Project: Question 7

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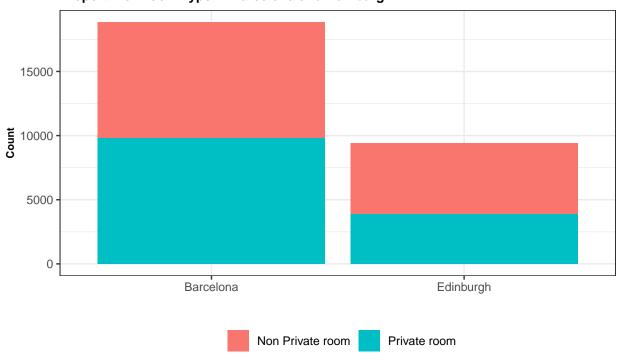## 1. Two-proportion Test to Compare the Proportion of Properties with Room Type *"Private room"*

Lastly, we are going to conduct a two-proportion test to formally compare the proportion of properties with room type of *Private room* between Barcelona and Edinburgh.

First of all, we should calculate how many of the listings in Barcelona and Edinburgh are "private rooms" and "non private rooms":

```
##
##             Non Private room Private room
##   Barcelona             9017         9821
##   Edinburgh             5505         3897
```

Let's visualize this:

Then, we can conduct the two-proportion test:

```
##
##  2-sample test for equality of proportions with continuity correction
##
## data:  bande_table
## X-squared = 286.24, df = 1, p-value < 2.2e-16
## alternative hypothesis: two.sided
## 95 percent confidence interval:
##  -0.11918254 -0.09452459
## sample estimates:
##    prop 1    prop 2
## 0.4786602 0.5855137
```

This provides a 95 % confidence interval for the difference between the proportion of the private rooms in Barcelona and Edinburgh. Since the p-value is well below 5 % and the confidence interval does not include 0 then there is sufficient evidence of a difference in the proportion of private rooms in Barcelona and Edinburgh. This difference is likely to lie between 0.12 and 0.09, with Barcelona having a higher proportion of private rooms compared to Edinburgh.