CSCI 212: Lab Assignment 7

JavaFX Assignment: Multi-Form Student Information Application

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Purpose:

To create a multi-form JavaFX application that collects, processes, and saves student information. This assignment will enhance students' understanding of JavaFX layouts, controls, event handling, file handling, and the concept of navigating between different scenes.

Requirements:

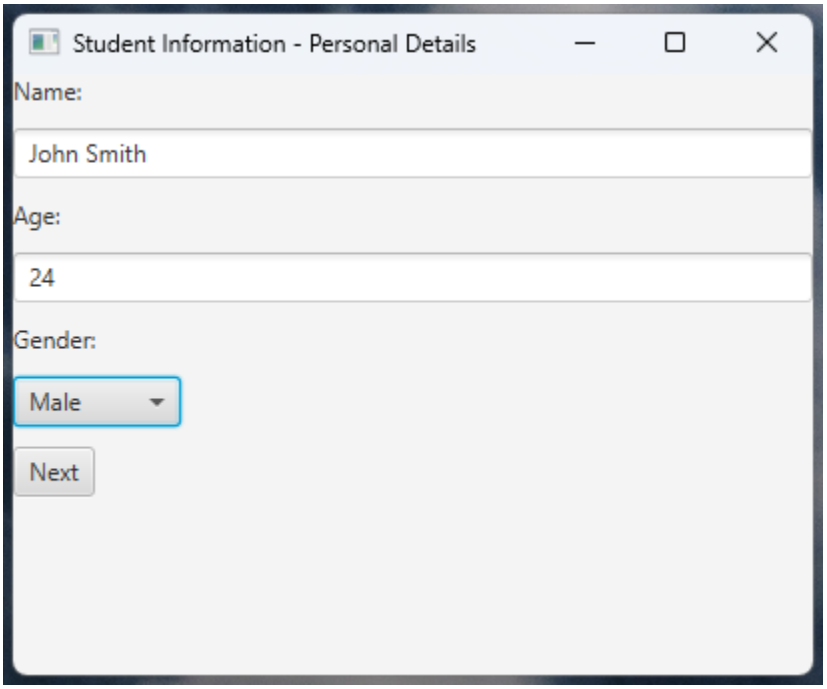
1. **Multi-Form Application**:
    - The application must have at least **two forms (scenes)**:
        - **Form 1**: Collect **personal details** such as:
            - Name (TextField)
            - Age (TextField)
            - Gender (ChoiceBox or ComboBox)
        - **Form 2**: Collect **school details** such as:
            - Grade Level (ComboBox with options like Freshman, Sophomore, Junior, Senior)
            - Major (TextField)
            - GPA (TextField)
2. **Navigation**:
    - Provide **Next** and **Back** buttons to navigate between forms.
3. **Save Information**:
    - Use a **FileChooser** to allow users to specify a file name and location where the collected data will be saved.
    - Save the information in the text file specified by the user.
4. **Validation**:
    - Validate user inputs for:
        - Non-empty fields (e.g., name, age, major).
        - Valid numeric entries for age and GPA.
5. **User Experience**:
    - Design an intuitive user interface using **layouts (VBox, HBox, Grid pane etc.)**.
    - Use appropriate controls (e.g., Label, TextField, ComboBox, Button).

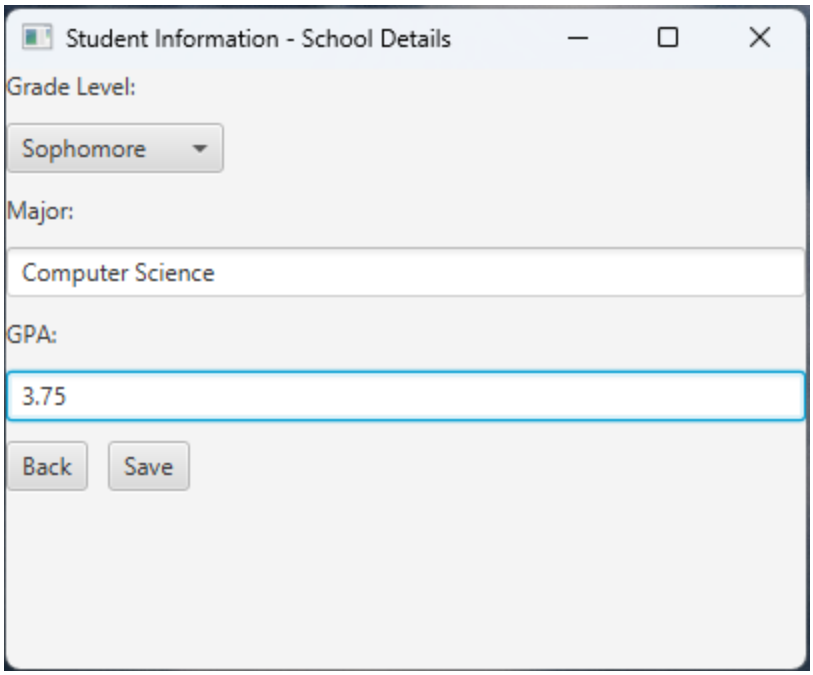
Instructions:

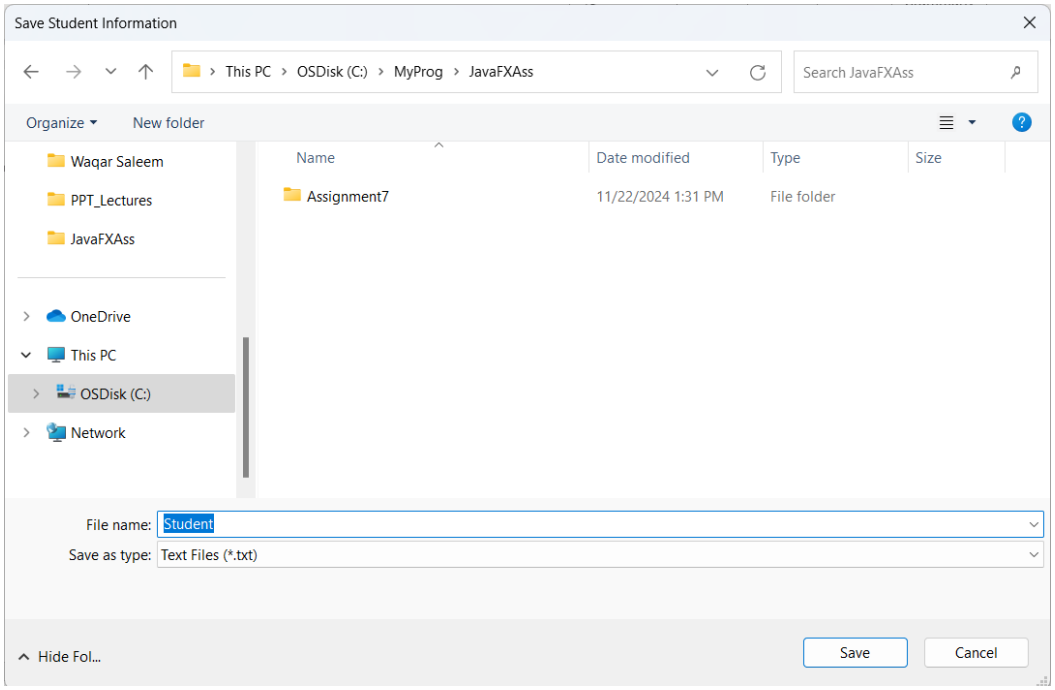
1. **Set Up**:
    - Start by creating a JavaFX project in your IDE (e.g., NetBeans or Eclipse).
    - Structure your project with separate classes for the main application, forms, and utility methods.
2. **Form Design**:
    - Use **SceneBuilder** or JavaFX code to design the forms.
    - Ensure each form has labels and input controls properly aligned.
3. **Data Handling**:
    - Store data temporarily in a **Student** class with attributes for all collected information.
    - Save the data to a file when the "Save" button is clicked.
4. **File Saving**:
    - Implement a **FileChooser** for file selection.
    - Write the collected data to the selected file.
5. **Deliverables**:
    - Submit the complete Java project as a ZIP file.
    - Include screenshots to show that the program performs all the functionalities.

Expected Output:

1. **User Interaction**:
    - The user fills out the forms, navigates between them, and saves the data to a file. The following screenshots show a typical run of the program:




Student Information - School Details
Grade Level:
Sophomore
Major:
Computer Science
GPA:
3.75
Back
Save


Save Student Information
This PC
OSDisk (C:)
MyProg
JavaFXAss
Search JavaFXAss
Organize
New folder
Waqar Saleem
PPT_Lectures
JavaFXAss
OneDrive
This PC
OSDisk (C:)
Network
Name
Date modified
Type
Size
Assignment7
11/22/2024 1:31 PM
File folder
File name:
Student
Save as type:
Text Files (*.txt)
Hide Fol...
Save
Cancel

- Output file: After completing the forms, the file content might look like:

```
Student Information:
--------------------
Name: John Doe
Age: 20
Gender: Male

School Details:
--------------------
Grade Level: Junior
Major: Computer Science
GPA: 3.85
```

2. **Error Handling**:
   - If invalid data is entered, show an error message using an **Alert** dialog.

Useful Resources:

1. **JavaFX Tutorials by Oracle**
2. **https://www.tutorialspoint.com/javafx/index.htm**
3. **https://www.tutorialspoint.com/javafx/javafx_filechooser.htm**
4. **Handling Events in JavaFX**