Supplemental Instructions for JavaFX on JDK 17 in NetBeans

Part 1: Download and Setup JavaFX Libraries for JDK 17

Overview

The JavaFX platform lets you create graphical user interface (GUI) driven applications for desktops, web browsers, and mobile devices. JavaFX libraries were originally included within the core Java SE platform until Java SE 11. The decision to decouple JavaFX from the core JDK allows the JavaFX libraries to be maintained by its passionate open source community. If you are using Oracle JDK11 or later, you must manually download and setup the JavaFX libraries to write JavaFX applications. Instructions to do so in this document are based on material from https://openjfx.io/openjfx-docs/.

Tasks

1. Navigate to the JavaFX Product page: https://gluonhq.com/products/javafx/

2. Scroll down the page and download the software development kit (SDK) zip for your operating system

3. Inside this zip you'll see a folder such as **javafx-sdk-17.0.1**

4. Extract and add this folder to a known location.

5. Your system will refer to this location each time it needs JavaFX
    a. Example for Windows:
        i. Extract to the folder **C:\Program Files\Java**

6. Add an environment variable that points to the JavaFX runtime lib directory:
    a. Example for Windows:
        i. Press the Start button
        ii. Type **cmd,** and then press **enter** to open a **Command Prompt**
        iii. Type the following and press **enter**:

    ```
    set PATH_TO_FX="C:\Program Files\Java\javafx-sdk-17.0.1\lib"
    ```
    b. For Linux and Mac:
        i. Open a terminal
        ii. Type the following and press **enter.** Of course, replace **path/to** with the relevant directory:

    ```
    export PATH_TO_FX=path/to/javafx-sdk-17.0.1/lib
    ```

7. Add the libraries to NetBeans
   a. In NetBeans, navigate to **Tools > Libraries**
   b. Click **New Library...**
   c. Name the library **JavaFX17** and click **OK**
   d. Click **Add JAR/Folder…**
   e. Navigate to the `lib` folder, select the eight JAR files, and click **Add JAR/Folder**
   f. Click **OK**
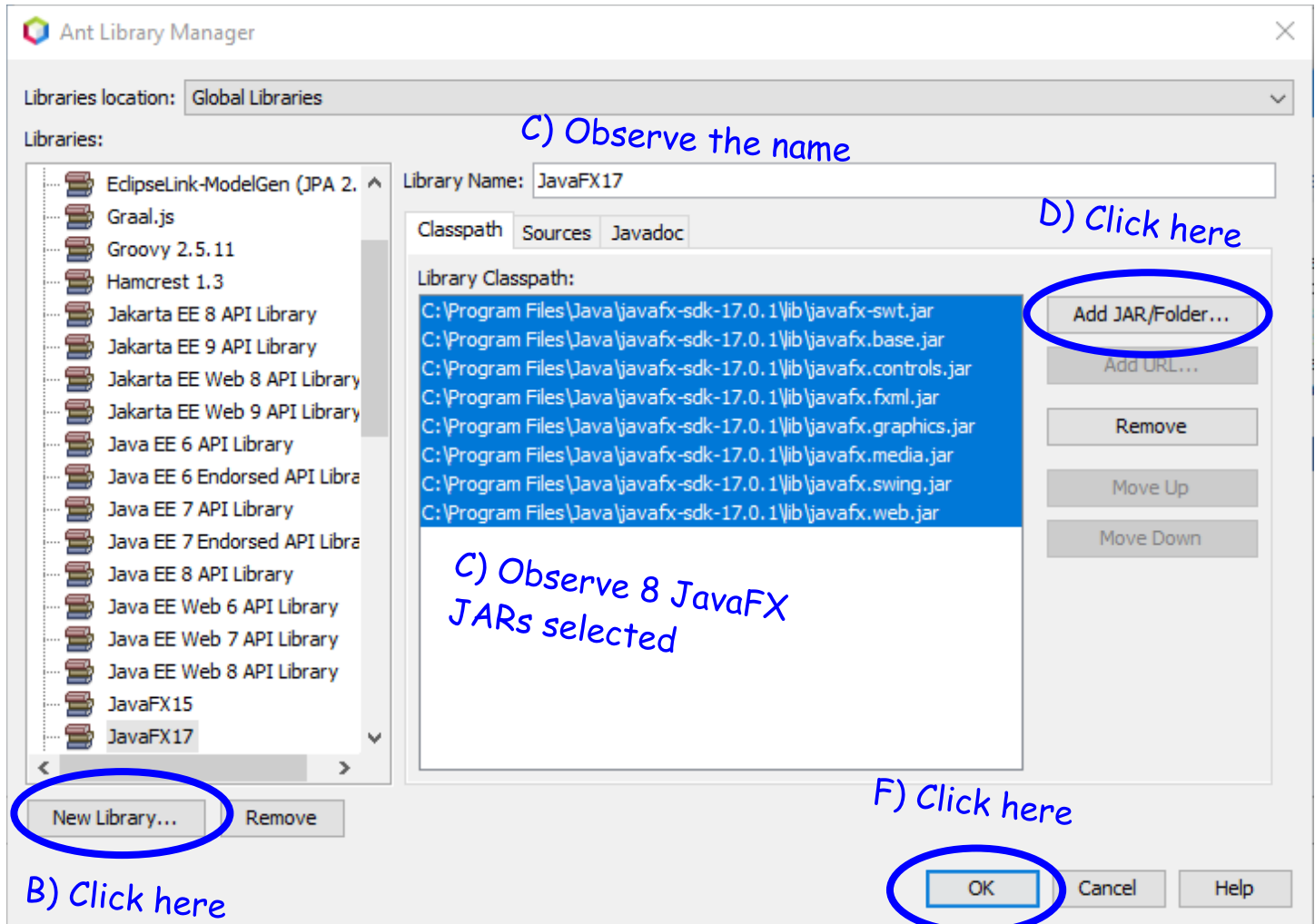
## Part 2: Create a New JavaFX Project in NetBeans

Overview

To date, NetBeans 12.5 has trouble generating new JavaFX projects. However, there is a simple workaround, which involves creating and modifying a new regular Java project.

Leading up to JDK 9, Java underwent a process of modularization. Modularization is what allowed for the decoupling of JavaFX libraries from the core JDK. Your programs can also be constructed as modules. Modularization however is not covered in this course. These instructions will show you how to create a non-modular Java FX project.

Please note that the following Tasks are required for each JavaFX project

Tasks
1. Ensure that you've completed Part 1

2. Launch NetBeans

3. Go to **File>New Project** and select the following:
   a. Categories: **Java with Ant**
   b. Projects: **Java Application**

4. Click **Next**

5. Name the project, un-check to create a main class, and click **Finish**

6. Add the supplied **JavaFXMain.java** file (drag and drop) to the project package (ignore any errors at this point)

7. Right click on the project and select **Properties**

8. Select **Libraries** from the left pane of the Project Properties window

9. Click the **+** button for Classpath

10. Select **Add Library**

11. Select **JavaFX17**, which you created in Part 1, and click **Add Library**
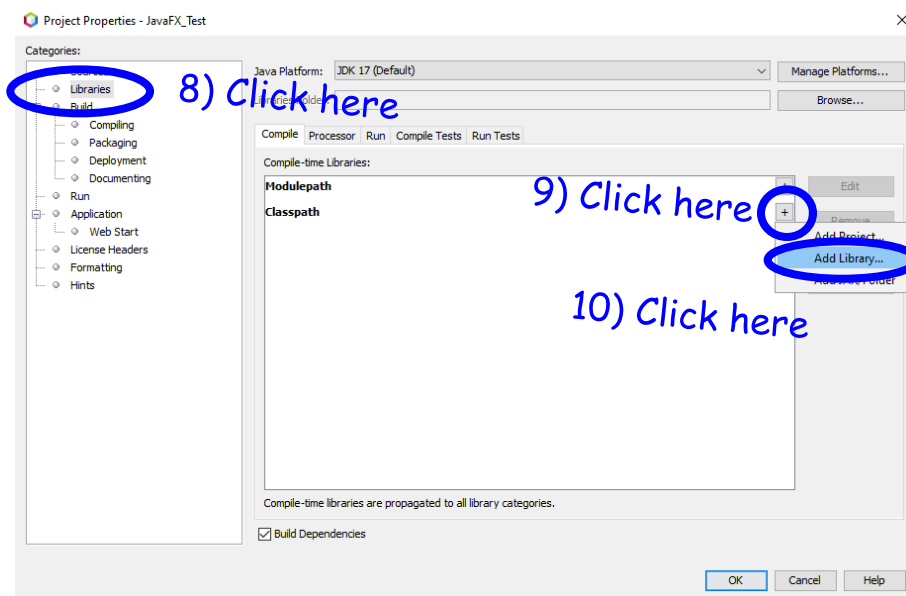
12. Select **Run** from the left pane of the Project Properties window

13. Enter the **text below** into the VM Arguments window:
    (Assuming you've added the JavaFX SDK to the location specified in Part 1)

    a. This helps provide access to the relevant JavaFX modules
    b. You may need to add more if your projects grow more complex and make use of other aspects of JavaFX
    c. Update highlighted text below as necessary to match your sdk version

    ```
    --module-path "C:\Program Files\Java\javafx-sdk-17.0.1\lib" --add-modules
                    javafx.media,javafx.controls,javafx.fxml
    ```

14. As your JavaFX programs grow more complicated, you may need to include other modules for the additional functionality. JavaFX modules include:
    i.   javafx.base
    ii.   javafx.control
    iii. javafx.fxml
    iv.   javafx.graphics
    v.   javafx.media
    vi.   javafx.swing
    vii. javafx.web

15. Click **OK**
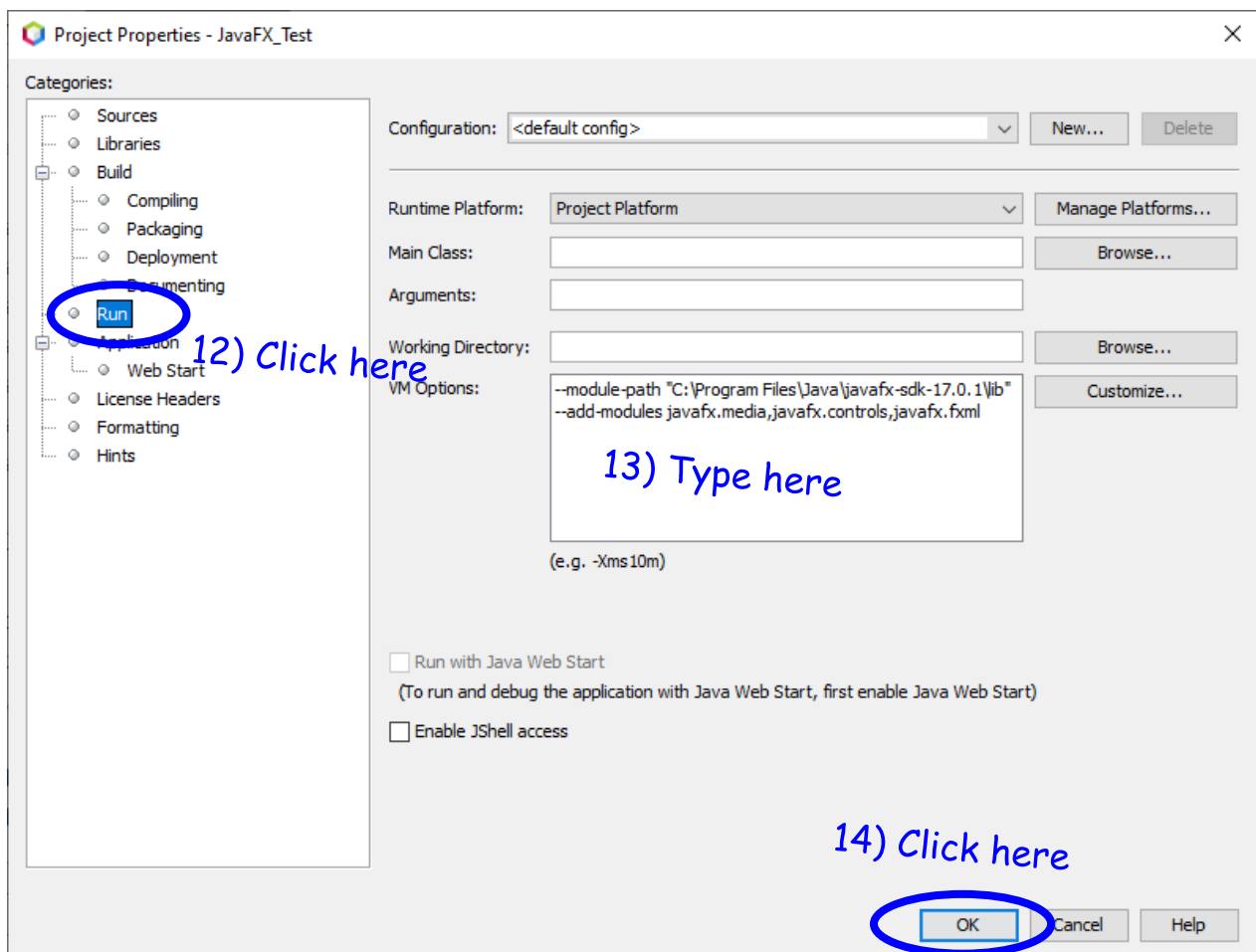
If you get an error similar to the following:

```
Error occurred during initialization of boot layer
java.lang.module.FindException: Module javafx.controls not found
```

Right click on the project, select **Properties**> **Build> Compiling** and **un-check Compile on Save,** and then run again