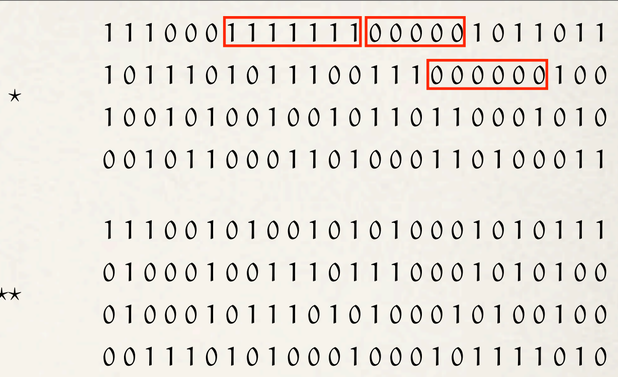
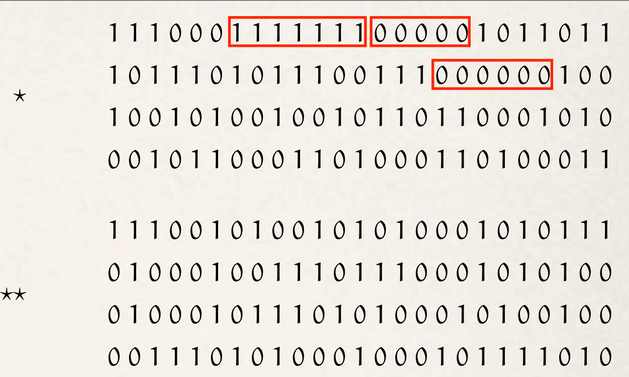
Success runs



Success runs



- What is the chance that one will see at least five consecutive heads (a "success run of length 5") *somewhere* in a sequence of 50 tosses of a fair coin? What are the chances of encountering such a run if there are 100 tosses?

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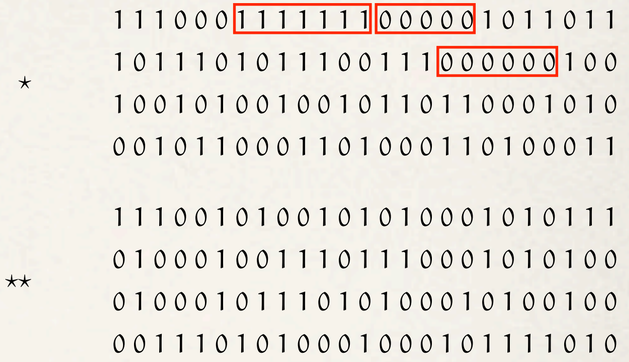

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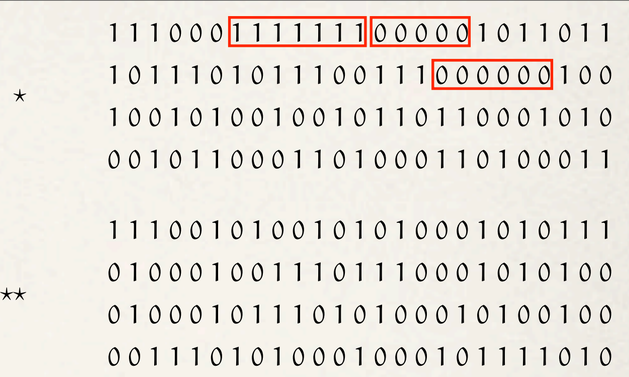
Success runs



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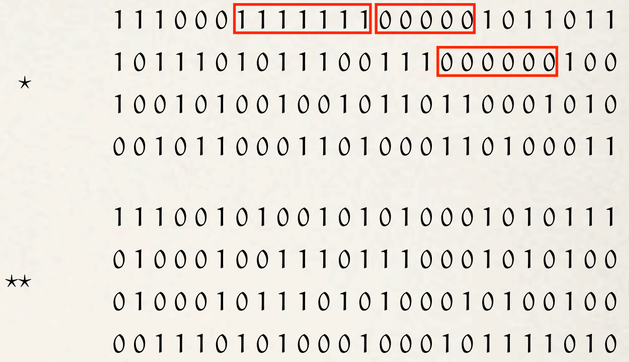

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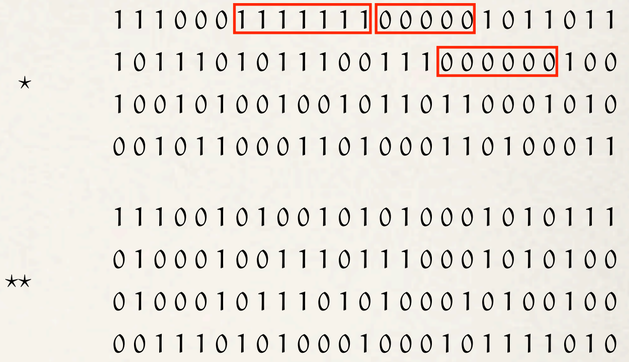

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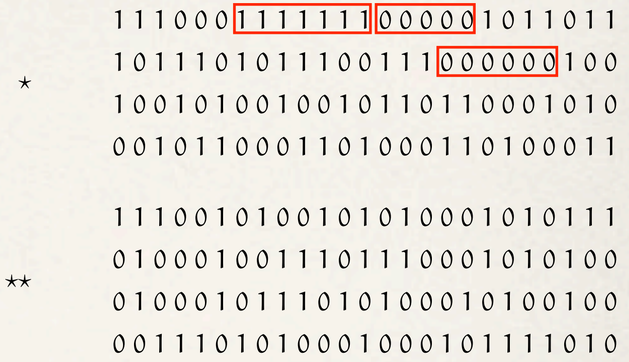
Success runs



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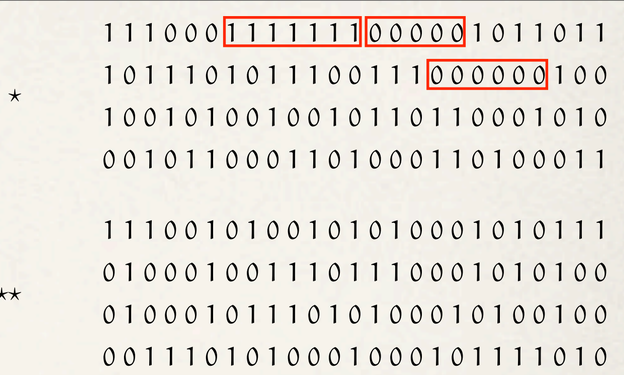
r	$s_{50}(r)$	$s_{100}(r)$
2	1.00	1.00
3	0.98	1.00
4	0.83	0.97
5	0.55	0.81
6	0.31	0.55
7	0.17	0.32
8	0.08	0.17
9	0.04	0.09
10	0.02	0.04

Success runs



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The chance of observing a success run or a failure run or both of length 5 in 100 tosses of a fair coin exceeds 97%.