RegexParser Guide

This tool aim to draw the final state machine related to the regular expression given as input.

HOW TO USE THE TOOL

The tool comes in the following form:

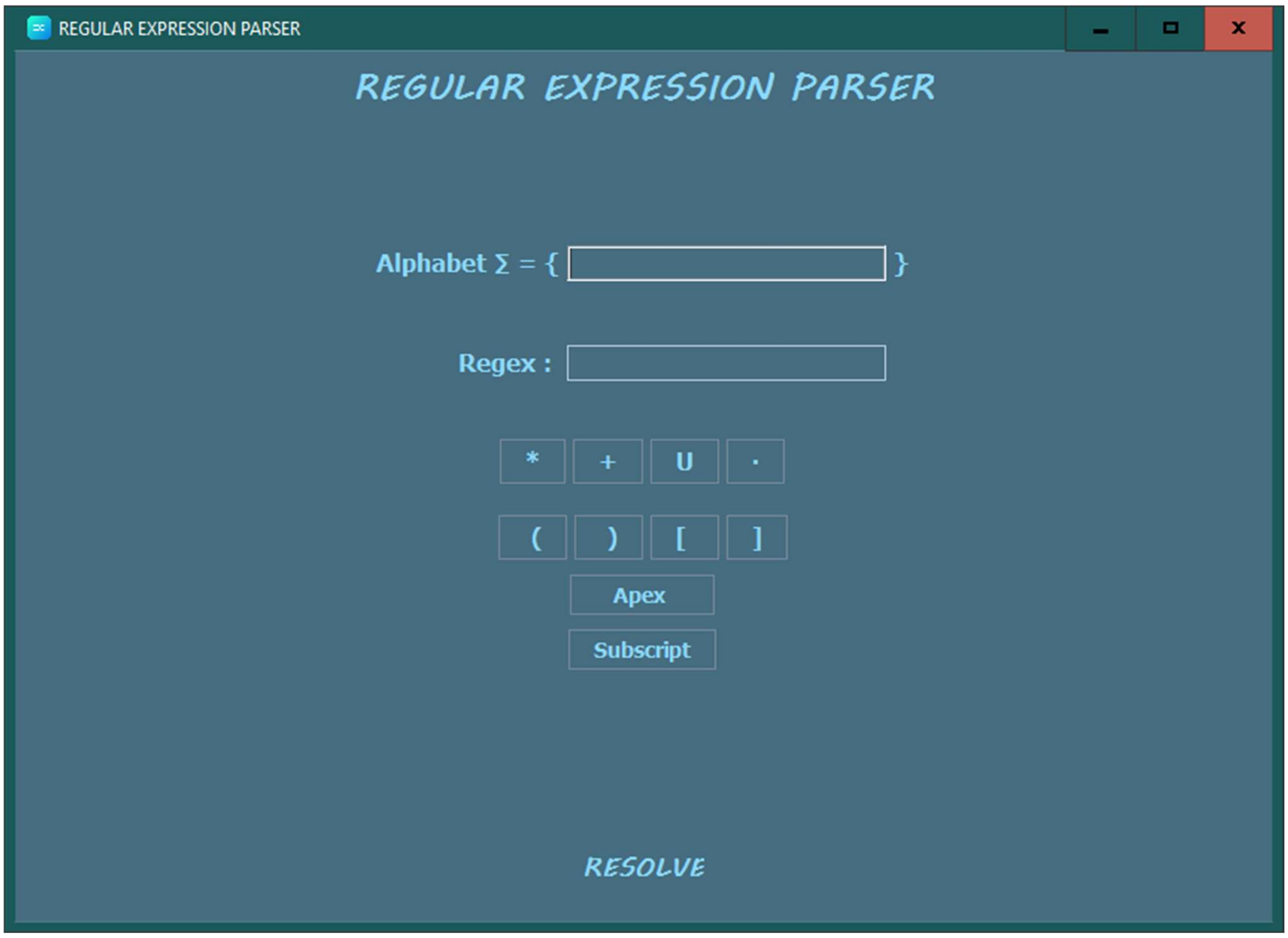


Figure 1 - RegexParser application initial form

- **Alphabet Σ**: Textbox where write the alphabet symbols used to write the regex:
    - Only ONE-char symbols are allowed.
    - Symbols like (,), [,],∗, ϵ, $^+$, U, · , $, %, &, |, are NOT allowed in this Textbox.
    - Symbols in the Textbox are not spaced. Insert these like the following example:

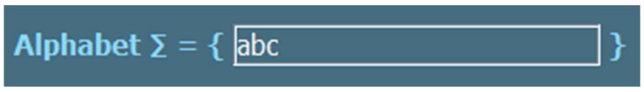


Figure 2 - example: insert symbol in the alphabet textbox

- **Regex**: Textbox where write the regular expression:
    - View the chapter "how to write a Regular Expression" for more details.
    - Space between symbol are NOT allowed.

- **Symbols keyboard**: keyboard that allow to write a special symbol.

- **Apex button**: button that allow to write an apex to regular expression:
    - One clicks on this button, show a textbox where insert the number you want.
    - The apex value MUST be greater than 0.
    - Only ONE-digit number are allowed.

- **Subscript button**: button that allow to write a subscript to regular expression:
    - One clicks on this button, show a textbox where insert the number you want.
    - The subscript value MUST be smaller than the apex one. It can be equal to 0.
    - Only ONE-digit number are allowed.
    - You can insert a subscript ONLY IF there is an apex in the previous position.

- **Resolve button**: button that initiate the parsing process.

HOW TO WRITE A REGULAR EXPRESSION

In this chapter, you can see how to avoid error when writing a regular expression.

An example is useful for this aim:

$$\Sigma = \{abc\}$$

$$Regex: (ab)^{*}U[c]Ua^{+}$$

- Make sure that between (and) or [and] there is at least one alphabet symbol.
- Make sure that *, $^{+}$,),], ·, U and the apex are not the first symbol of the regular expression.
- Make sure that (, ·, [, U are not the last symbol of the regular expression.
- Make sure that the Apex value is greater than the Subscript one if this is present.
- Make sure that the number of (or [is equals to the number of) or] respectively.

In the next page, there are all errors you can see using this tool.

POSSIBLE ERRORS

The string "alphabet symbol" show the specific symbol of your use case.

1. The Alphabet and the Regular Expression must not be empty.
2. Symbols not permitted in Regular Expression.
3. The Regular Expression must contain at least one alphabet symbol.
4. After a round bracket (, there could only be symbols: (, [, alphabet symbols.
5. The round bracket (couldn't be the last symbol of the Regular Expression.
6. Before a round bracket), there could only be symbols:),], *, $^{+}$, one apex, one subscript, alphabet symbol.
7. The round bracket) couldn't be the first symbol of the Regular Expression.
8. After a square bracket [, there could only be symbols: (, [, alphabet symbol.
9. The square bracket [couldn't be the last symbol of the Regular Expression.
10. Before a square bracket], there could only be symbols:),], *, $^{+}$, one apex, one subscript, alphabet symbol.
11. After a square bracket], there could only be symbols: (,), [,], one apex, U, ·, alphabet symbol.
12. The square bracket] couldn't be the first symbol of the Regular Expression.
13. Before a star *, there could only be symbols:), alphabet symbol.
14. After a star *, there could only be symbols: (,), [,], one apex, U, ·, alphabet symbol;
15. The star * couldn't be the first symbol of the Regular Expression.
16. Before a cross $^{+}$, there could only be symbols:), alphabet symbol.
17. After a cross $^{+}$, there could only be symbols: (,), [,], one apex, U, ·, alphabet symbol.
18. The cross $^{+}$ couldn't be the first symbol of the Regular Expression.
19. Before a point ·, there could only be symbols:),], *, $^{+}$, alphabet symbol.
20. After a point ·, there could only be symbols: (, [, alphabet symbol.
21. The point · couldn't be the first symbol of the Regular Expression.
22. The point · couldn't be the last symbol of the Regular Expression.
23. Before an Union U, there could only be symbols:),], *, $^{+}$, alphabet symbol.
24. After an Union U, there could only be symbols: (, [, alphabet symbol.
25. The Union U couldn't be the first symbol of the Regular Expression.
26. The Union U couldn't be the last symbol of the Regular Expression.
27. Before an Apex, there could only be symbols:),], alphabet symbol.
28. After an Apex, there could only be symbols: (,), [,], one subscript, U, ·, alphabet symbol.
29. Before a Subscript, there could only be an apex.

30. Before an Apex-Subscript pair, there must be a square bracket].

31. After a Subscript, there could only be symbols: (,), [,], U, ·, alphabet symbol.

32. Apex and Subscript couldn't be the first symbols of the Regular Expression.

33. The number of (and [must be the same of),], respectively.

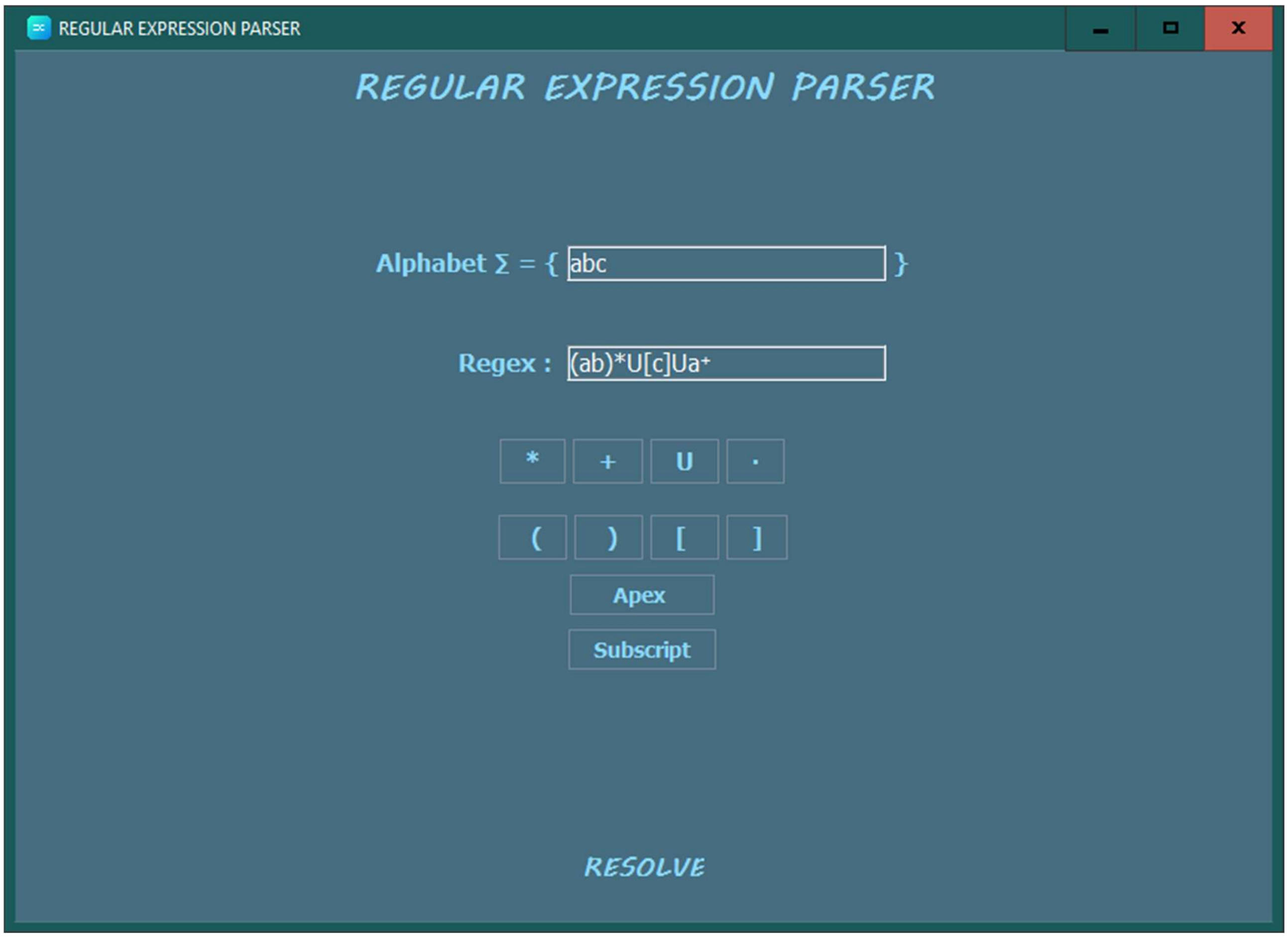
34. The Apex must be a positive one-digit number.

35. There cannot be a Subscript if there's not an Apex.

36. The Subscript must be a positive one-digit number smaller than the Apex.

37. (,), [,], *, U, $^+$, ·, ε are not allowed like alphabet symbols.

USE EXAMPLE



abc

(ab)*U[c]Ua⁺

Figure 3- example: insert alphabet and regular expression

After one click on the RESOLVE button, you can see the result like in the next page.

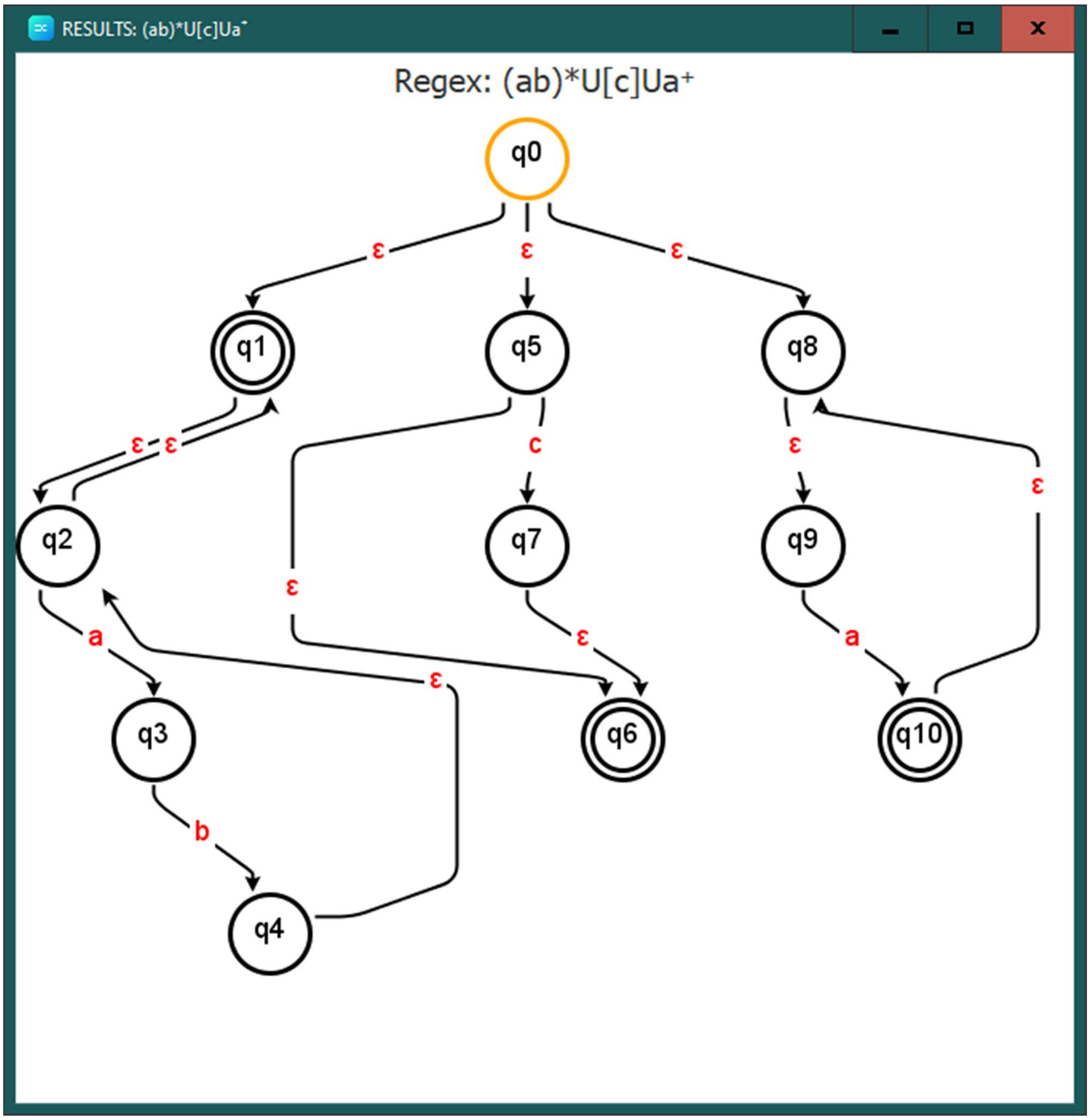


Figure 4 - example: result

CREDITS

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as end-of-class project.

Class:

Formal languages and Compilers

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