CSE331

Assignment 2

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Section : 1
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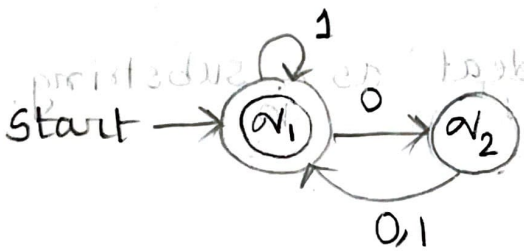
NFA

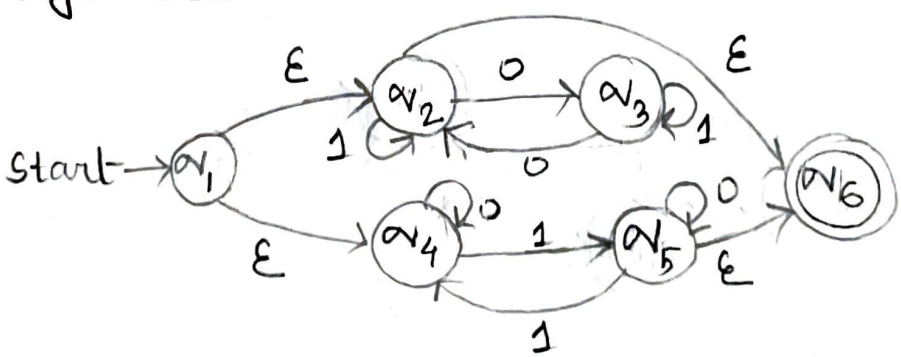
$\Sigma = \{0, 1\}$

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



RegEx

$\Sigma = \{a, b, c, d, e, f\}$

1. strings that start with a vowel.

   $\Rightarrow (a|e)\Sigma^*$

2. strings that have at least 4 vowels.

   $\Rightarrow \Sigma^* (a|e) \Sigma^* (a|e) \Sigma^* (a|e) \Sigma^* (a|e) \Sigma^*$

3. strings of length at least 5.

   $\Rightarrow \Sigma\Sigma\Sigma\Sigma\Sigma^+$

4. Strings that end with a vowel followed by two constants.

$\Rightarrow \Sigma^*(a|e)(b|c|d|f)(b|c|d|f)$

5. Strings that don't have 'bad' as a substring.

$\Rightarrow (aad|cad|ead|dad|fad|bd|cd|ed|fd|a|b|c|e|f)^*$

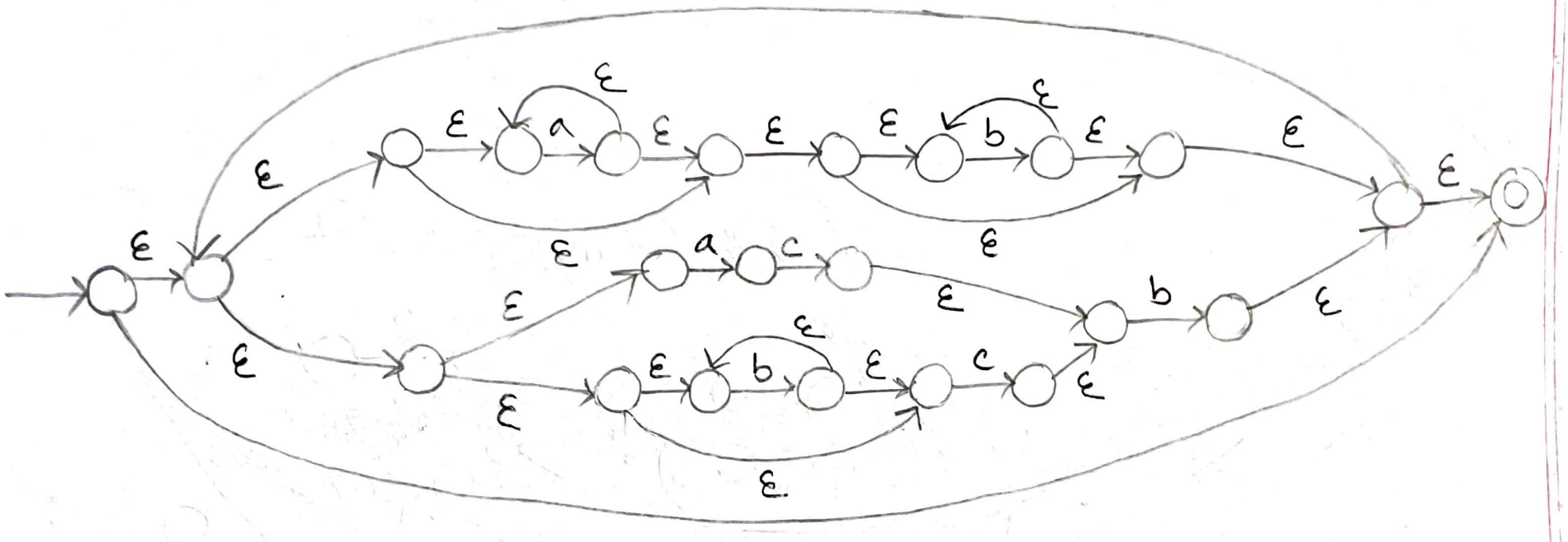
6. Strings that have 'deaf' as a substring.

$\Rightarrow \Sigma^* d \Sigma^* e \Sigma^* a \Sigma^* f \Sigma^*$

RegEx to NFA

$\Sigma = \{a, b, c\}$

$(a^*b^* + (ac + b^*c)b)^*$



$ab^*c \cup ((ab \cup bc)^* \cup (a \cup b)(a \cup b)^*)bc \cup a(bc)^*$