Assignment 1

L545

Due Wednesday, January 23

1. (a) For each regular expression in (i)-(iii), indicate which ones of the following strings it matches:
   a
   b
   c
   d
   ab
   ac
   ad
   bc
   bd
   cd
   abc
   abd
   acd
   bcd
   abcd
   i. \(a|bc?\)d/
   ii. /a.*c\b/
   iii. /\b[a\b]?[^c]\b/

   (b) For each description, write a regular expression to match it (and no other elements):
      i. ab, bb, cb
      ii. ab, bb, cb, anb, bnb, cnb
      iii. ab, bb, cb, anb, bnb, cnb, abb, bbb, cbb, abnb, abbbnb, ... [continuing this pattern]

2. For the regular expression you wrote in (1biii),
   (a) define a deterministic finite-state automaton (DFSA), i.e., give a formal definition (cf. slides 19-22).
   (b) draw the corresponding finite-state transition network (FSTN).

3. Do question #2.3 from Jurafsky & Martin (p. 43), regarding English money expressions.

4. Do question #2.4 from Jurafsky & Martin (p. 43), regarding English dates.

5. Do question #2.8 from Jurafsky & Martin (p. 44), regarding writing a regular expression for an NFSA.