

CSC236 tutorial exercises, Week #11

(best before Thursday afternoon)

Here are your tutorial sections:

Surname	Time	Room	TA
A-K	Friday 11	SS1088	Zhaowei
L-Tg	Friday 11	SS2105	Hamed
Th-Z	Friday 11	BA2175	Gal
A-L	Friday noon	AB114	Wen
M-Z	Friday noon	BF323	Lauren
A-K	Friday 1	BA1170	Ammar
L-Tg	Friday 1	AB107	Alex
Th-Z	Friday 1	AB114	Shems
A-K	Thursday 8	BA2139	Zach
L-Tg	Thursday 8	BA2185	Ekansh
Th-Z	Thursday 8	BA2195	Danniel

These exercises are meant to give you practice devising DFSAs and manipulating formal languages. They are based on sections 7.1 and 7.3 of the [Course Notes](#).

1. Devise a DFSA over the alphabet $\Sigma = \{1, 2, 3\}$ that accepts the language of finite strings that include 321 as a substring.
 - (a) Draw the automaton
 - (b) Write down all the parts that define the automaton you've drawn (Alphabet Σ , State space Q , transition function δ , etc)
2. Let $\Sigma = \{a, b\}$. Consider the language that consists of all strings that contain neither consecutive a's nor consecutive b's. Draw DFSA that accepts this language.
3. Suppose L is the language of finite binary strings consisting of one or more 1 concatenated with one or more 0. Describe with an English sentence each of the following: $\text{Rev}(L)$, L^* , and $\text{Rev}(L) \circ L^*$.