**Question #1**

Within Java, the original GUI toolkit was the Abstract Window Toolkit (AWT), which supplied a common interface to the GUI components already present within different operating systems (Eck, 2014). When it first started, it utilized a very simple event model where listener objects were not necessary, but that model was deserted swiftly for the use of listeners in Java 1.1 (Eck, 2014).

When Java was first made known, one of the more significant applications used were applets (Eck, 2014). Applets are GUI programs that are ran on a web page within a web browser (Eck, 2014).

After some time, the Swing GUI toolkit was made known in Java 1.2, where it was introduced as an upgraded replacement to the AWT (Eck, 2014). The Swing GUI toolkit contained a very large assortment of advanced components and a much more rational structure (Eck, 2014). While Swing does utilize some features of AWT, most of its components were actually written in Java instead of being derived from operating system components (Eck, 2014). Swing has now been the established toolkit used to write GUI programs in the Java Programming Language for quite some time now (Eck, 2014).

In more recent years, an additional GUI toolkit has emerged and became known: JavaFX (Eck, 2014). JavaFX utilizes multiple core ideas that are the same as Swing, which include components, layout and events (Eck, 2014). However, JavaFX uses a distinct structure for the applications it is used in, and a separate set of classes (Eck, 2014). For Java 8, it is the favorable approach to creating different GUI applications (Eck, 2014). While JavaFX is compatible with Swing and is able to utilize Swing components, Swing is still widely endorsed within Java, and the same goes for AWT (Eck, 2014).

One technology that can be used in a GUI are text boxes. A text box is represented by a rectangle shape and is utilized to define fields for data entry and display (W3computing, n.d.). When creating a text box, you must be sure that you make the text box big enough to fit all of the characters that are going to be entered in it (W3computing, n.d.). Another thing you must be sure to do when creating a text box is to put a caption to the left of the text box, as this will distinguish what will be entered or displayed in the text box (W3computing, n.d.).

Another technology that can be used in a GUI are text areas, similar to the text box. A text area is utilized for entering in an amount of text that is going to be larger (such as a paragraph) (W3computing, n.d.). Some features of the text area include a certain number of rows, columns, and scroll bars (W3computing, n.d.). These features will allow the user to examine and enter text that may be out of view due to the size of the text area (W3computing, n.d.).

Yet another technology that can be used in a GUI are buttons. A button is represented by a circle shape and is utilized to allow you to make a choice about something or perform an action (Indeed Editorial Team, 2021). A couple examples of buttons are radio buttons, which usually occur in groups but only one can be selected at a time, and label buttons, which are simply buttons that display text on them (Indeed Editorial Team, 2021).

# References

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