**CS-207: Programming II**

**Fall 2016**

**Northeastern Illinois University**

**Research Lab: Signup form**

**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 Strings submitted through a web form and a javafx form. 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 class that contains the coded needed to display a simple signup 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 translate the String validation code used to work for your javafx form.

**Instructions:**

* You should work in group 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 files (results.html and signup\_form.html) and the .java file to D2L by the specific due date.

**Part A: Getting Started**

Download the files from D2L. Once again you have been presenting with code you did not write and your boss needs it completed. Your boss wants you to finish the html form to include data validation for each form in the field.

**Questions #A.1**

Open your signup\_form.html with the browser of your choice. What is html and CSS?

**Questions #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 you see in your code (do NOT use the html tag). Where did you find your answer?

**Questions #A.3**

Which type of input is currently being used for all of the input fields in your html form? Surely this is not the only input type. List and describe at least 5 other input types that are available. Where did you find your answer?

**Questions #A.4**

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

**Questions #A.5 + coding**

Be sure to implement the changes you mentioned in A.4 within your 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?

**Questions #A.6**

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

**Questions #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?

**Questions #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 attribute 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.

**Questions #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 expression can you use to verify this input against his requirements? Use your answers within your code. Save your changes and refresh your page. Test your code by using an invalid password. What error did you receive?

**Questions #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? Use your answers within your 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.

**Questions #B.1**

What is Javafx?

**Questions #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?

**Questions #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 this method in a few sentences. What javafx layout method should you look up to help get a better understanding?

**Questions #B.4**

Although your boss does not know the code, he does know that the form does not do anything once you hit the submit button. Based off this information, you noticed there is a handler method that has no code in the body. 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.

**Questions #B.5**

What element in the javafx form holds the data you need to validate? List all fields you need to validate.

**Questions #B.6 + coding**

Complete your handle method by calling all methods you will be creating in Part C of this Lab.

**Part C: Coding your Javafx validation methods**

As you did for your html form, you will need to validate the data specified in the previous question to ensure it meets your boss’s requirements. Complete the SignupJavafx.java by creating all the necessary methods to create a functioning javafx form.

**Questions #C.1 only coding**

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

**Questions #C.2 only coding**

Create a method called **checkLas**t that takes in a String argument and does not return anything. This method should behave the same as the checkFirst method required above. Compile your code and fix any errors.

**Questions #C.3 only coding**

Create a method called **checkEmail** that takes in a String argument and does not return anything. This method should behave the same way as your html form did for validating the email submitted. *Hint: what criteria should your email match to be considered a valid email?* If the String argument submitted is not a valid email your method should set the text of the label named “error” to read “Please enter a valid email”Compile your code and fix any errors.

**Questions #C.4 + coding**

Create a method called **checkPhone** that takes in a String argument and does not return anything. This method should behave the same way as your html form did for validating the phone number submitted. *Hint: what criteria should your phone match to be considered a valid number?* If the String argument submitted is not a valid phone your method should set the text of the label named “error” to read “Please enter a valid phone number.” Compile and run your javafx form using “123-123- -12” as test data. Did you get the result that you wanted? If not change your code so you can. Keep in mind there could be multiple answers but there is a more efficient answer to this method.

**Questions #C.5 + coding**

Create a method called **checkBday** that takes in a String argument and does not return anything. This method should behave the same way as your html form did for validating the birthday submitted. *Hint: what criteria should your birthday match to be considered a valid birthday?* If the String argument submitted is not a valid date your method should set the text of the label named “error” to read “Please enter a valid birthdate.” Compile and run your javafx form using “01/01//191” as test data. Did you get the result that you wanted? If not change your code so you can. Keep in mind there could be multiple answers but there is a more efficient answer to this method.

**Questions #C.6**

Compile and run your program. Fill in the form with the required data and submit to test your code. List three things that were new to you in this lab and what you did to figure them out.