Quiz 01 Solution

STAT 509 Statistics for Engineers
Summer 2017 Section 001
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1. A computer system uses passwords that contain exactly six characters, and each character is one of the 26 lowercase letters (a-z) or 26 uppercase letters (A-Z). Let S denote the sample space of all possible password, and suppose that all passwords in S are equally likely.

   (a) How many different passwords there are? (N_S =?).

   (b) How many different passwords can be made only using lowercase letters.

   (c) What is the probability of randomly choosing a password made with only lowercase letters?

   Solution:

   (a) $N_S = (26 + 26)^6 = 52^6$.

   (b) 26^6.

   (c) $P = \frac{26^6}{52^6} = 0.015625$.