Quiz 2 from Fall 2020 (Practice)

STUDENT NAME

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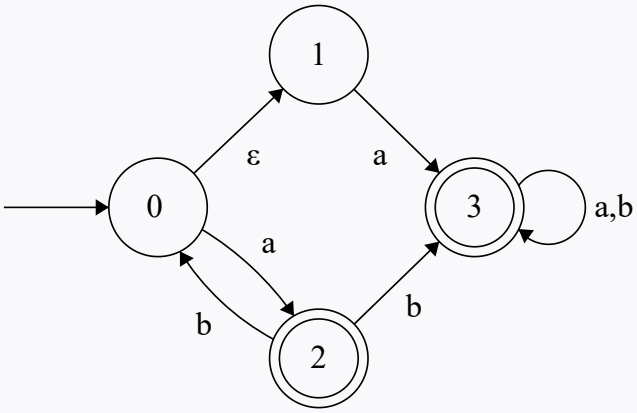
Q1 NFA/DFA Classification

15 Points

For each of the NFAs below, indicate whether or not it is a DFA.

Q1.1

5 Points

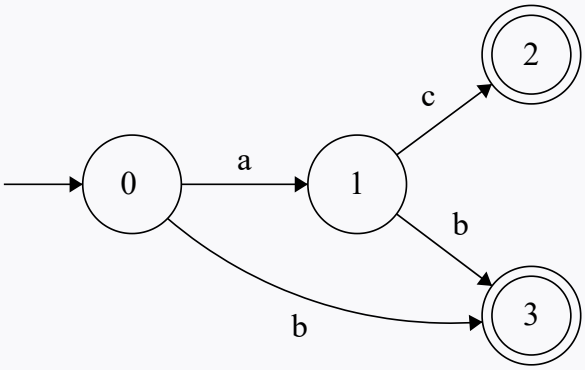


- This is a DFA
- This is **not** a DFA

Save Answer

Q1.2

5 Points



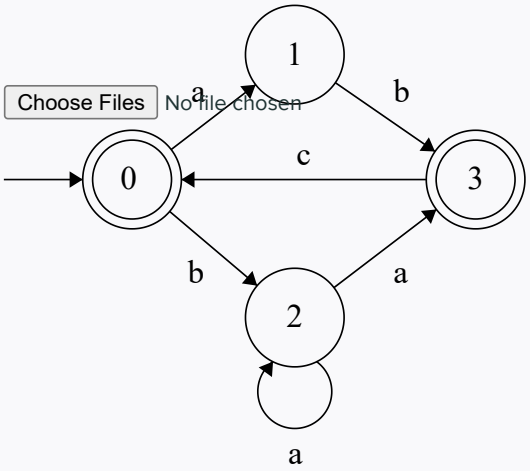
This is a DFA

This is **not** a DFA

Save Answer

Q1.3

5 Points



This is a DFA

This is **not** a DFA

Save Answer

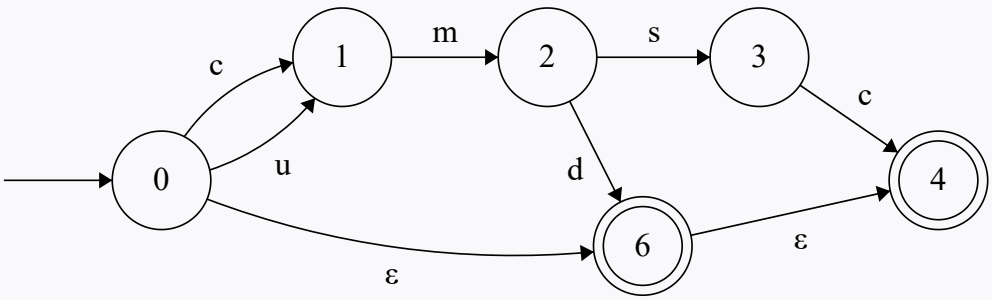
Q2 Accepting Strings

15 Points

For each of the NFAs below, indicate which strings are accepted.

Q2.1

15 Points



Which of the following strings are accepted by the NFA above?

- [ ] "cmsc"
- [ ] "umd"
- [ ] "d"
- [ ] "" (empty string)
- [ ] "cmdsc"
- [ ] "md"

Choose Files No file chosen

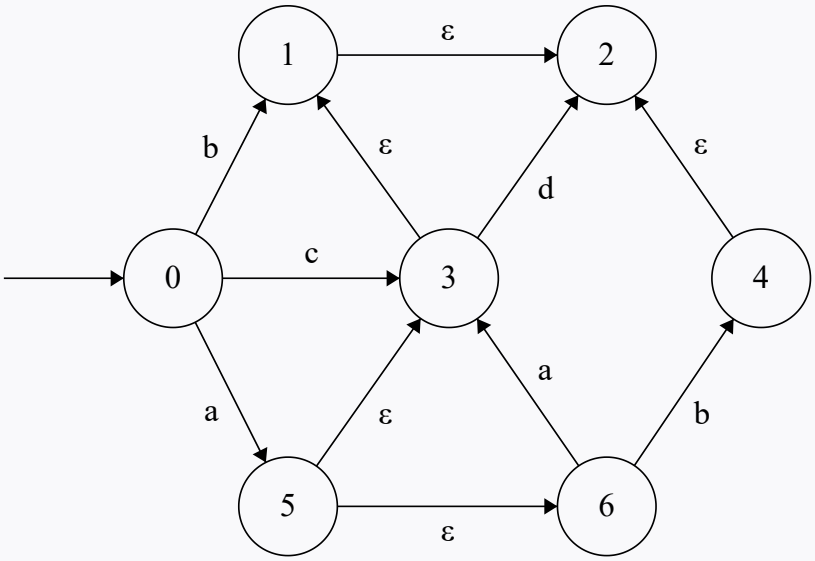
Save Answer

Q3 Ɛ-closures

20 Points

Q3.1

20 Points



In the NFA above, which states are in the ε-closure of state 3?

- [ ] 0
- [ ] 1
- [ ] 2
- [ ] 3
- [ ] 4
- [ ] 5
- [ ] 6

Choose Files No file chosen

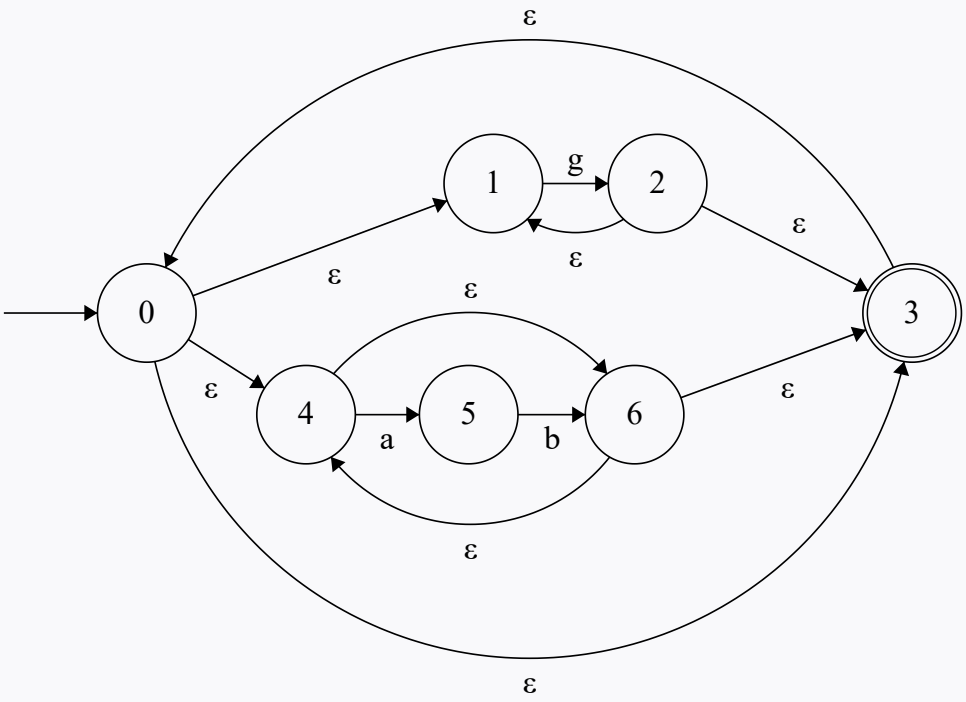
Save Answer

Q4 NFA → Regex

20 Points

Q4.1

20 Points



What is the regular expression equivalent to the NFA above?

Enter your answer here

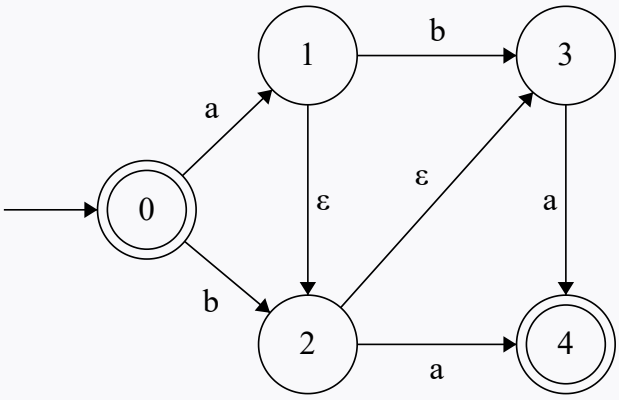
Save Answer

Q5 NFA → DFA

30 Points

Q5.1

30 Points



Convert the NFA above into an equivalent DFA using the algorithm taught in class. To represent your solution DFA, you have two options:

- OPTION 1: Write it by hand and upload a picture here:

Please select file(s) Select file(s)

- OPTION 2: Use the same syntax that is used in project 3 (the type is provided below for reference).

```
type ('q, 's) transition = 'q * 's option * 'q (* from, transition char, to *)
type ('q, 's) nfa_t = {
    sigma : 's list; (* alphabet *)
    qs : 'q list; (* list of statuses *)
    q0 : 'q; (* initial state *)
    fs : 'q list; (* final states *)
    delta : ('q, 's) transition list; (* transitions *)
}
```

Enter the DFA below, using this type (if you didn't upload an image):

Enter your answer here

Save Answer

Save All Answers

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