JavaFX HBox & Accordion

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CSD402-A339: Java for Programmers

Updated M11 Assignment

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March 9, 2025

Java is a popular programming language that includes a broad range of capabilities that allow for an expansive developing experience. The full range of its abilities and compatible integration with other programming languages help create rich, immersive user interfaces. An extension of Java is JavaFX. JavaFX is “a platform for GUI programming” for developers that make GUI applications (Liang, 2019/2025, sect 14.2). These applications can be programmed to be functional for “touch-enabled devices, animation support, video, and audio playback, can run on an application or web browser” and are easier to learn for beginners in Java programming (Liang, 2019/2025, sect 14.2). Within JavaFX, the HBox and Accordion are components that prove to be helpful tools.

JavaFX proves to be a handy toolkit to utilize when programming and seeking a polished feel and look. It is a versatile and powerful platform that can run on multiple operating systems. JavaFX was created to replace the previous GUI platforms, Java Swing and Advanced Windowing Tool Kit (GeeksForGeeks, 2021). Since JavaFX is a replacement for Swing and AWT, it inherited the same perks available through those preceding platforms. Since JavaFX is an extension of Java, it has access to all Java libraries that can be implemented, and any “Java editors or IDE’s” can be used “to write, compile, run, debug, and package their JavaFX application (GeeksForGeeks, 2021, sect. Features of JavaFX). JavaFX can be paired with the markup language FXML, which is how the Scene Builder tool can be reached (GeeksForGeeks, 2021). Scene Builder within JavaFX literally sets a scene for a program. According to Oracle (2020), Scene Builder in JavaFX “is a visual layout tool that lets users quickly design JavaFX application user interfaces without coding.

In JavaFX, panes, groups, UI controls, and shapes are all considered subtypes of Node (Liang, 2019/2025, sect 14.4). According to Liang (2019/2025), “a node is a visual component such as a shape, an image view, a UI control, a group, or a pane” (sect. 14.4). A control, group, or a pane can house a scene (Liang, 2019/2025, sect 14.4). The pane in JavaFX helps group and organize other nodes (Liang, 2019/2025, sect 14.4).

Using a node inside a pane and then into a scene is a way to adjust the layout of the pane’s visual component or other contents. In JavaFX, a shape not only refers to a circle, ellipse, rectangle, arc, or polygon but also to things like text, line, and polyline (Liang, 2019/2025, sect 14.4). According to Liang (2019/2025), “UI control refers to a label, button, check box, radio button, text field, text area, and so on” (sect 14.4). A group in JavaFX refers to “a container that groups a collection of nodes” (Liang, 2019/2025, sect 14.4). The groups allow for transformations or effects to be applied that also extend to the children group (Liang, 2019/2025, sect 14.4).

One feature of JavaFX is the HBox class. The HBox class is an extension of the Pane class (GeeksforGeeks, 2018). It is used to help create a layout. According to GeeksforGeeks (2021), to use the HBox layout, the class needs to be called using “Hbox root = new HBox();.” Properties should be set to further adjust the layout with the HBox (GeeksforGeeks, 2021). In JavaFX, the HBox class makes it so the children in a pane are aligned in horizontal columns (GeeksforGeeks, 2018). This is done by using a constructor class of HBox() or HBox(doubles) (GeeksforGeeks, 2018). Other methods can be called with HBox, like “getAlignment(), getSpacing(), setAlignment(Pos value), and getChildren()” (GeeksforGeeks, 2018). The HBox can be used in addition to the Vbox and other methods. The HBox1 example code accurately displays the HBox in action. It allows the buttons in the children’s nodes to be placed in the desired layout.

Another feature of JavaFX is the accordion. According to Tutorials Point (2024), an accordion in JavaFX is a “container for one or more title panels.” There can be multiple title panels, but only one can be opened at a time (GeeksforGeeks, 2018). To use an accordion, start by creating an accordion class. According to Oracle (2020), the “TitledPane content in an accordion can be any Node such as UI controls or groups of nodes added to a layout container.” To prevent format issues within an Accordion, it is best to avoid setting MinHeight, PrefHeight, or MaxHeight (Oracle, 2020). In the Accordion1 example, three TitledPanes are included to display a JavaFX Accordion.

The JavaFX framework is well-versed in providing visual stimuli to users. Thanks to JavaFX's wide range of features, programming can become a better environment for users and developers alike. These components are designed for improved interaction with its users. Components like HBox and Accordion are useful for maximizing some of JavaFX’s wide-ranging potential.

**References**

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