Assignment 1

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Download all python codes from

https://github.com/Taha−Adeel/AI1103/tree/main/Assignment%201/codes

and LaTeX codes from

https://github.com/Taha−Adeel/AI1103/tree/main/Assignment%201

1 Problem (4.13)

In a musical chair game, the person playing the music has been advised to stop playing the music at any time within 2 minutes after she starts playing. What is the probability that the music will stop within the first half-minute after starting?

2 Solution (4.13)

Our sample space S consists of 2 minutes time after the person starts playing.

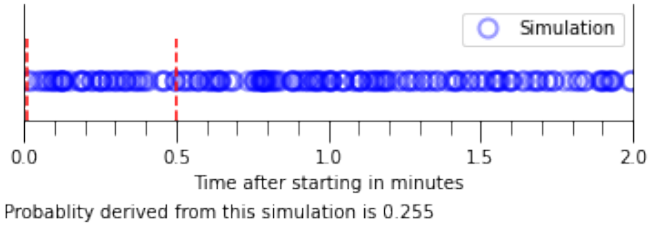
$$S = 2 \text{ minutes} \tag{2.0.1}$$

The event size E is the first half-minute after starting

$$E = 0.5 \text{ minutes} \tag{2.0.2}$$

The probability that the music will stop within the first half-minute after starting is

$$\Pr(E) = \frac{E}{S} = \frac{0.5}{2} = 0.25 \tag{2.0.3}$$



The python code is available in

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The python code generates 200 uniform random points in time that are less than 2 minutes and checks for the number of points in time that are within the first half-minute. The ratio of this is close to 0.25, which is the theoretical value. Note that each time the code is run, the ratio will change, but it will still be close to 0.25