CS323 Documentation

About 2 pages

1. Problem Statement

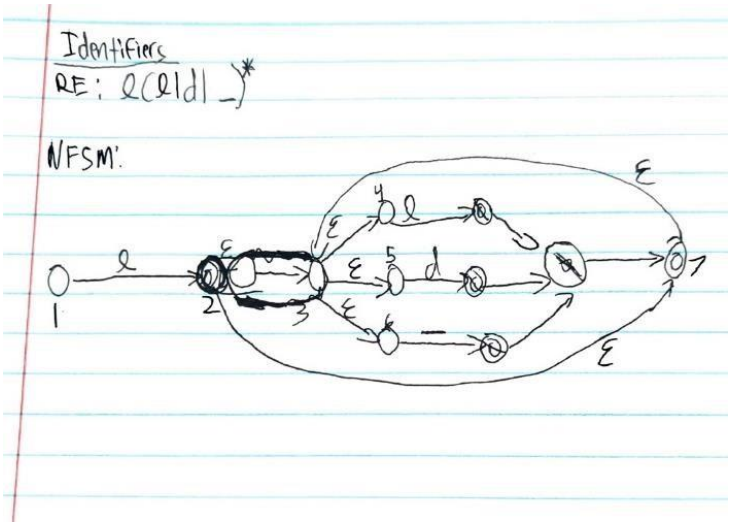
This assignment's task is to create a lexical analyzer or lexer. Tokens and their lexemes are returned for an inputted file. A FSM is used to determine what characters are IDs, real numbers, and integers.

2. How to use your program

1) Extract files from zip folder and make sure they are all in the same folder.
2) Open assignment1.exe
3) Type in file name, then press enter. Or type "quit" to exit.
4) View the results in the displayed _output.txt file.

3. Design of your program

Identifiers:



ε-closures:

q_0 (1)={1}
(2) ={2,3,4,5,6,7}
(3) = {3,4,5,6}
(4) = {4}
(5) = {5}
(6) = {6}
(7) = {3,4,5,6,7}

Table: Accepting states 2 and 3 are identical. Remove state 3 and make 3 the empty state.

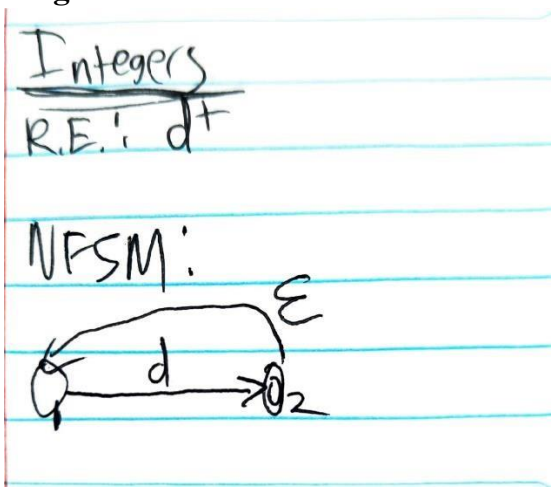
	L	D	_
q_0 {1}	{2,3,4,5,6,7} [2]	{}	{}
{2,3,4,5,6,7}	{3,4,5,6,7}	{3,4,5,6,7}	{3,4,5,6,7}
{3,4,5,6,7}	{3,4,5,6,7}	{3,4,5,6,7}	{3,4,5,6,7}
{}	{}	{}	{}

Final DFSM table:

	L	D	_
1	2	3	3
2	2	2	2
3	3	3	3

2 is accepting state.

Integers:



ε-closures:

q_0 (1) = {1}

(2) = {1,2}

Table:

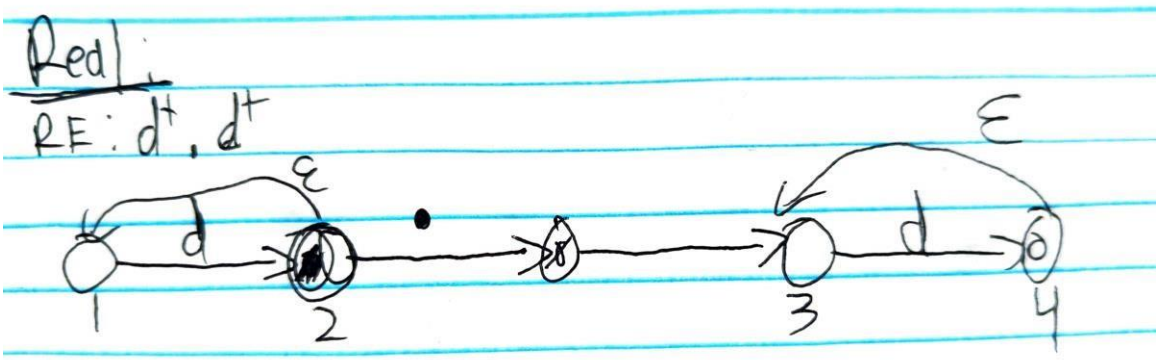
	Dight	Non-Digit
q_0 {1}	{1,2} [2]	[]
{1,2}	{1,2}	[]
[]	[]	[]

Final DFSM table

	Digit	Non-Digit
1	2	3
2	2	3
3	3	3

2 is accepting state.

Real Numbers:



ε-closures:
q_0 (1) = {1}
(2) = {1,2}
(3) = {3}
(4) = {3,4}

Table: Make state 5 the empty set

	Digit	.	Neither
q_0 {1} 1	{1,2} 2	[] 5	[] 5
{1,2} 2	{1,2} 2	{3} 3	[] 5
{3} 3	{3,4} 4	[] 5	[] 5
{3,4} 4	{3,4} 4	[] 5	[] 5
[] 5	[] 5	[] 5	[] 5

Final DFSM table:

	Digit	.	Neither
1	2	5	5
2	2	3	5
3	4	5	5
4	4	5	5
5	5	5	5

4 is accepting state.

4. Any Limitation

<All features are running according to the assignment but you limit your program due to resource limitations, such as
Maximum number of lines in the source code, size of the identifier, integer etc. ***Say 'None' if there is no limitation****>*

None

5. Any shortcomings

<Anything you could NOT implement although that is required by the Assignment. ***Say 'None' if there is no shortcoming****>*

None