DFA - Homework 03

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Deadline: Tue 29 Aug 2017 (upload answers Google Classroom)

Give state diagrams and formal descriptions of DFAs capable of recognising the following languages. Assume, in all cases, that $\Sigma = \{0, 1\}$.

1. [15 points]$A_1 = \{\omega | \omega$ begins with a 1 and ends with a 0$\}$
2. [15 points]$A_2 = \{\omega | \omega$ contains at least three 1s$\}$
3. [15 points]$A_3 = \{\omega | \omega$ contains the substring 0101, i.e. $\omega = x0101y$ for some $x, y\}$
4. [15 points]$A_4 = \{\omega | \omega$ has length at least three and its third symbol is a 0$\}$
5. [15 points]$A_5 = \{\omega | \omega$ starts with 0 and has odd length, or starts with 1 and has even length$\}$
6. [15 points]$A_6 = \{\omega | \omega$ does not contain the substring 110$\}$
7. [10 points]$A_7 = \{\omega |$ the length of ω is at most 5$\}$