CS410 PROJECT 1 PHASE 1

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In this project, we are expected to implement the algorithm which converts given NFAs to DFAs. NFA inputs are given to us as txt files. This algorithm is taking inputs from txt files and creates transition table. For these tables, this algorithm uses matrixes as data structure.

I will use the first example in the homework to give an example.

M=(Q, Σ, δ, START, FINAL) → M=(Q, Σ, δ, {A},{C})

This is how we represent automata. For visualize it, we need to read every line.

ALPHABET
0 → Σ = {0,1}
1

STATES
A
B → Q = {A, B, C}
C

START
A

FINAL
C

TRANSITIONS → δ →

A 0 A
A 1 B
A 1 C
B 0 B
B 0 C
C 0 A
C 0 B
C 1 B

This is the transition table algorithm creates

	0	**1**
A	**{A}**	**{A,B}**
B	**Ø**	**{C}**
C	**Ø**	**Ø**

After that, algorithm takes this table to create the DFA. I showed in under how algorithm checks the transition table and creates the new one.

Steps:

1.

	0	1
A	{A}	{A,B}

2.

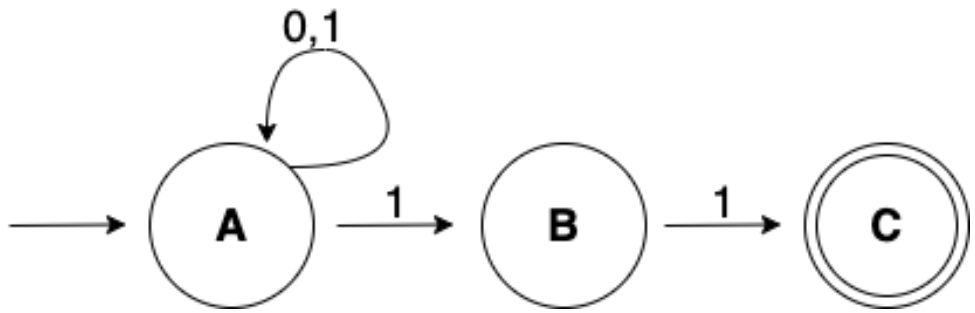
	0	1
A	{A}	{A,B}
{A,B}	{A}	{A,B,C}

3.

	0	1
A	{A}	{A,B}
{A,B}	{A}	{A,B,C}
{A,B,C}	{A}	{A,B,C}

After all of this, algorithm creates txt file as a output in the same format with the information of this table on above.

NFA



DFA