

Lab 1: Regular Expressions

CSCI 340: Computational Models

75 points

- Submission will be through `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 15 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 \dots 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).