Faculty of Science

Course: CSCI 2020U: Software Systems Development and Integration
Term: Winter 2022
Lab: #4
Topic: User Interfaces 1

Overview

In this lab, you'll develop a Java program with a user interface, using JavaFX (https://openjfx.io/openjfx-docs/#introduction). It is **recommended**, but not required, that you use IntelliJ (https://www.jetbrains.com/idea/download/#section=windows) for this lab. For simplicity and consistency, it is recommended but not required that you use the JavaFX plugin for Gradle. Otherwise, you will need to install and configure the JavaFX SDK.

Getting Started with JavaFX and Gradle (NOT REQUIRED)

JavaFX is available as a Gradle Plugin. Please follow this guide for including the JavaFX plugin with your Gradle project:
https://openjfx.io/openjfx-docs/#gradle

Important – the JavaFX plugin is **not compatible** with the most recent version of **Gradle (7.3.3**). You have 2 options:

1. ***RECOMMENDED*** Downgrade your version of Gradle (remove Gradle 7.3.3 first)
2. Use this plugin instead (https://plugins.gradle.org/plugin/com.dua3.javafxgradle7plugin) **AND** upgrade to Java 16.

Instructions

- You can use any operating system or environment for this laboratory assignment. If you are using **WSL2, you will run into issues** using JavaFX.
- We recommend that you use FXML for your solution, however, creating the UI programmatically is also acceptable. The usage of SceneBuilder is strongly discouraged.

You will create a new directory called `lab04`. Use the following steps to complete this lab:

1. Create a registration application, that asks the user for the following information:
    - Username (a string)
    - Password (a string)
    - Full name (a string)

- E-Mail address (a string)
- Phone number (a string, format: 000-000-0000)
- Date of birth (a date)

2. Organize the fields for this registration UI into a series of rows, each row having a label, the control most appropriate for that field
3. Include a button, 'Register', that when clicked will print all four fields' values to the console

***Note**: See figure 1 for an example of the final product. While the components are obligatory, feel free to improve the aesthetics.*

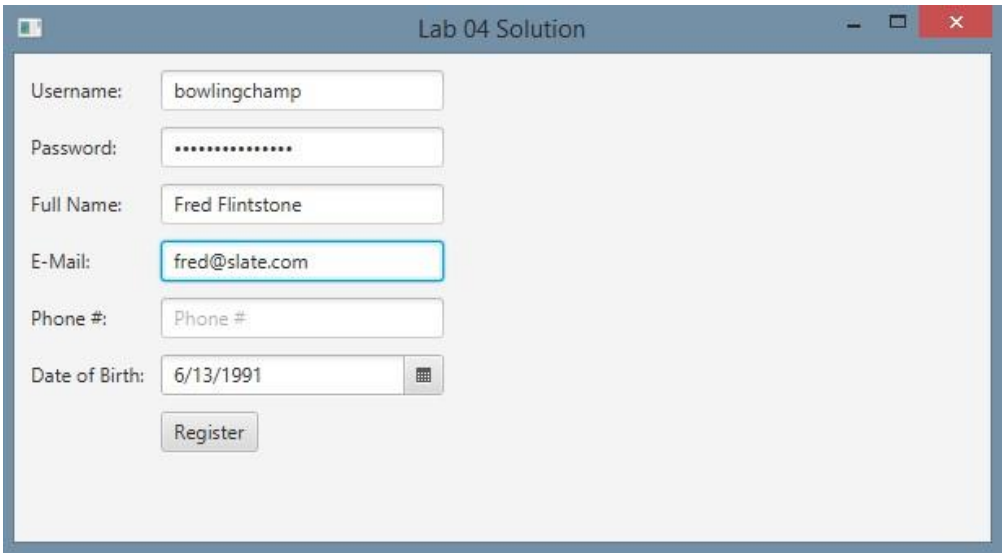

Figure 1: The running application, showing the registration form

Extra Challenge (Optional)

Try to figure out how to use the Apache Commons Validator, used in an earlier demonstration in the lectures, to validate the E-Mail address. Place an appropriate error message in the error message label, which is a new field to be placed to the right of the E-Mail text field, as shown in figure 2.

Note: If you are using IntelliJ Idea for this lab assignment and want to complete the extra challenge, you can easily add any library from the Maven Central repository. To do this, use the following steps:

1. Open up the Project Structure properties using `CTRL-ALT-SHIFT-S`
2. Click on `Libraries`
3. Click the + icon to add a new library
4. Select `From Maven`
5. Enter `commons-validator:commons-validator:1.4.1`, and click `Ok`

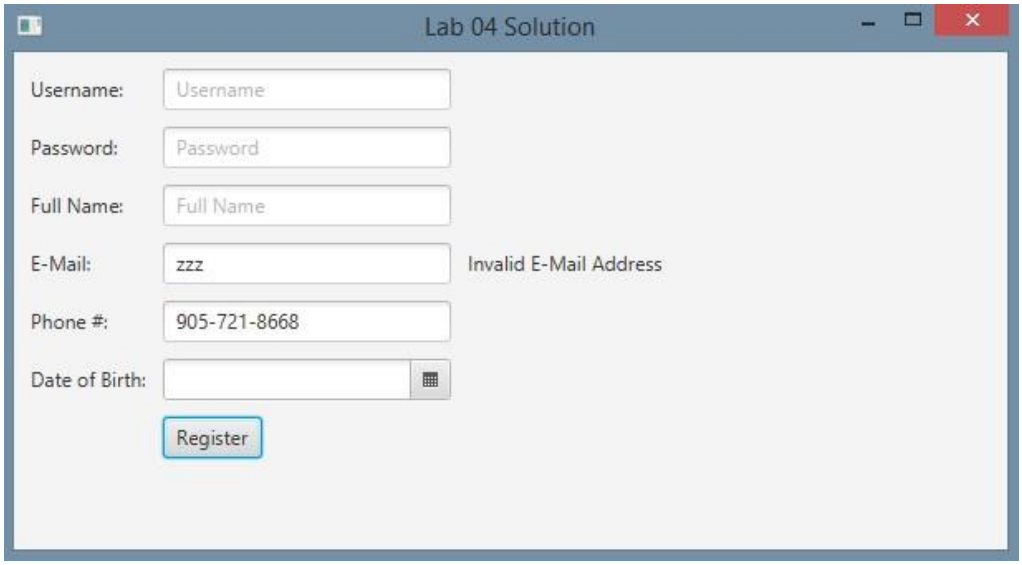

Figure 2: The application, showing a validation error message for the E-Mail address

How to Submit

In session *(Preferably)*

- Show your running application to the TA to prove that you have finished this lab.
    - This can happen by your sharing your screen to the TA or direct messaging them with screenshots.
    - If your TA is too busy while helping other students in-session, you may follow the "after lab hours" submission instructions below instead.

After lab hours *(1 week to submit - before your next lab session)*

In one PDF documents attach the following:

- Screenshot of your local directory "lab04" showing the appropriate .java/.fxml files.
- Screenshot of your running application (UI) including the expected output.
- Link of your GitHub repository (if it is a public repository) -- this contains your full source code.
    - Alternatively, attach your project as a `.zip` along with the PDF file.

The TA can provide oral feedback if you do not receive full marks for any lab assignment, but it is most appropriate to ask the TA for this feedback in a timely fashion (i.e. ask now, not at the end of the term).