GOAL: I should be able to give your code and directions to any statistics student and they should be able to produce the same schema that you have, which represents the desired study design. The input to your programs should be the parameters of #sites, #subjects/site, Randomization ratio, stratification levels.

1. Write code to create a reproducible completely randomized design schema for S subjects at T sites in blocks of B where randomization is N:D treatment:control
   1. Example 1: 30 subjects at site one in blocks of 6 where randomization is 1:1 treatment:control
      1. I want the result to be a sequential list of 30 codes that look like AAA##(T or C)
      2. AAA01T, AAA02T, AAA03C,…, AAA30T
   2. Example 2: 48 subjects at each of two sites in blocks of 12 where randomization is 3:1 treatment:control
      1. I want the result to be a sequential list of 96 codes that look like AAA##(T or C) or BBB##(T or C)
      2. AAA01T, AAA02T, AAA03C,…, AAA48T, BBB01T, BBB02T, BBB03C,…, BBB48T,

Deliverables:

1. Provide the code
2. Provide the schema output
3. Be able to explain the code to another student
4. Present schema to class and answer questions

Some notes:

* Can use any software you like as long as someone else can run the code (make sure you document)
* Will have to use the random SEED in the software
  + ?set.seed() in R will give you some information
  + Call streaminit (); in SAS may be helpful
* There are some software available that may be useful
  + PROC PLAN in SAS
  + randomizeR in R

**Grading Checklist for each schema:**

* Code works as required (will be tested by another classmate/group)
  + Code produces schema provided
  + Code produces a valid schema
* Code is well documented so I do not need directions (I will grade)
* Can explain code
* Can answer questions about code (I will question and grade)
* Can discuss flexibility possibilities in code (I will grade)