VE401 Assignment

Yang Tiancheng 517370910259

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Exercise 1. Elementary Probability

Solution. We use Cardano's principle to get the probability. The number of ways to pick 120 people from 2000 individuals is

$$n_1 = \frac{2000!}{120! \times (2000 - 120)!}$$

The number of ways that me and my friend are both chosen is equal to the number of ways to choose 118 people from 1998 individuals, which is

$$n_2 = \frac{1998!}{118! \times (1998 - 118)!}$$

Therefore the probability that me and my friend will both be chosen is

$$\frac{n_2}{n_1} = \frac{\frac{1998!}{118! \times (1998-118)!}}{\frac{2000!}{120! \times (2000-120)!}} = 0.357\%$$

□