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Automata

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<p style="text-align:center">Homework #6</p>

Create a regular expression that defines the language over {0,1}* in which all strings contain at most one occurrence of the substring **00**

- 1*(01|1)*00(10|1)*1*

Create regular grammars that generate these languages using the alphabet {0,1}:

- the same language as the regex **(001*01)***
  - S → 00B | ε
  - B → 1B | 01S
- all strings that contain at most one occurrence of the substring **00**
  - S → 1S | 01S | 00A | ε
  - A → 10A | 1A | ε
- all strings that contain neither substring **00** nor substring **11**
  - S → 0A | ε
  - A → 1S | ε
- all strings that contain both substring **00** and substring **11**
  - S → 0S | 1S | 00A | 11B
  - A → 0A | 1A | 11C
  - B → 0B | 1B | 00C
  - C → 0C | 1C | ε