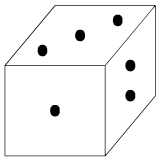
STA2001 Probability and Statistics I
Computer-based Exercise 1

Tianshi Chen

January 11, 2021

The goal of this exercise is to understand the relative frequency of an event A, whose limit can be seen as a first definition of the probabiity of the event A.

Problem 1. *Throwing a fair 6-sided die*



By defintion, this is a random experiment and the sample space $S = \{1, 2, 3, 4, 5, 6\}$.

The task is to simulate this random experiment 5000 times by computer and check the relative frequency of the event $A = \{1, 2\}$. *You should draw a figure to show the profile of the relative frequency of* A *as the random experiement is repeated from 1 to 5000 times. In other words, your task is to duplicate the figure in the Lecture Note 1.*

You are free to use any programming languages to answer this question.

- In Python, the module `random` should be used and the function `randint` can be used a random number generator to simulate the random experiment, i,e., to generate a random integer. Check the link below for more information: https://docs.python.org/3/library/random.html
- In Matlab, the function `randi` can be used as a random number generator to simulate the random experiment, i.e., to generate a random integer. You can find the reference of the function `randi` by typing in `help randi` in the command window of Matlab.

To answer this question, attach both your script and figure.