CS 3342 – Homework #1

Due Date: February 13, 2022 (Sunday) - 11:59pm

Part A: Regular Expression – with Java

You can use Eclipse for this homework. If you forget how to write a Java program, you can Google it or watch Some useful YouTube videos like the following:

https://www.youtube.com/watch?v=nwicobFbC2E

https://www.youtube.com/watch?v=cejX8YuCfNw

Part A1:

Run the following Java code snippet. Take a screen shot of the output and copy it to a Word doc.

```
System.out.println("Match 1: " + Pattern.matches("[789][0-9]{9}", "99530389490"));
System.out.println("Match 2: " + Pattern.matches("[789][0-9]", "895"))
System.out.println("Match 3: " + Pattern.matches("[a-d[m-p]]", "p"));
System.out.println("Match 4: " + Pattern.matches("[a-d][m-p]", "p"));
System.out.println("Match 5: " + Pattern.matches("[a-d][m-p]", "co"));
System.out.println("Match 6: " + Pattern.matches(".s","effg"));
System.out.println("Match 7: " + Pattern.matches("...m","ertm"));
System.out.println("Match 8: " + Pattern.matches("[^abc]", "o"));
System.out.println("Match 9: " + Pattern.matches("[\\d]", "98"));
```

Part A2:

Replace the character (#) in the following Java code snippet to make the Boolean output to be 'true'. Take a screenshot of your code snippet and the output and copy them to a Word doc.

```
System.out.println("Match 10: " + Pattern.matches("[\\#]", "9"));
System.out.println("Match 11: " + Pattern.matches("[\\#]", "a"));
System.out.println("Match 12: " + Pattern.matches("b#a", "a"));
System.out.println("Match 13: " + Pattern.matches("colo#r", "color"));
System.out.println("Match 14: " + Pattern.matches("[789][0-9]{#}", "99530"));
System.out.println("Match 15: " + Pattern.matches("[789]{#}[0-5]{#}", "89530"));

Pattern p = Pattern.compile("\\#");
Matcher m = p.matcher("332");
System.out.println("Find 1: " + m.find());

p = Pattern.compile("[#abc]");
m = p.matcher("123The ");
System.out.println("Find 2: " + m.find());

p = Pattern.compile("[\\#]");
m = p.matcher("The color green ");
System.out.println("Find 3: " + m.find());
```

Note: you may need to import some Java classes highlighted below to your Java program:

```
package com.proglang;
import java.util.regex.Matcher;
import java.util.regex.Pattern;
public class hw1 {
        public static void main(String[] args) {
                //Part A:
                System.out.println("Match 1: " + Pattern.matches("[789][0-9]{9}",
"99530389490"));
                ..........
                ..........
        }
}
```

***Note – your task: Submit the Word doc and the source code separately to Canvas. You can zip the source code but do not zip the Word doc. (Name your word doc - 'HW1_partA_your_name.docx'.)**

Part B: Regular Expression – with Python

You can run Python in Visual Studio Code or other IDEs/IDLEs you like.
Steps to run Python in Visual Studio Code:

1. **Install VS Code on Windows/Mac:**
   (Download Visual Studio Code - Mac, Linux, Windows)

   Some useful YouTube videos:
   (For Mac: https://www.youtube.com/watch?v=bJaBHGKHv9A&t=0s)
   (For windows: https://www.youtube.com/watch?v=MlIzFUI1QGA)

2. **Install Python on Windows/Mac and VS Code:**
   2.1: Download Python from this site and install it in your computer:
   https://www.python.org/downloads/

   Some useful YouTube videos:
   (Mac: https://www.youtube.com/watch?v=M323OL6K5vs – Install Python on Mac/VS Code)
   (Windows: https://www.youtube.com/watch?v=82le04m6Hhs&t=0s – Install Python on Windows)
   (Windows: https://www.youtube.com/watch?v=AKVRkB0fot0 – Install Python on VS Code)

Intro to Python:
https://developers.google.com/edu/python/introduction

Regular Expression in Python:
https://developers.google.com/edu/python/regular-expressions

Note: Raw String Notation:
https://www.tutorialspoint.com/What-is-Raw-String-Notation-in-Python-regular-expression

Part B task: Replace the character (#) in the following Python code snippet to make the code work as described in their corresponding print statements. Take a screenshot of your code snippet and the output and copy them to a Word doc.

```
#Regular Expression
#Sample RE Python code
import re
def text_match(text):
        patterns = r'ab\w+'
        if re.search(patterns,  text):
                return (patterns, text, 'Found a match!')
        else:
                return (patterns, text, 'Not matched!')

print("Text1:", text_match("Cats are smarter than dogs"))
print("Text2:", text_match("abc"))

# The following is the code to modify.
# Open file (please download the sample input file from Canvas.)
f = open('D:\\test1.txt', 'r')
data=f.read()
strings = re.findall("mask.", data)
#case sensitive
print ("Search1: mask or masks", strings)
strings = re.findall(r'##for###', data)
print ("Search2: words start with 'for': ", strings)
strings = re.findall(r'###ies\b', data)
print ("Search3: words end with 'ies': ", strings)
strings = re.findall(r'##########', data)
print ("Search4: words begin with 'i' and end with 't': ", strings)
```

Sample output for replacing '#" in findall:

Text1: ('ab\\w+', 'Cats are smarter than dogs', 'Not matched!')
Text2: ('ab\\w+', 'abc', 'Found a match!')
Search1: mask or masks ['masks', 'mask ', 'mask ', 'mask ', 'mask ']
Search2: words start with 'for': ['forward', 'for', 'for', 'for']
Search3: words end with 'ies': ['activities', 'authorities']
Search4: words begin with 'i' and end with 't': ['it', 'important', 'input']

Explanation:
Search1: mask or masks ['masks', 'mask ', 'mask ', 'mask ', 'mask ']
Search2: words start with 'for': ['forward', 'for', 'for', 'for']
Search3: words end with 'ies': ['activities', 'authorities']
Search4: words begin with 'i' and end with 't': ['it', 'important', 'input']

***Note – your task: Submit the Word doc and the source code separately to Canvas. (Name your word doc - 'HW1_partB_your_name.docx'.)**

The following is the content of the input file (test1.txt):
SMU looks forward to welcoming students, faculty and staff for the upcoming fall academic semester next month. Preparations continue for a safe return to regular operations, in-person instruction and full campus activities. However, it is important to balance the desire to embrace a traditional college setting with the need to maintain healthy behaviors to keep the virus spread under control.

Faculty may require masks

Masks will not be required at SMU for fall 2021, with a few exceptions. Individuals will continue to have the option to wear a mask anywhere and at any time on campus if they choose.

After reviewing the latest guidance from federal, state and local health authorities, as well as input from the University's Emergency Operations Center, SMU's Faculty Senate Executive Committee and the President's Executive Council, SMU will allow faculty members to seek an exception to the campus no-mask policy in their classrooms through a process that includes advance notice to their department chairs, deans and the provost's office. Instructors must clearly define their classroom mask requirements and how they will be enforced in the course syllabuses prior to the start of classes. The provost's office will provide more details on the classroom mask exception in the coming weeks.