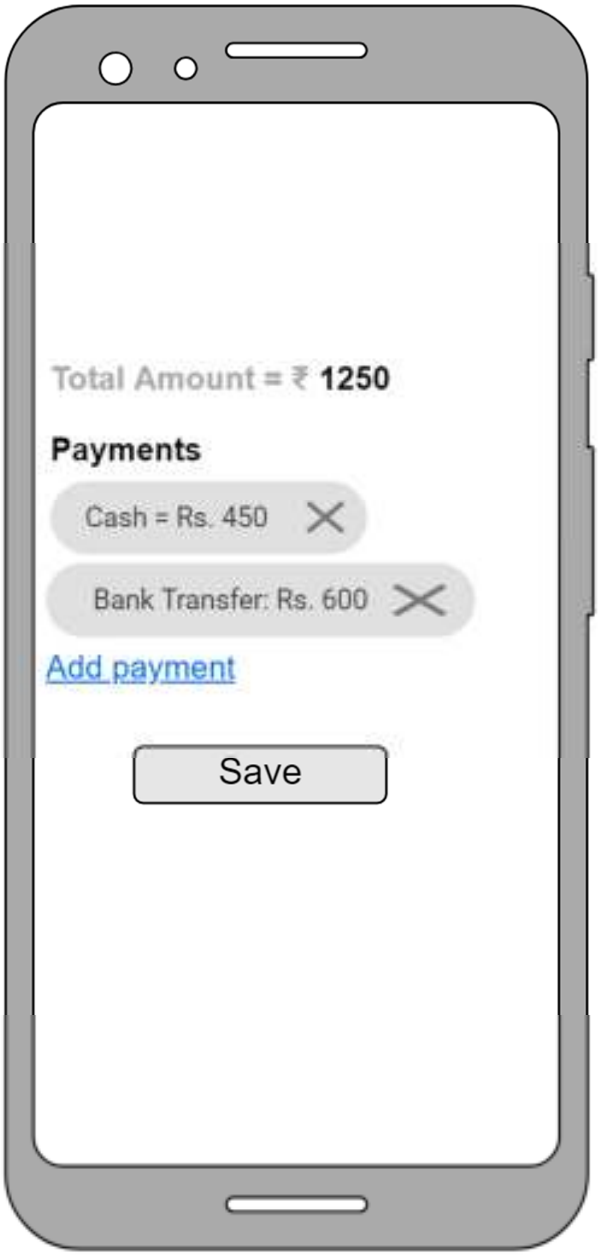
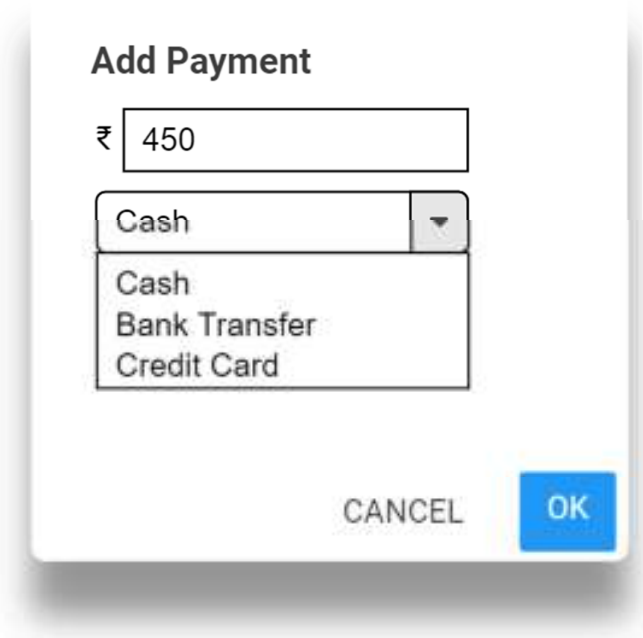
MeraBills.com: Question 2

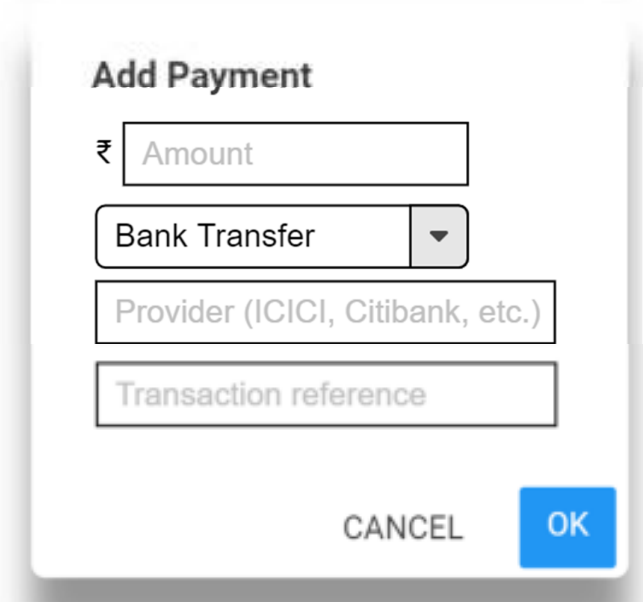
The goal is to create a simple Android (Java) application that takes details of multiple payments from the user and saves the details to a file.

The following are some general requirements for the application that you create:

- Do not use React or any frameworks – use just the Android SDK and the JDK[1].
- Do not use *any* external libraries (like Butterknife, for example). Gson is the only exception.
- The application should run on an Android device running SDK version 21 (Lollipop)
- The application should build using Android Studio







[1] Yes, we know that Kotlin is better, but our product is mainly written in Java, so please use only Java for this question.

Main activity

As soon as the application launches, the main activity should be displayed. This activity allows the user to enter details payment made to someone, as shown above.

The user should be able to click the 'Add payment' link and add details of the payment (show above) in the dialog box that pops up.

Up to three different types of payment (cash, bank transfer or credit card) can be added by the user. **Each type of payment can be added only once** (for example, the user cannot add two cash payments).

The total amount should be updated whenever a payment is added or removed[2]. The total amount cannot be edited. A payment can be removed by pressing on the 'x' button next to the chip that shows the payment).

Each added payment is displayed in the main activity a delete-able chip – a chip is a standard Android Material Design view class.

Saving the entered data

Once the user clicks 'Save', write all the entered details (the different payment types, amounts, provider and transaction reference, if any) to a text file called 'LastPayment.txt'. Save the data in JSON format.

When the application starts again, **the activity should load the payment details back from the file (if it exists)**, and the application should behave exactly as it would have at the time the details were saved.

Add Payment dialog

This dialog allows the user to add a payment.

This dialog must only display in the spinner the types of payments that have not already been added before – so, if the user has already added a Cash payment, only Bank Transfer and Credit Card must be shown in the spinner.

If Bank Transfer or Credit Card payment is chosen, two additional edit boxes shown above are displayed, where the user can enter more details of the payment. **These details must also be saved in the file when the 'Save' button is pressed.**

What we are looking for

We are looking for code that:

1. Is bug free – test the application thoroughly for boundary conditions, Android lifecycle events, etc.
2. Is well-designed and modular – create the right classes and abstractions. Avoid copy / pasting code
3. Is maintainable, readable and efficient / performant – we want to see that you are aware of good programming practices, and understand the CPU / memory / bandwidth implications of the code that you write
4. Demonstrates a deep understanding of Android programming
5. Uses SOLID design principles where applicable (see https://en.wikipedia.org/wiki/SOLID)

Write the type of code that you would write in a production app that will be shipped to customers. We are mainly looking for your ability to write production-quality code, so please do not write loose code thinking it is just a test.

Please send us your Android Studio project with the source code (as a zip file over email, shared via Google Drive, as a GitHub repo, etc.).

[2] The total amount shown in the image is wrong – it should read Rs. 1050, not Rs. 1250 😊