A student of statistics was asked to write down a string of one-digit numbers (0, 1, 2, . . . , 9) that seemed to her to be random. She recorded the following 40 numbers in this order.

8, 2, 6, 0, 3, 9, 1, 6, 5, 8, 7, 4, 9, 5, 0, 5, 2, 7, 5, 2
4, 8, 1, 3, 6, 5, 2, 8, 4, 1, 0, 8, 1, 2, 7, 6, 1, 9, 4, 0

Let us count the number of times she recorded the same number next to itself (like 5, 5), the number of times adjacent numbers were next to each other (like 7, 6 and say 9, 0 are next to each other) and the number of times neither of these occurred. If these numbers were truly selected at random consecutive numbers would be the same about 10% of the times, consecutive numbers would differ by one about 20% of the time (recall 9 and 0 differ by one in this exercise), and consecutive numbers differ by more than one 70% of the time. Her results were as follows.

	Frequency	Relative Frequency
Same	0	$0/39 = 0.00$
Differ by one	6	$6/39 = 0.15$
Differ by more than one	33	$33/39 = 0.85$
Totals	39	$39/39 = 1.00$

It seems as if 0.00 differs too much from 0.10, 0.15 is fairly close to 0.20, and 0.85 is somewhat higher than the expected 0.70. Intuitively, her sequence

does not seem to be a very good approximation to a sequence of random digits. Later, in this text, you will study a statistical method to test for the difference.