



Object-Oriented Analysis & Java

Lecture 6

Florentin Bekier



User interface



What is a user interface?

- Point of human-computer interaction and communication in a device
- Interaction with an application
- Can include display screens, keyboards, mouse, etc.
- Various types of user interfaces:
 - Graphical user interface (GUI)
 - Command line interface (CLI)
 - Touch user interface
 - Voice user interface (VUI)
 - ...



Examples of user interfaces



Mouse



Remote control



Virtual reality



Click wheel



Graphical user interface

- Windows
- Icons
- Buttons
- Menus
- ...

Graphical user interface (example)





JavaFX



Need for JavaFX

- Create client-side application with Java
- Includes:
 - Media
 - UI controls
 - Web
 - 2D and 3D
 - ...



History

- F3 project (Form Follows Functions) developed by See Beyond Technology Corporation
- June 2005: Sun Microsystems acquired the See Beyond company, F3 project becomes JavaFX
- 2007: JavaFX officially announced
- 2008: Java Standard Development Kit for JavaFX 1.0 released
- 2009: JavaFX 1.2
- 2010: JavaFX 1.3
- 2011: JavaFX 2.0
- 2014: JavaFX8 (latest version)



Features

- Written in Java
- Interface definition via FXML
- Scene Builder
- Built-in UI controls
- CSS-like styling
- Rich set of APIs (canvas, printing, 2D, 3D, etc.)



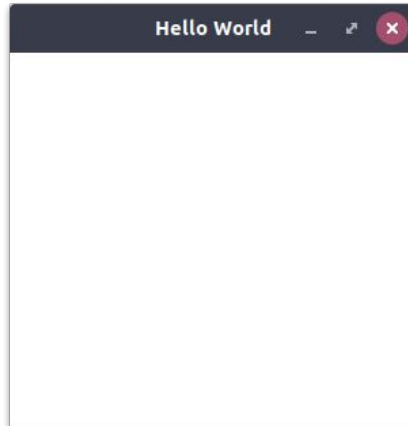
JavaFX application development with IntelliJ

- Make sure that the JavaFX plugin is enabled in IntelliJ (File > Settings > Plugins)
- Create a new JavaFX project (New > Project... > JavaFX)
- If you have an error when opening the Scene Builder for your FXML files (“Failed to open the file in the scene builder”), try updating IntelliJ (Help > Check for updates...)



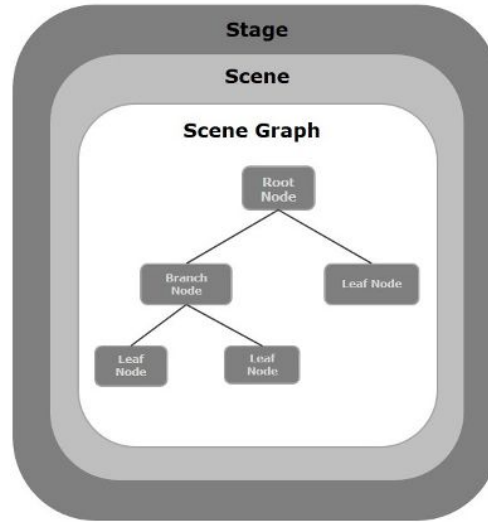
First project

- Try clicking on the “Run” button to launch your first program
- You should see a window like this:





Application structure





Stage

- A stage (a window) contains all the objects of a JavaFX application
- Represented by the class `Stage` of the package `javafx.stage`
- Primary stage created by the platform itself
 - The created stage object is passed as an argument to the `start()` method
- Method `show()` to display the content of a stage



Scene

- A scene represents the physical contents of a JavaFX application
- It contains all the contents of a scene graph
- Class Scene of the package `javafx.scene`
- Added to only one stage
- Creation: dimensions (height and width) and root node

```
new Scene(root, 300, 275)
```



Application class

- Entry point of the application
- You need to inherit this class and implement its abstract method `start()`
- In this method, you need to write the entire code for the JavaFX graphics
- In the main method, you have to launch the application using the `launch()` method



Sample code

```
public class Main extends Application {
    @Override
    public void start(Stage primaryStage) throws Exception {
        Parent root = FXMLLoader.load(getClass().getResource("sample.fxml"));
        primaryStage.setTitle("Hello World");
        primaryStage.setScene(new Scene(root, 300, 275));
        primaryStage.show();
    }

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