CSE331 Assignment 1

Section 1

Deadline: 25 October, 2022 11:59 pm
[Submit your assignment here]

Draw NFAs for the following languages. Assume $\Sigma = \{0, 1\}$

[5 marks]

1. Strings that start with at least two 1's.
2. Strings that end with even number of 0's.
3. Strings that have even number of 0's or odd number of 1's.

Write regular expressions for the following languages. Assume $\Sigma = \{a, b, c, d, e, f\}$

[5 marks]

1. Strings that start with a vowel.
2. Strings that have at least 4 vowels.
3. Strings of length at least 5.
4. Strings that end with a vowel followed by two consonants.
5. Strings that do not have "bad" as a substring.
6. Strings that have "deaf" as a subsequence.

Convert the following regular expression into NFAs. Assume $\Sigma = \{a, b, c\}$

[5 marks]

$$(\mathtt{a}^*\mathtt{b}^* + (\mathtt{ac} + \mathtt{b}^*\mathtt{c})\mathtt{b})^*$$

Convert the following regular expression into NFAs. Assume $\Sigma = \{a, b, c\}$

[5 marks]

$$\mathtt{ab}^*\mathtt{c} \cup ((\mathtt{ab} \cup \mathtt{bc})^* \cup (\mathtt{a} \cup \mathtt{b})(\mathtt{a} \cup \mathtt{b})^*)\,\mathtt{bc} \cup \mathtt{a}(\mathtt{bc})^*$$