

CS-207: Programming II
Fall 2016
Northeastern Illinois University
Research Lab: Forms and Strings
Due: Thursday, 10/27 at 9:00 a.m.

Goal:

The goal of this research lab is to use and modify the given HTML and Java files to investigate how to validate information in String formats submitted through an HTML web form and through a JavaFX application and to compare and contrast the difference between web application and server-side applications. As this is a "research" lab, you will need to investigate and analyze the code that has been provided for you in order to be able to modify it using the materials presented in class.

The Problem:

You have been provided with an HTML file named "signup_form.html" and a SignupJavaFx.java file that contains the code needed to display a simple sign-up form. You will need to input the necessary text validators in the HTML code to create a functioning form that validates the data against a given criteria. Once the HTML code is complete, you will need to determine how to create the String validation code for the JavaFX form.

Instructions:

- You should work in groups of 2-3 individuals. Groups of more than 3 are **not** permitted.
- Each group should submit ONE lab write-up. It is the responsibility of each group member to ensure that their name is on the write-up.
- The lab write-up should be typed! Type each question (and the question number) followed by your group's answer. **Convert your lab write-up to a .pdf.**
- You should use complete sentences and proper grammar in your write-up. Use spell-check! This counts as part of your grade.
- You should not copy/paste directly from your sources for your answers (this is called plagiarism). Instead, you should re-word the information in your own words.
- Submit the pdf, HTML and .java files (specifically, the results.html, signup_form.html, and the SignupJavaFx.java files) to D2L by the specified due date.
- Each member of the group must turn in a hard-copy of the peer assessment on the day the research lab is due. The peer assessment counts as a significant part of your grade and you will receive a **zero** for that portion of the research lab grade if you do not turn it in.

Part A: Getting Started

Download the files from D2L and keep them all in the same folder. Once again you have been presenting with code you did not write! Similar to the previous lab, we are going to imitate a

scenario where your boss needs you to complete the provided code. Initially, your boss wants you to finish the HTML form to include data validation for each form in the field.

Question #A.1

Open the `signup_form.html` with the browser of your choice by double-clicking on it. What are HTML and CSS?

Question #A.2

Now that you have an understanding of what HTML and CSS are, open your HTML file in a text-editor of your choice and examine the code. What is an HTML tag element and how is it represented? List and describe the functionality for three different types of HTML tags that can be found in your code (do NOT use the HTML tag). Where did you find your answers?

Question #A.3

Which type of input tag is currently being used for all of the input fields in your HTML form? This is not the only input type that can be used with HTML forms! List and describe at least 5 other input types that are available. Where did you find your answer?

Question #A.4

Which input field types can you change in your HTML code? Why should you only change 3 of the types and not 4 of them? What is the benefit to changing these input types instead of using the provided text input?

Question #A.5 + coding

Be sure to implement the changes you mentioned in A.4 in the HTML code. Save your code and refresh your HTML page. Test your code by filling out the form with false input data and providing an invalid email address. Submit your form. What error message did you receive?

Question #A.6

What is an HTML input attribute? List and describe three attributes. Where did you find your answer?

Question #A.7 + coding

The current state of this form can be still submitted with no input at all. What can be included to make each field required? Be sure to implement the attribute within your HTML code for each input field in the form. Save your code and refresh your HTML page. Test your code by trying to submit your form without any input. Did you receive an error message?

Question #A.8 + coding

Your form has additional validation requirements. Your first and last name should be at least 2 characters in length and your password should be at least 8 characters long. Which HTML attributes should you use to implement this? Implement this attribute for the three input fields. Save your code and refresh your page. Try and test your code by submitting input characters less than what is required.

Question #A.9 + coding

You decided to submit your code to your boss! However, he has additional requirements for

the password field he would like you implement. The password field should be required to contain at least one uppercase letter, one lowercase letter and one number. What HTML input attribute can help you implement his request? What kind of expression can you use to verify this input against his requirements? Implement this in the HTML form. Save your changes and refresh your page. Test your code by using an invalid password. What error did you receive?

Question #A.10 + coding

Your boss also noticed that one of your input fields is not behaving as it should. Which one is it? Hint: refer to question #A.4 to help if you are stumped. What do you need to do to make this input field validate correctly? Implement this in the HTML code. Save your changes and refresh your page. Test your code by using invalid input for this field. Did you receive an error?

Part B: Understanding JavaFX

Great work! You were able to submit a functioning form to your boss. However, his requirements have changed and he no longer needs an HTML form, but instead needs a JavaFX form. He wants this form to behave similarly to the HTML form. Lucky for you, his friend provided the code for the layout of the form in java. You will need to analyze and look up JavaFX terms to help you complete this form.

Question #B.1

What is JavaFX?

Question #B.2

What is a pane? What is a scene? What is a stage? How do each of these elements relate to each other in a JavaFX form? Where did you find your answer?

Question #B.3

Now that you have a better understanding of a JavaFX form, analyze the start method found in the SignupJavafx class. Briefly describe what is occurring in lines 26-60.

Question #B.4

Although your boss does not understand the code, he knows that when you submit the form with empty fields, no validation occurs. Based off this information, you noticed there is an action method (called a handler method) that has an object reference (EventHandler object) as a parameter. What is an EventHandler? Give three examples of events that should be handled as they occur. What should happen when the submit button is pressed? Briefly describe this in a few sentences.

Question #B.5

List all fields you need to validate in the form and the corresponding String reference variables.

Part C: Coding the JavaFX validation methods

Similar to the HTML form, you will need to validate the data in the JavaFX form to ensure it meets your boss's requirements. Complete the SignupJavafx.java file by creating all the necessary methods to create a functioning JavaFX form.

Question #C.1 - coding only

Create a method called `checkFirst` that takes a `String` parameter and does not return anything. If the `String` parameter is empty, the method should set the text of the label named `error` to read "Please enter a first name". If the `String` parameter contains numerical values or is less than 2 characters, the method should set the text of the label named `error` to "Please enter a valid first name". Call this method in the action method. Compile your code and fix any errors.

Question #C.2 - coding only

Create a method called `checkLast` that takes a `String` parameter and does not return anything. This method should behave the same as the `checkFirst` method required above. Call this method in the action method. Compile your code and fix any errors.

Question #C.3 - coding only

Create a method called `checkEmail` that takes a `String` parameter and does not return anything. This method should follow the same validation rules for email as the HTML form. Hint: what criteria should your email follow to be considered a valid email? If the `String` parameter submitted is not a valid email, the method should set the text of the label named `error` to read "Please enter a valid email". Call this method in the action method. Compile your code and fix any errors.

Question #C.4 - coding only

Create a method called `checkPhone` that takes a `String` parameter and does not return anything. This method should follow the same validation rules for phone number as the HTML form. Hint: what criteria should be used to determine a valid phone number? If the `String` parameter is not a valid phone number, the method should set the text of the label named `error` to read "Please enter a valid phone number." Call this method in the action method. Compile the code and input 123-123- 12 for the phone number. Did you get the correct result? If not, change the code to get the correct result.

Question #C.5 - coding only

Create a method called `checkBday` that takes a `String` parameter and does not return anything. This method should follow the same validation rules for birthdate as the HTML form. Hint: what criteria should be used to determine a valid birthdate? If the `String` parameter is not a valid date, the method should set the text of the label named `error` to read "Please enter a valid birthdate." Call this method in the action method. Compile the code and input 01/01//191 for the birthdate. Did you get the result that you wanted? Did you get the correct result? If not, change the code to get the correct result.

Part D: Final Summary

Whenever you complete a project, it is important to assess what you think went well and what you need to improve on.

Question #D.1

What was the most challenging part of this research lab for your group?

Question #D.2

What did your group learn/find the most useful by doing this research lab?

Question #D.3

Did your group find validation with the HTML web form easier to implement or validation in the JavaFX file easier to implement? Why?

Question #D.4

What was the most fun aspect of doing this research lab?