

Statistical Modelling

Homework 1

Task: Solve the following problems using numerical simulation and then check your results with analytical solutions.

1. A fair six-sided die is rolled twice. What is the probability of getting 1 on the first roll and not getting 6 on the second roll? [Tesla - Easy]
2. What is the expected number of rolls needed to see all 6 sides of a fair die? [Facebook - Easy]
3. Say you roll three dice, one by one. What is the probability that you obtain 3 numbers in a strictly increasing order? [Uber - Easy]
4. How many cards would you expect to draw from a standard deck before seeing the first ace? [Amazon - Medium]
5. How can you generate fair odds using a coin with an unknown bias toward heads or tails? [Airbnb - Medium]