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1. An experiment consists of tossing two fair coins. Use R to simulate this experiment 100 times and obtain the relative frequency of each possible outcome. Hence, estimate the probability of getting one head and one tail in any order.

```
set.seed(123)

coin1 <- sample(c("head", "tail"), size=100, replace=TRUE, prob =
c(0.5, 0.5))
coin2 <- sample(c("head", "tail"), size=100, replace=TRUE, prob =
c(0.5, 0.5))
result <- paste(coin1, coin2, sep="-")
freq <- table(result)
print("Relative Frequency: ")
print(freq)
prob <- sum(freq[c("head-tail", "tail-head")])
print("Estimate the probability of getting one head and one tail in
any order: ")
```

```
[1] "Relative Frequency: "
result
head-head head-tail tail-head tail-tail
       22        25        28        25
[1] "Estimate the probability of getting one head and one tail in any
order: "
```

1. An experiment consists of rolling a die. Use R to simulate this experiment 600 times and obtain the relative frequency of each possible outcome. Hence, estimate the probability of getting each of 1, 2, 3, 4, 5, and 6.

```
set.seed(123)

rolls <- sample(1:6, size=600, replace=TRUE)
freq <- table(rolls)/600
prob <- freq
print("Relative Frequencies:")
print(freq)
print("Estimated Probabilites:")
print(prob)
```

```
[1] "Relative Frequencies:"
rolls
        1         2         3         4         5         6
0.1766667 0.1700000 0.1600000 0.1533333 0.1666667 0.1733333
[1] "Estimated Probabilites:"
rolls
        1         2         3         4         5         6
0.1766667 0.1700000 0.1600000 0.1533333 0.1666667 0.1733333
```