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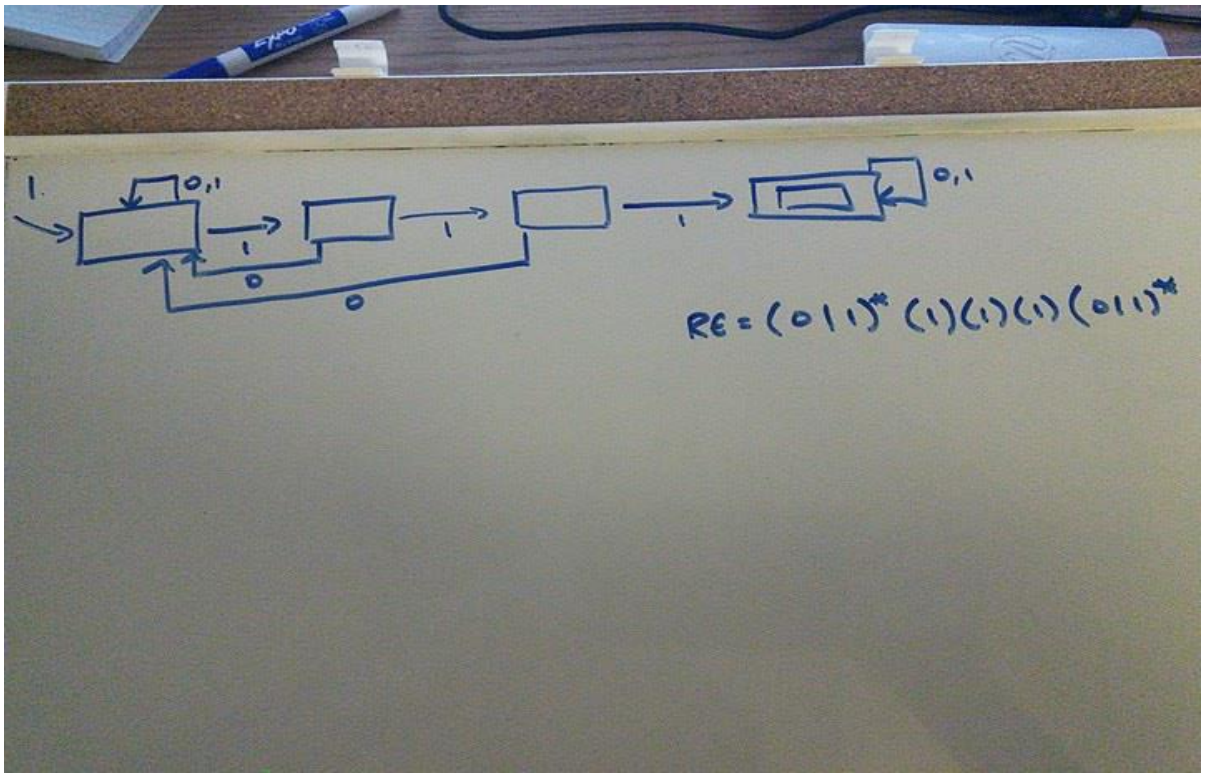
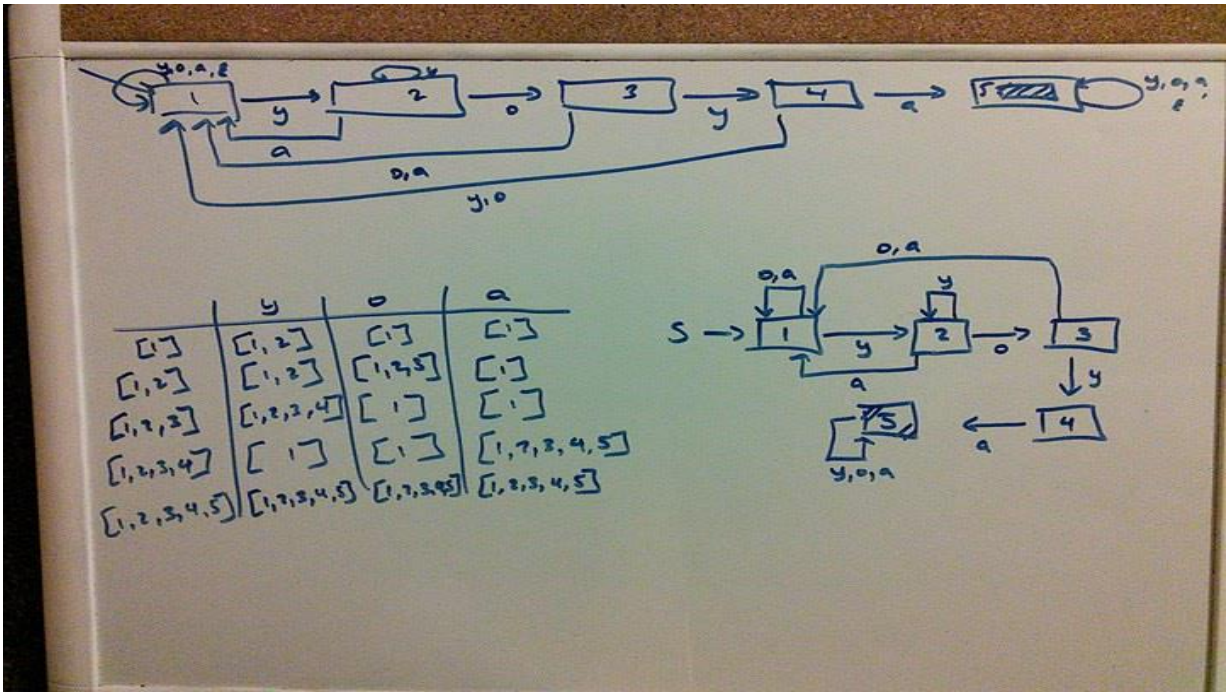
Principles of Programming Languages
Homework 3

1. A string exists in L1 if it has 3 or more 1s in a row somewhere in it.
    a. RE = (0 | 1)* (111) (0 | 1)*



2. A string exists in L1 if it has ‘yoya’ in it. The language can only have ‘a’, ‘y’, ‘o’.



3. English translations
    a. a* | b* => A string exists in L3A if it is epsilon or contains any amount of a’s or b’s.
    b. (ab)* => A string exists in L3B if it is epsilon or repetition of ab 1 or more times.

4. A String exists in L4 if it has at most 2 x's and more x's than y's.