

## Assignment 01

1. Prove that  $\lim_{n \rightarrow \infty} \sum_{i=1}^n \frac{i}{2^i} \leq 2$ .

2. Compute the value of  $n$  such that for  $n$  people who are selected uniformly at random, at least one pair of them share the same birthday with probability at least 0.9.