Lab Assignment Week 05

CSC 3320 – System-level Programming

Week of February 5th, 2024

# Introduction

Welcome to the fifth programming lab of CSC 3320! Today, we will be covering the regular expressions. You will have to answer several questions about pattern matching using regular expressions. For your reference, a regular expression cheat sheet has been copied for you below.

|  |  |
| --- | --- |
| Meta Characters | Description |
| Asterisk ( \* ) | 0 or more |
| Plus ( + ) | 1 or more |
| Curly Braces { } | N,  min or more,  min to max |
| Wildcard ( . ) | Matches anything |
| Optional ( ? ) | Preceding character is optional |
| Group ( ) | Group together multiple characters |

|  |  |
| --- | --- |
| Character Classes | Description |
| \s | Whitespace (space & tab) |
| \S | Non-whitespace |
| \d | Digits |
| \w | Words (alpha-numeric) |
| \W | Non-words (punctuation & whitespace) |
| \b | Word Boundary |

Q1 – Write a regex that can match a phone number in the following format:

**(###) ###-####**

\(\d{3}\) \d{3}-\d{4}

Q2 – Write a regex that can detect words spelt in both American English and British English.

1. Words that end in ze (American English) and se (British English). Write a regex that can match both spellings of ***Familiarize and Familiarise***.

Familiaris[e|e]

1. Words that are spelled with an o in British English and American English. Write a regex that can match both spellings of ***Color and Colour***.

Colou?r

Q3 – Write a regex that can match with valid IPv4 addresses. The typical format of an IPv4 address is A.B.C.D where A, B, C, and D are Integers lying between 0 and 255 (both inclusive). Ex. ***108.177.122.102***

\b(?:25[0-5]|2[0-4][0-9]|[01]?[0-9][0-9]?)\.(?:25[0-5]|2[0-4][0-9]|[01]?[0-9][0-9]?)\.(?:25[0-5]|2[0-4][0-9]|[01]?[0-9][0-9]?)\.(?:25[0-5]|2[0-4][0-9]|[01]?[0-9][0-9]?)\b

Q4 – Write a regex that can match with a URL. The regular expression must be able to match a url with and without the https:// prefix. Ex. [www.youtube.com](http://www.youtube.com) & <https://www.youtube.com>

\b(?:https?:\/\/)?(?:www\.)?[a-zA-Z0-9\-]+\.[a-zA-Z]{2,}(?:\/\S\*)?\b