Mifos X Android Field Operations App

Our Mifos X Android client puts the full power of the Mifos X platform in the hands of field officers when they travel out to rural locations to meet their customers. By having access to their data via a smartphone or tablet on or offline, field officers can be more efficient by reducing paperwork and data entry and be more effective by providing richer and more timely information. Currently our app has all the basic functionalities for viewing client details online as well as inputting basic financial transactions. We are continuing to add more offline capabilities as well as the ability to capture additional client information like surveys and other data. Some advanced features our customers would like to have developed center around capabilities native to the smartphone like the camera, GPS, etc:

For all of these features, design and optimization of the user workflow in addition to the actual development is required. More detail will be provided on the actual use cases.

- **Offline Functionality -** Many of the financial service providers using Mifos X operate in rural areas where connectivity is still quite poor. As the cost of smartphones and tablets continues to drop, these devices become a very effective tool for rural outreach if they can capture data while offline. Our current Android Field Operations App contains limited offline functionality that was implemented as a proof of concept. We need Android engineers to extend the offline functionality so that it supports downloading data and storing it locally in an encrypted format, supporting data entry while offline, and synchronization when connectivity has returned. The functionalities need to be supported include: client creation, client data entry, loan account creation, transaction entry (both individual and via bulk collection sheet).
- **General Optimization of Design:** If a team of designers is available, a valuable task would to be look at the entire application end to end and suggest and implement any usability/design improvements or beautifications. The Android X app was built based off some initial designers from our designer along with some inputs from another Android engineer to take advantage of Android UI best practices. Having a team of experience Android designers polishing and optimizing the UI would be helpful for our users.
    - Implementation of Material Design
- **Optimization of UI for Tablet Devices**
- **Generate SMS Receipts** - we've recently built out a service for sending event-based SMS messages to clients from Mifos X. This feature would allow a field officer to generate SMS receipts from the mobile app as collections are made.
    - **Design**: element is simple, merely checkbox or an additional button to generate SMS receipt after a transaction has been made - will display a confirmation screen.

- **To-Do List**: Nothing on back-end to support this just yet.
    - Could have data be on a per-phone basis.
    - Data on phone would be created from data from server but nothing would get synced back to server until we have back-end capabilities there.
    - API will bring down meetings, collection sheets, etc.

- **Location-Based Functionality**
    - **Plot Map from Office to Center Meeting (nearly complete)**: Center/Group meetings are sometimes in hard to find locations. When a new field officer comes on, it's

necessary to know where that meeting is. This functionality would allow the organization to record the route from the office to the center meeting. (in-progress)
        - Previous GoogleServe team has done most of the work to capture this map but we still need to be able to store it back in the platform.
        - **Design**: For this and the other tasks that require mapping and tracking of GPS coordinates, it would be beneficial to have design input on how to most elegantly integrate Google Maps into the Mifos X Android app
            - For plotting of the map, the user would need to be able to easily from Mifos X Android app, initiate the recording of his journey and track that route as he/she proceeds to the center meeting. Upon arrival at destination, he/she would stop the tracking and save the route followed. This route followed would then need to be displayed in the future for this and subsequent users so they can follow the route to their meeting.
    - **Pinpoint actual GPS location of client residence:** Often a client might not have a residence that is easy to locate. For identity and security purposes as well, it's valuable to know the actual location of a client's residence. This functionality requires pinpointing and storing the GPS coordinates for a client's residence and storing these back in the platform on the client record
        - Previous GoogleServe team has done most of the work to capture these coordinates but we still need to be able to store it back in the platform either in the core client or additional data tables.
        - **Design:** For this feature it would require the user to request to pin the location of the client's residence when they're physically at the location. It would display the pin on the map and record coordinates. This would then be stored in the client record and accessible from both the android app and community app.
    - **Track Daily Route of Field Officer (nearly complete)**- to minimize fraud and ensure a field officer is visiting all their clients and attending all their group/center meetings, MFI management have a need to track using GPS the actual activities and route of a field officer throughout the day. At the start of their shifts, the app would record the GPS coordinates of the field officer as they go about their scheduled meetings and automatically upload this back to the platform so the route could be plotted and viewed on a map.
        - **Design:** For this feature, the Mifos X Android app should automatically start tracking the location of the user whenever they're using the device. The user shouldn't be able to turn off the tracking but they should be able to add waypoints or markers on the route to note specific activities/meetings, etc. After their route of meetings is complete, it should be automatically saved and pushed to the platform for management to view their route. Ideally management could see their route in real-time if that was possible
    - **Track exact location of collection sheet or transaction capture**

- **SUSU Collection Features** - SUSU accounts are a common way for individuals to securely save on a regular basis in Ghana and other countries in Africa and the Caribbean. It involves a SUSU collector who visits each client on a daily basis and collects their deposit for their account. There are a number of features we must build into the Mifos X Android App to make it the primary device used by a SUSU collector in the field. These include:

    - **Collection Sheet for Savings (on and off-line)**: the collection sheet in Mifos X and Android app is a module for recording in bulk all the loan repayments from an entire group or center. This functionality would be extended to support the collection of savings deposits and need to be accessible offline as a SUSU collector will often not have a data connection in the rural areas he/she is visiting. They will download their collection sheet at the beginning of the day, record all their deposits and sync up their data at the end of the day.
    - Design: This feature could also benefit from some dedicated design input as the collection sheet is one of the important modules in the Android app and needs to efficiently use screenspace since so much data is being presented at one time - it must also have an intuitive navigation and workflow so that the user can rapidly proceed through the bulk entry of transactions. For this project, we'd like the team of designers to look at how we have currently designed and implemented the collection sheet and significantly revamp to make it cleaner and more streamlined. The current collection sheet only displays loan repayments so this new design would also accommodate saving deposits, fees, and possible attendance.
- **Print Receipts on a thermal printer attached to the Android phone**
- **Capture fingerprint of the customer and upload it to the customer record**
    - During loan disbursements or savings withdrawals - use a reliable library to authenticate customer's fingerprint (live) against this captured fingerprint (on record)
- **Build out Testing via Espresso**