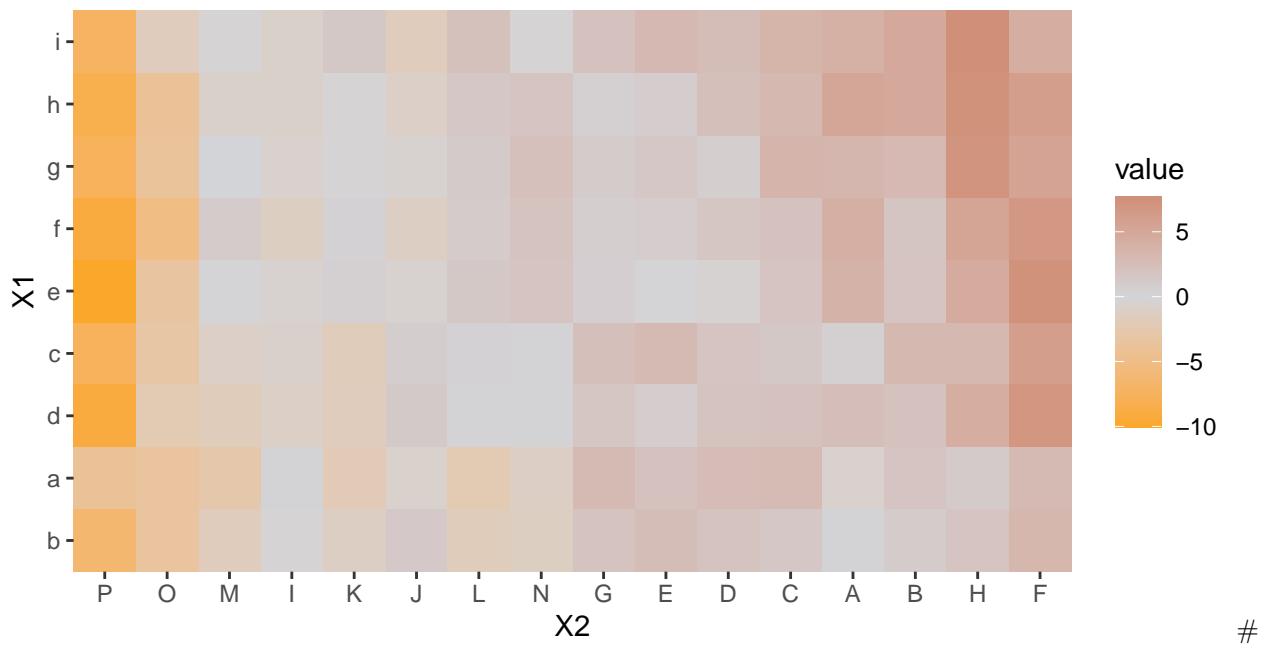












With one pair of color

```
count <- 0
for (i in 1:length(wes_palettes)) {
  pal <- wes_palette(names(wes_palettes)[i], 1, type = "discrete")
  for (j in 1:length(wes_palettes)) {
    if (i == j) {
      next
    }
    else {
      pal2 <- wes_palette(names(wes_palettes)[j], 1, type = "discrete")
      print(ggplot(heatmap, aes(x = X2, y = X1, fill = value)) + geom_tile() + scale_fill_gradient2(
```

