Dream JOB - Software Engineer, Mobile Applications at Google, Singapore

Qualification

- Experience working with specialist domains such as: Embedded/device systems, mobile optimized websites, mobile web browsers and third-party libraries for iOS/Android.
- Knowledge of iOS/Android UI frameworks, MVP application design and complex, and reactive touch based UI.
- Technical knowledge in mobile application development (Android and/or iOS).
- Knowledge of Android UI frameworks, MVP application design and complex, reactive touch based UI mobile optimized websites, mobile web browsers, client application development for Windows/Mac (Chrome, WebKit, etc.), and third party libraries for Android.

Ques) **What's your favourite tool or library for Android? Why is it so useful?**

Ans) My favourite library for Android is **AndroidViewAnimations.** Animations implemented properly can make the user experience more enjoyable and intuitive, for ex: shake animation on entering wrong details, the user intuitively knows he has made a mistake without needing explicit red markers.

AndroidViewAnimations has a good set of out of the box animations that are quite easy to implement. All we need to do is add the dependency and in the implementation specify the animation, object to be animated and duration of animation.

```
ex : YoYo.with(Techniques.Shake)
                .duration(500)
                .playOn(findViewById(R.id.passwordField));
```

Ques) **You want to open a map app from an app that you're building. The address, city, state, and ZIP code are provided by the user. What steps are involved in sending that data to a map app?**

Ans) This can be done in two ways - Using Map URLs and Using Google Map Intents. Using **Map Urls** is an easier and recommended way of doing it. This is a cross platform solution as whenever implemented, if the Google Maps app is available on the device, it will be launched otherwise the map will be opened in the browser. It works similarly for both Android and IOS. Google Maps can be launched using urls in 4 ways :

1. If we search a specific place map will load with a pin on the location.
2. Load map with directions between two places.
3. Load a simple map of location with no marker or directions
4. Load the street view panorama

For our case the first one would work best. We build a proper url out of the parameters - City+State+Zipcode and feed it to maps url :
https://www.google.com/maps/search/?api=1&query=City+State+Zipcode

Ques) **Implement a method to perform basic string compression using the counts of repeated characters. For example, the string aabccccccaaa would become a2b1c5a3. If the "compressed" string would not become smaller than the original string, your method should return the original string. The method signature is: "public static String compress(String input)" You must write all code in proper Java, and please include import statements for any libraries you use.**

Ans)
```
public class SCompression {

    private static String compress(String str) {

     if (str == null) {

            return null;

    } else if (str.length() <= 2) {

            return str;

     }


    StringBuilder sb = new StringBuilder();
    char t = str.charAt(0);
    int count = 1;
    for (int i = 1; i < str.length(); i++) {
            if (t == str.charAt(i)) {
                    count++;
            }
            else {
                    sb.append(t);
                    sb.append(count);
                    t = str.charAt(i);
                    count = 1;
                    if (sb.length() >= str.length()) {
                            return str;
                     }
             }
```

```
            }
        sb.append(t).append(count);

        if (sb.length() >= str.length()) {
                return str;
        } else {
                return sb.toString();
            }
}

public static void main(String z[]){
        System.out.println(compress("aabccccccaaa"));
}

}
```

Ques) **List and explain the differences between four different options you have for saving data while making an Android app. Pick one, and explain (without code) how you would implement it.**

Ans**)** The four ways of saving data are:

1. Internal file storage
2. External File Storage / Online / Api
3. Shared Preferences
4. Databases - SQLite

Advantage of saving a file to internal storage is that the files will be private to our app and no other app including the user can access them. When the user uninstalls the app the files will also be removed. If we do not want to persist the data we can use the cache directory instead. Each app has a private cache and this can be purged by Android if the device is running low on internal storage. These files are also automatically removed when the app is uninstalled. To save a file we follow the below steps:

1. Get the directory - getFilesDir()
2. Create a new file in the directory

Ques) **What are your thoughts about Fragments? Do you like or hate them? Why?**

Ans) I like Fragments. Fragments are essentially a modular section of the activity, we can have multiple independent activities (or sub-activities) within one activity and we can decide when to display them at runtime as fragments define their own layout. If fragments are written completely independent to each other then they can easily be reused by multiple activities and we can also modify the modify the activity's appearance. Although fragments depend on the activity lifecycle, if the activity is in running state each fragment has it's own lifecycle, so we can easily add or remove features. We can also add each interaction with the Fragment to a back stack maintained by the activity so that we can easily reverse the action if required ex: User pressing back button. Hence I feel fragments definitely make add features easier and robust.

Ques) **If you were to start your Android position today, what would be your goals a year from now?**

Ans) I am quite interested in Augmented Reality and I feel the apps that can give a 3D experience will be popular in future. If given an android position today, my goal will be familiarise myself not only with building Android Apps but also to understand the product and see how I can combine the AR aspect with the android app to deliver a better user experience.