Lab 1: Regular Expressions

CSCI 340: Computational Models

100 points

- Submission will be through `https://autolab.millersville.edu`

- Use the "Download handout" option in Autolab to download the template file that you will use to record and submit your regular expressions.

- If you want to use lambda in one of your expressions, use an uppercase "L" or the Unicode symbol for lambda (λ). **Do not** alter the comments/delimiters in the template – AutoLab is using those to find your regular expressions.

- Construct a regular expression defining each of the following languages over the alphabet $\Sigma = \{a \ b\}$. Each problem is worth 20 points

    1. All words in which a appears tripled, if at all. This means that every clump of a's contains 3 or 6 or 9 $\ldots$ a's.

    2. All words that contain exactly 2 b's or exactly 3 b's, not more (b's do not need to be in clumps).

    3. All strings that have exactly one (no more) double letter in them.

    4. All strings in which any b's that occur are found in clumps of an odd number at a time (such as $abaabbbab$).

    5. All strings that have an odd number of a's and an odd number of b's. (This one is a bit tougher. Think about it logically. Do we have any examples from class that would help you build such an expression?)

- When you have expressions that you would like to test, save the template file, and submit it to AutoLab. Refresh the page in your browser until you see a score. You can click on the score to see details about your results. If your regular expression is not correct, you will be shown a string on which it failed. You can submit as many times as you'd like.

- The grade on autolab will only list **75 points**. The other 25 points will be based on the conciseness of your regular expressions (5 points per problem).