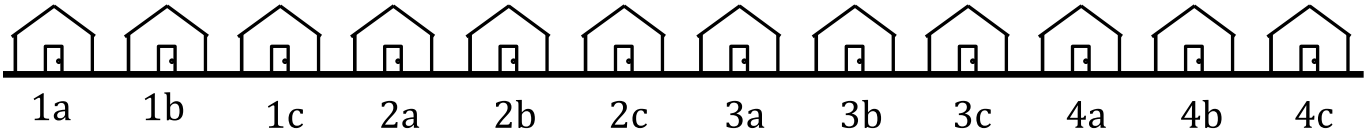
DS-UA 112: Introduction to Data Science **Date: Week 2**

Discussion #2

Name:

Probability & Sampling



1. Kalie wants to measure interest for a party on her street. She assigns numbers and letters to each house on her street as illustrated above. She picks a letter "a", "b", or "c" at random and then surveys every household on the street ending in that letter.
   (a) What is the probability that Kalie surveys house '2b'?
   (b) What is the chance that two houses next door to each other are both in the sample?
   (c) Now suppose Kalie instead picks one house beginning with '1' at random, one house beginning with '2' at random, and so on, so she surveys four houses, one of each number. What is the probability that she surveys house '2b'? Overall how has the survey changed?

2. There are 32 participants in a randomized clinical trial: 8 are male and 24 are female. 16 are assigned to treatment and the others are put into the control group. What is the probability that none of the men are in the treatment group if:
   (a) the treatment was assigned at random?
   (b) the treatment was assigned by randomly selecting two of the four groups below?

Cluster	Male	Female
A	0	8
B	3	5
C	5	3
D	0	8