

Faculty of Engineering, University of Jaffna

Department of Computer Engineering

EC5080: Software Construction

Lab 05: Pattern matching with regular expressions, and parsing structured data.

Question 01 should be completed in lab and upload the source code and necessary answer (pdf) files in the “lab04-inlab” in Teams.

Question 01:

1. Complete the following program by filling in the commented places. Implement it.

```
//import necessary packages
```

```
public class Regularexp {
```

```
    public static void main(String[] args){
```

```
        while (true) {
```

```
            //Read Regex from user
```

```
            //Create the pattern
```

```
            //Read the input string to check the match
```

```
            //Create a matcher
```

```
                boolean found = false;
```

```
                while (matcher.find()) {
```

```
                    //Print as: I found the text "j" starting at index 0  
                    and ending at index 1.
```

```
                    found = true;
```

```
                }
```

```
                if(!found){
```

```
                    //Print
```

```
                }
```

```
            }
```

```
        }
```

```
    }
```

2. Write the regex expressions for the following.

- i. Matches a string that has a k followed by zero or more r's.
- ii. Matches a string that has vowels.

iii. Matches a string that has an emailID (any).

3. Test the expressions you gave in the previous task (2.) by giving two or more sample input string. Paste the outputs.

Question 02.

You can use any IDE.

1. Create an XML file as follows. Add more details of people.

```
<?xml version="1.0"?>
- <people>
  - <person id="1">
    <lastname>Doe</lastname>
    <firstname>John</firstname>
  </person>
  - <person id="2">
    <lastname>Smith</lastname>
    <firstname>Jim</firstname>
  </person>
</people>
```

2. Write a program to print the person id, last name and first name from the XML file created in the previous task (1.) using Java DOM parser.
3. Explain how you have appended or installed the necessary parser with your IDE.

Question 03

1. First, create an IntelliJ Java project and name it as EC5080_Lab4_RegNo
2. Starting at the topmost line of the file, insert the following under the comments. You need to choose one of them. If you get any assistance from anyone/book/internet please include that.

Certificate of Authenticity: (choose one from below)

// I certify the code of this lab is entirely my own work.

(or)

// I certify the code of this lab is entirely my own work,

// but I received assistance from [insert name/site].

4. Consider you have 10 emails (About different lab reschedules for different courses written by students to the instructors) saved in 10 files. The email body will differ in format. Sender emailID can be in any format and the receiver email ID is provided by the faculty. Implement a Java class FilterDetails to filter the details from the emails following the given steps from a to c.

Sample email:

From: Student name<emailID>
Sent: Monday, September 26, 2022 4:28:38 PM
To: Instructor name < emailID >
Subject: Lab Reschedule

Good morning, I'm writing this to request for a lab reschedule for EC5080. It is for lab 04, "Pattern matching with regular expressions".

Thank you

- a. It has a method to read a file. (Includes necessary Exceptions).
 - b. It has a method to filter and return the following details from an email. Sender name, Sender email ID, Receiver name, Receiver email ID, Email date, Course code, Semester, Lab no, and Lab name. You need to use the appropriate Java regular expressions and necessary String methods. E.g., you **can't** extract the email IDs considering the <...> symbols.
 - c. It has a method to save the b.'s outputs of all emails in a file.
5. Upload the zip file of Question 02 and 03 with necessary source code and answer files (PDF) as Lab4_RegNo to the "Lab04" assignment in Teams.

Any plagiarized work will be given 0 marks.