HW6

Quarto

```
# Set a seed for reproducibility
set.seed(1)
# Define the number of people
n_people <- 100
# Number of simulations (the larger the number, the more accurate the estimate)
n_simulations <- 10000
# Initialize counter for matches (rooms where at least 3 people share the same birthday)
n_matches <- 0
# Simulation loop
for(sim in 1:n_simulations) {
# Generate random birthdays for 100 people (each birthday is a number between 1 and 365)
birthdays <- sample(365, n_people, replace = TRUE)
# Count the frequency of each birthday
birthday_counts <- table(birthdays)
# Check if any birthday appears 3 or more times
if(any(birthday_counts >= 3)) {
n_matches <- n_matches + 1 # Increment the match counter if condition is true
}
}
# Calculate the estimated probability
```

probability <- n_matches / n_simulations

Print the result

print(paste("Estimated probability that at least three people share the same birthday:", probability))

[1] "Estimated probability that at least three people share the same birthday: 0.6495"