**History of GUI In Java**

Graphical User Interface also known as GUI, is a program’s graphical user interface that is a visual display that a user can visually see. There are graphical components such as buttons and windows, that the user can interact, or not, in any given application or page. Elements that comprise a GUI can include, but not limited to, input controls, informational elements, and navigational elements. The specifics would include buttons, menus, banners, icons, notifications, and text boxes. (Leahy, 2019)

Abstract Window Toolkit (AWT) was Java’s first GUI library but, Swing is what Java uses currently since Java SE 1.2. Java’s GUI is JavaFX which was first introduced in 2007 and JavaFX 1.0 was released a year later in 2008. Before JavaFX 2.0 was released, JavaScript, which is close to JavaScript, to write JavaFX apps. (Deitel & Deitel, 2021) If you are getting introduced to Java, learning JavaFX is more beneficial than learning Swing, however, it is not frowned upon to learn. (Leahy, 2019)

Java’s GUI design and usability makes you think about not only the tools you need to use to create the GUI, but also including how the user would be able to interact with the specific application. An example of this would be trying to see what the user would want and how they would be able to navigate the application in an effortless way and not a stressful way. If you know what users use daily such as social media and use that to your advantage to create the GUI. There are issues that can occur such as the amount of power used for a specific behavior of that application when interacted, errors that could come up, and aesthetics of the application. (Leahy, 2019)

Moving onto technologies that can be used to create GUI’s, React is the number one JavaScript library that is used for user interfaces. It helps create a simple view for each part of the application. Since the views are declarative, it helps make the code more predictable which helps with debugging if needs be to see if the application is smooth. Starting off, you can build components that are encapsulated to help them turn into complex user interfaces. There is a render() method that takes input data and returns what is to be displayed. A component can maintain the internal state data so, when a component’s state data changes, the markup will be updated by issuing the render() command. By using a props and state command, this is how a To-Do application is formed. What is interesting is that with React, it allows you to interact with other libraries and frameworks. ("React- A JavaScript library for building user interfaces", 2021)

Another technology that is used to create a GUI is Flutter. Flutter is made by Google to build aesthetically pleasing and natively complied applications all throughout all forms of devices such as mobile, web, desktop, and embedded devices. There is fast development with the easy-to-build native interfaces with fully customizable widgets. Due to its layered architecture, Flutter allows one to have full customization which creates unique and flexible designs to create and choose from. The widgets include all the necessary and crucial platform differences seen with icons, fonts, etc. ("Beautiful Native Apps In Record Time", 2021)

Concluding this report, we can see how JavaScript is widely used in applications to create GUI’s. Most technologies are very versatile to adhere to all platforms that users would use for specific applications. Examples could include social media, like Facebook, Instagram, and Snapchat. All platforms are accessible on any mobile device and desktop which shows the versatility of the GUI for the applications. This allows users to access their data at ease and whenever and wherever they want to. JavaScript is flexible when converting code from other libraries to implement in the code to have successful runs. It is a very versatile library that many use all over the world. This research taught me a lot of what goes into the GUI in the Java programming language.

Works Cited

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