Department of Computer Science and Engineering

Customer Relationship Management
A small scale application in Android Mobile Device

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ABSTRACT

- **Customer Relationship Management** (**CRM**) is a concept of Marketing Strategy followed by any manufacturing industry or Retail Chains.

- Cement Industry market is highly competitive due to lot of players in this industry. Conceiving area wise sales plan / strategy is highly challenging as it demands a foresightedness, clear vision and also a constant vigil on the market behavior.

- In order to sustain in the business, normally every cement industry will try to meet the competition by deploying new ideas which facilitate the front end Sales Force Team to dominate their target consumers and make them their brand stickers.

- In this project, typically, CRM (in a small scale) of a Cement Industry is dealt.

KEY CHALLENGES

- ❑ Different Operating Systems in Android Devices.

- ❑ Configuration differences in deploying the application in Android and Apple devices.

- ❑ Educating the field officers in handling the devices for using the application.

- ❑ Heterogeneous Network Services being used in Android Mobile devices.

- ❑ This setup works only with a local-host url under the same wifi network. (Homogeneous Network).

- ❑ For making it work under a heterogeneous Network, cost is involved in buying either a public IP from the existing network provider or hosting the application in any available Cloud Space.

OBJECTIVE

CRM is an user friendly mobile application with which the sales-force can interact with the cement dealers, collect various information in line with business development perspective.

The main objectives of this project are:

- ❑ scheduling their daily market visits.

- ❑ capturing information pertaining to sales / collection / competitors' product / Issues faced by dealers while they meet them in the market.

- ❑ Capturing GPS coordinates of the counter/dealer location in which an ARM is collecting information during their check-in and check-out.

- ❑ Facilitating the management to do various analysis and address the issues projected by the ARM efficiently on behalf of the Dealers.

- ❑ avoiding manual entries like what is being done in their legacy system.

Need For Proposed System

❑ To get rid of the traditional way of jotting down the details collected from the dealers during their visits based on their Daily Beat Plan scheduled in advance in a pre-defined template called "Blue Book" as a routine fixed in their mind.

❑ To avoid the heterogeneity of information thus gathered from Dealers getting recorded physically into the predefined templates in their comfortable language.

❑ To capture the Competitors' brand information such as brand name, price per bag, sale (in MT) which would be helpful in fixing the per bag price of our company product in the market concerned which goes competitive and fetch more brand stickers to our company.

ADVANTAGES OF PROPOSED SYSTEM

❏ Easy to use mobile application for the field force to collect information and send the data directly the centralized data base.

❏ GPS location capturing feature provides a fool proof method of locating the dealer counters and for check-in and check-out of the concerned sales force.

❏ Information regarding the competitors' marketing strategies and brand prices enable the competent authorities decide on the price factor from time to time.

Architecture Diagram
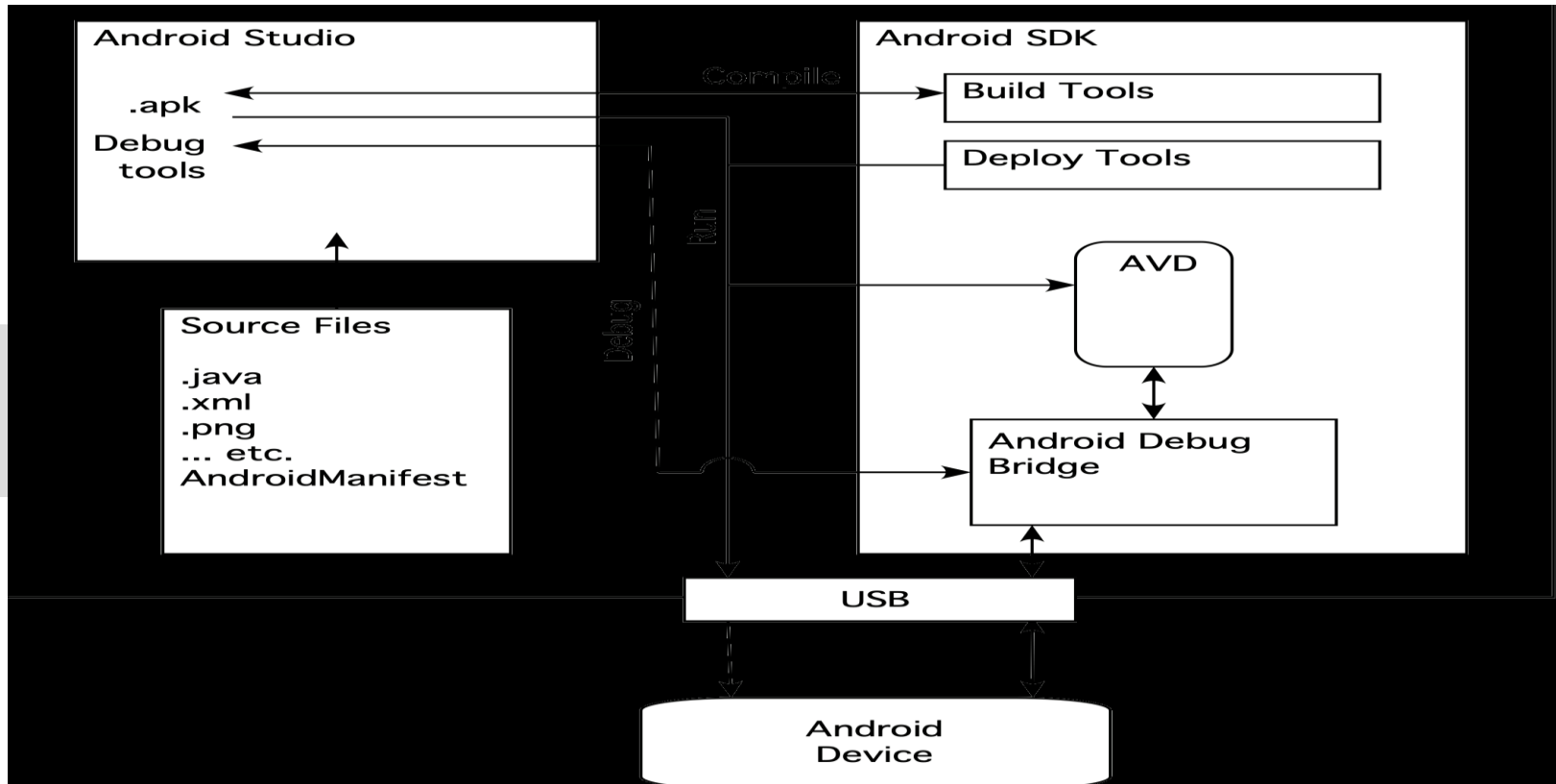
Architecture Diagram

❑ Data Transfer from Front End Android devices to backend Oracle DB through a REST model WEB Service in JSON format using Internet Service.

System Requirements

Hardware

- ❏ Processor - Intel core duo or higher
- ❏ RAM   - 4GB minimum
- ❏ Disk   - 500 GB
- ❏ Monitor   - 15" color with VGI card
- ❏ Speed   - Min 500MHz
- ❏ Android Device – Internal Memory 3 GB and above.

Software

- ❏ OS   - Windows-10 for emulator
- ❏ OS   - Android OS 5.0 and above
- ❏ IDE - Android Studio (latest)

Functional Description and Implementation of Modules – Process Flow Chart-1
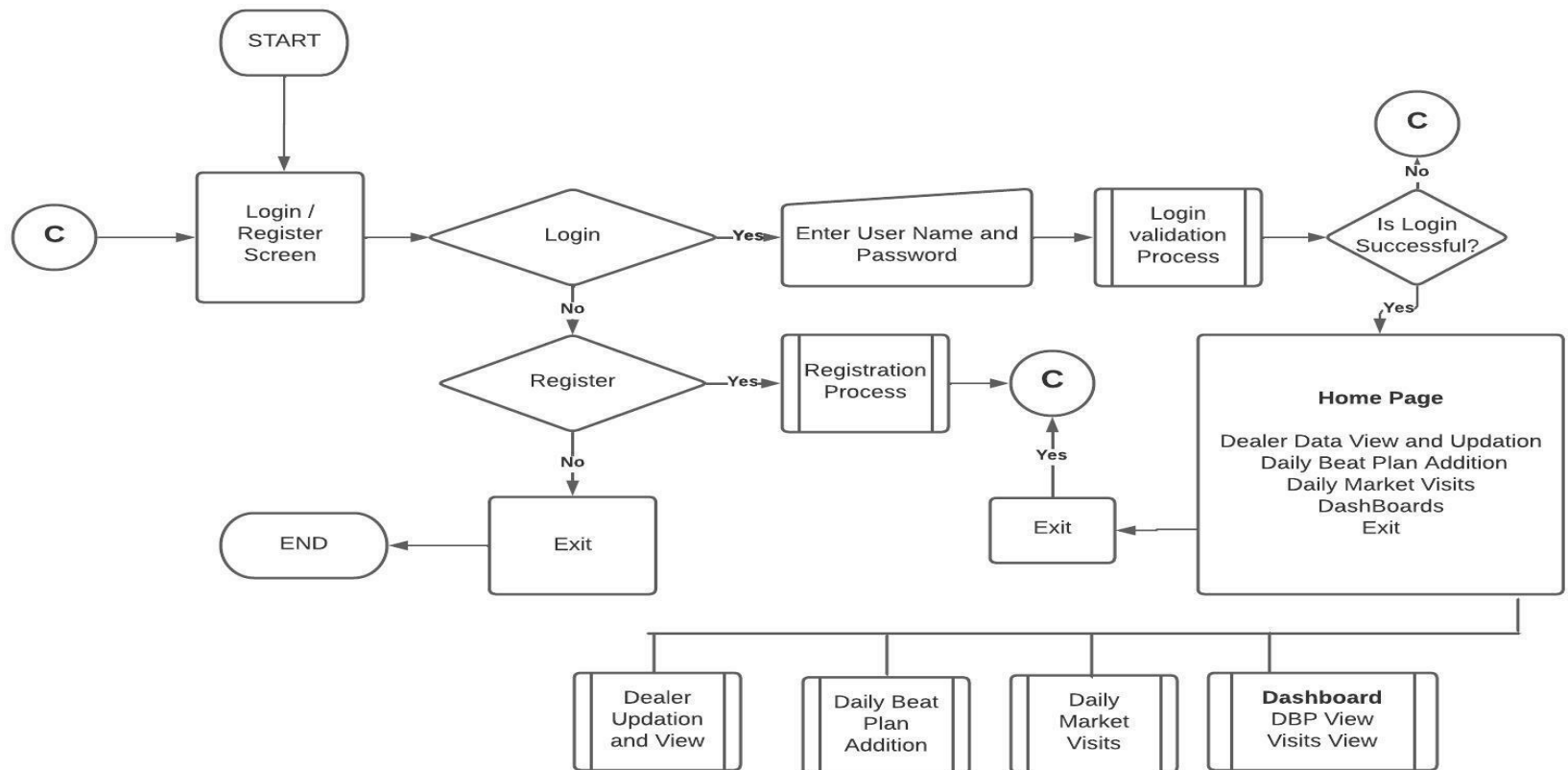
Functional Description and Implementation of Modules – Process Flow Chart-2
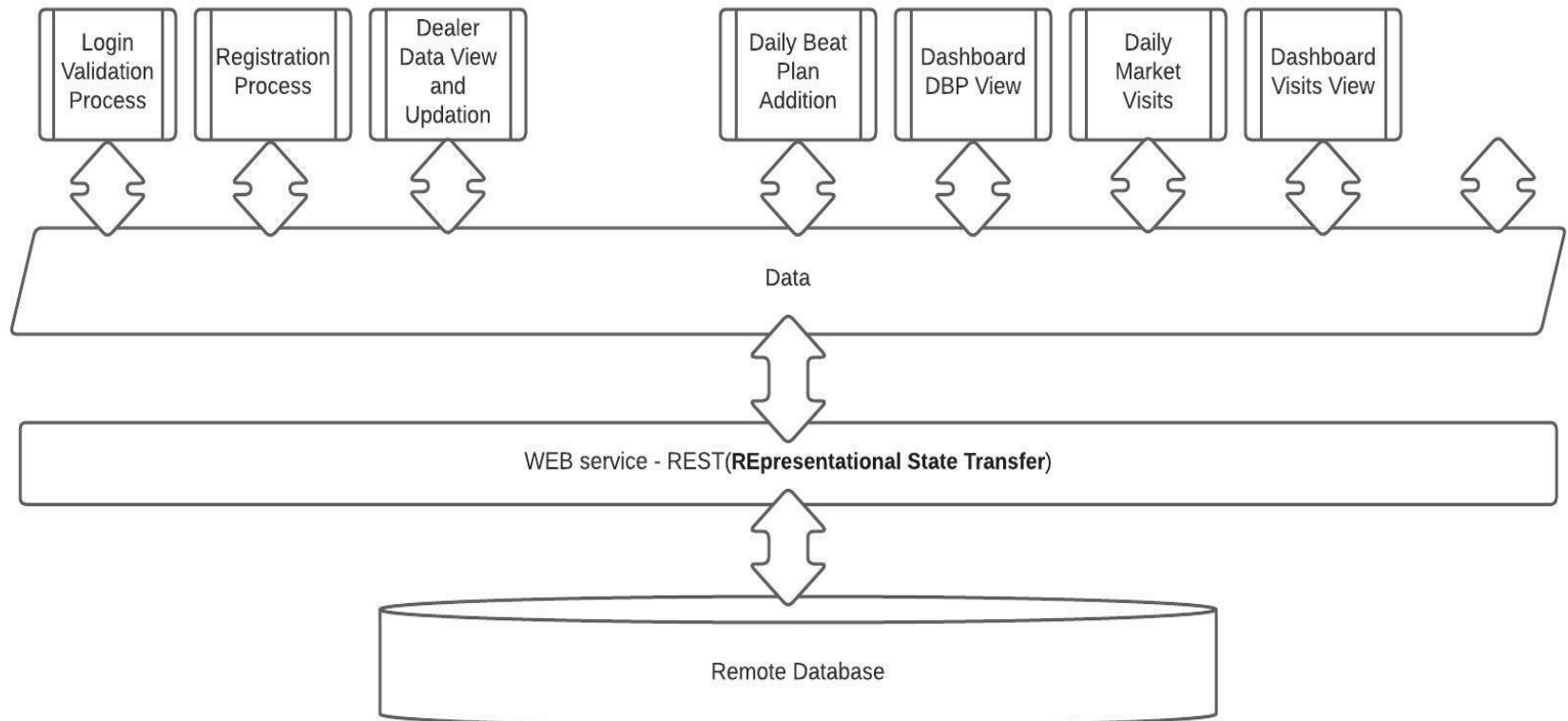
Functional Description and Implementation of Modules

1. Sign Up or User Creation:

❑ During first time entry (i.e., Sign-up), system accepts the username and password and ask to repeat the password for confirmation and saves it in an appropriate DB table for future validation along with other basic information of an user.

❑ For all subsequent logins (i.e., Sign-in), system accepts the username and password from the user and validates the same.

❑ User Name should be a valid mail id.

Functional Description and Implementation of Modules

Module-1

Sign-Up / User Creation Page

Functional Description and Implementation of Modules

2. Login:
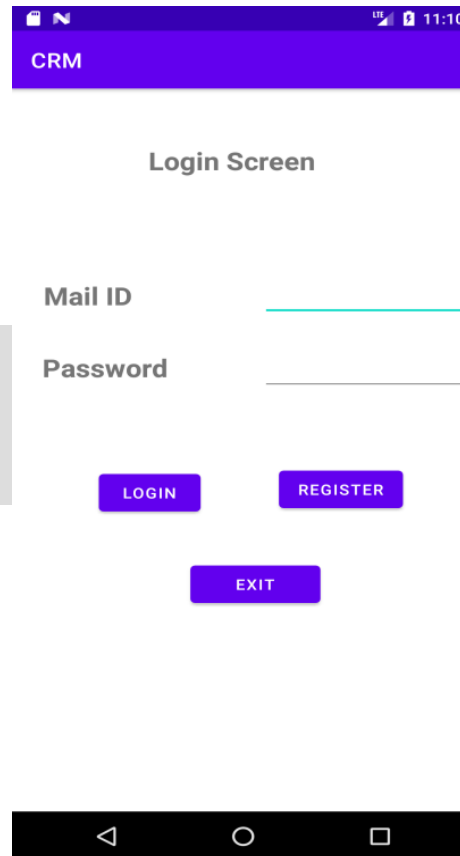
❑ For Signing-in process, system accepts a valid username and password from the user and validates the same.

❑ User Name should be a valid mail id.

Functional Description and Implementation of Modules

Module-1

Sign-In Page

Functional Description and Implementation of Modules

3. Daily Beat Plan Creation:
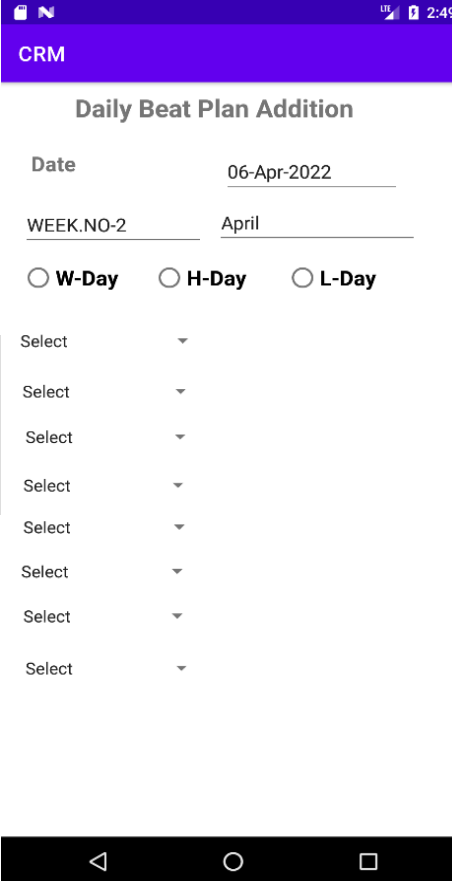
Shows the initial screen which is scrollable from top to bottom. By default, system displays the next day to the current day and its corresponding week number from the calendar instance.

Functional Description and Implementation of Modules

Module-2

Daily Beat Plan Addition

Functional Description and Implementation of Modules

4. Visits Addition:

The initial screen is scrollable from top to bottom.

By default, system displays the current day, Employee Code and name.

Functional Description and Implementation of Modules

Module-3

Visits Addition – Scrollable from top to bottom

Functional Description and Implementation of Modules

5.Dealer View & Updation:

This screen facilitates viewing the Dealer Master details and if needed, update the information. Also facilitates view and updation of Dealer Image using Android Mobile Device Camera.

Screen with scrollable facility from top to bottom to accommodate all necessary fields. It also has a facility to capture an image of the dealer through mobile device by clicking on the "Click" button. The first screen and the top portion of the second screen is for VIEWING the dealer information. Every new dealer, the four basic data viz a viz dealer code, dealer name, state code and district code are inserted at the back end as this exercise is beyond the scope of this project. Additional information are fed through this screen with which the existing record gets updated.

Functional Description and Implementation of Modules

Module-4   Dealer Master View & Updation
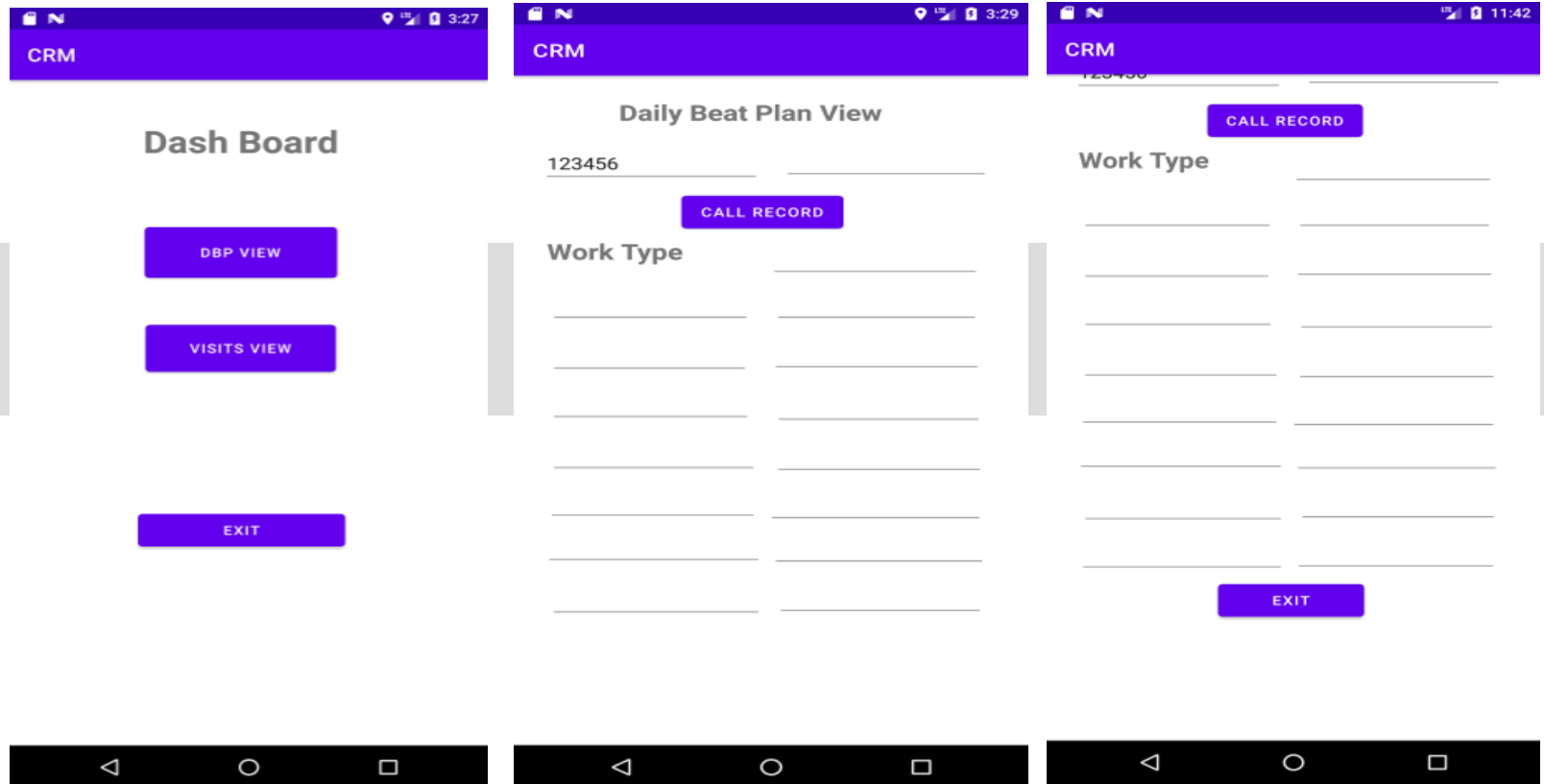
Functional Description and Implementation of Modules

6. Dashboard:

This Dashboard consists of two views viz a viz., Daily Beat Plan View and Visits View. Users can view the Scheduled Daily Beat Plan and Visits for a given date.

Screens are scrollable from top to bottom to facilitate the user for easy viewing.

Functional Description and Implementation of Modules

Module-5   Daily Beat Plan View

Functional Description and Implementation of Modules

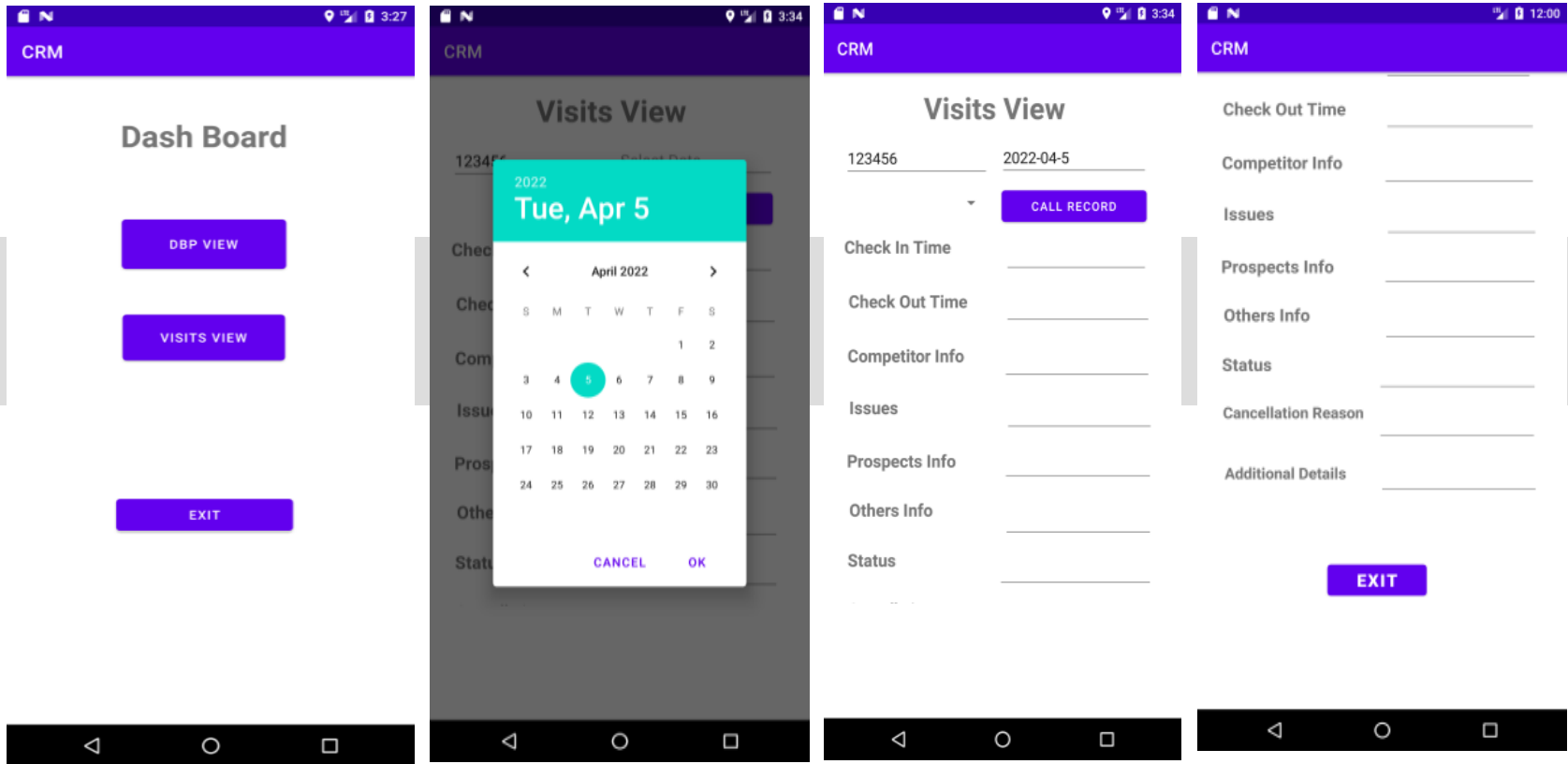## 7 Dashboard – Visits View:

This screen facilitates the user to view the visits with its status as 'P-Pending' or 'E-Executed' or 'C-Cancelled'.

Upon selecting a desired date using a Calendar control, user can view the details pertaining to the selected date.

Functional Description and Implementation of Modules

Module-5   Visits View

Testing

1. User Creation

This page validates user creation. When the user enters valid details, system throws a TOAST message (refer the 3rd screen) as "Successfully Registered".
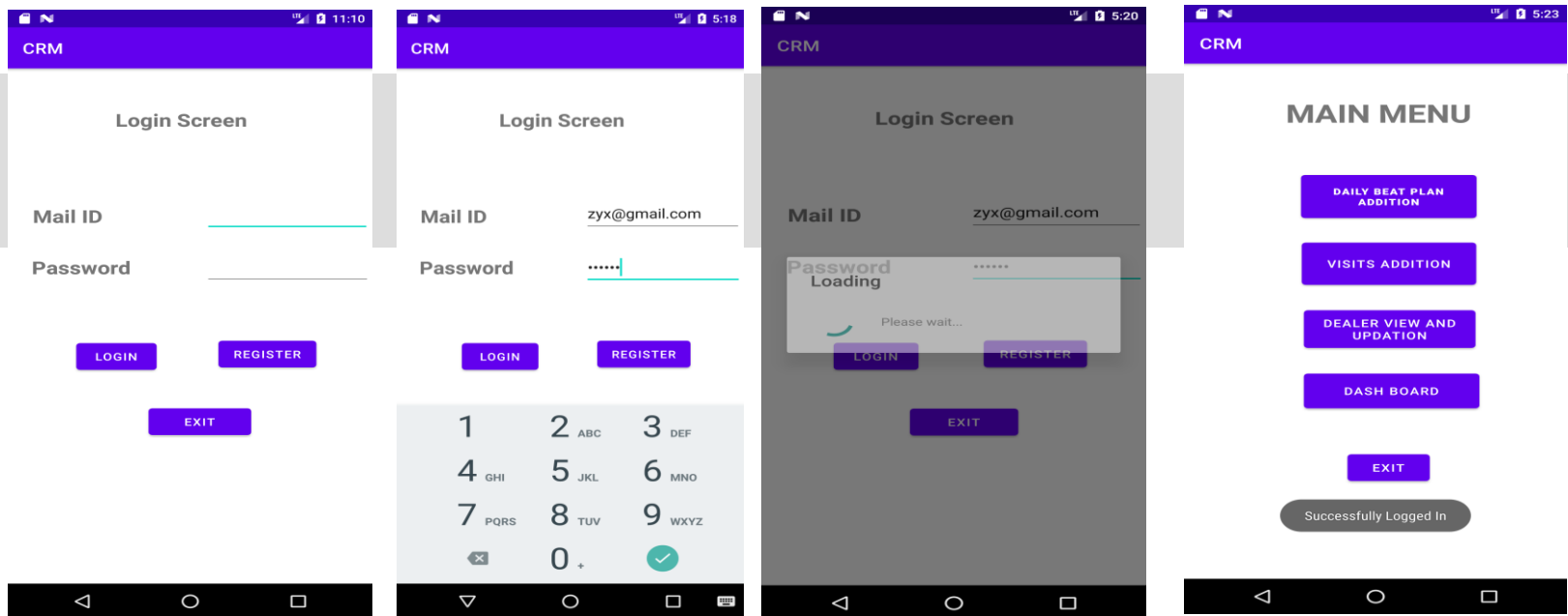
Testing

2. User Creation – Validation

This page validates user creation. When the user enters an invalid details, system throws a TOAST messages for invalid username, password mismatch and invalid mail id pattern as shown below.
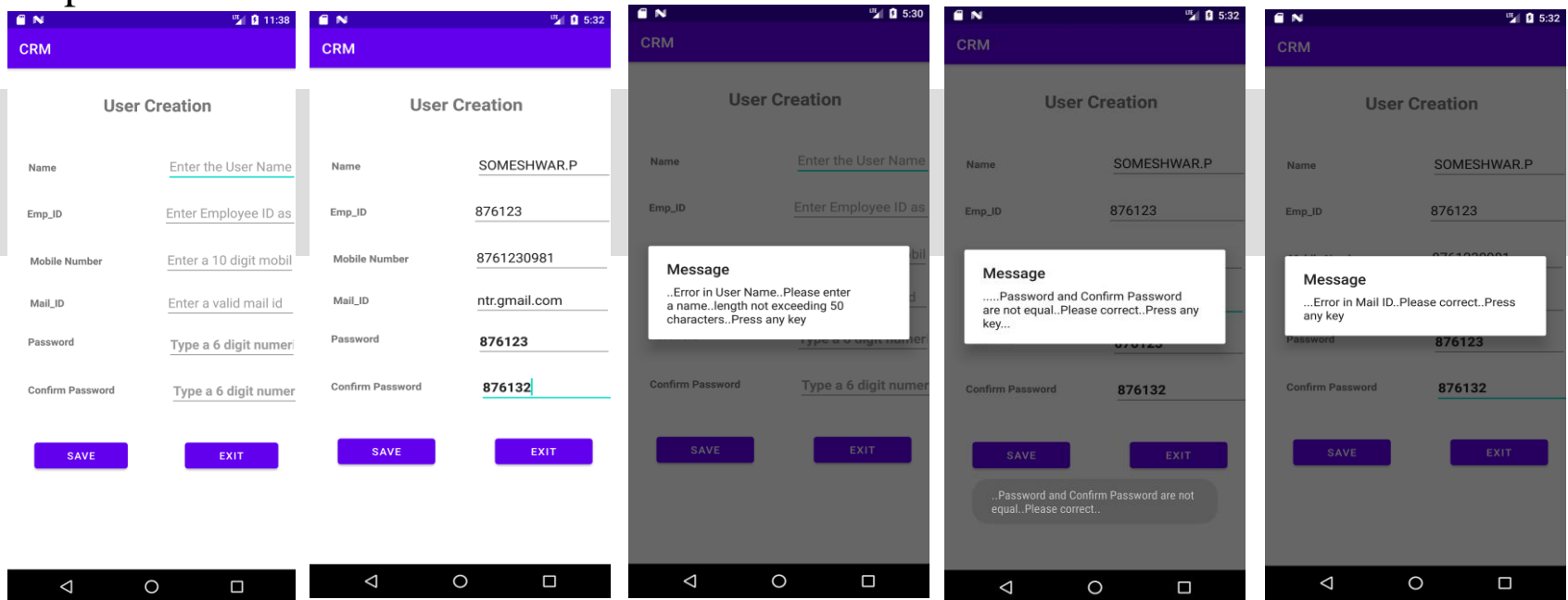
Testing

3. User Login

This page validates User Login. When the user logs in with a valid credentials, system throws a TOAST message as "Successfully logged in" and navigates to the Home Page.

Testing

4. Dealer Master View and Updation-View Segment

This page validates for the availability of data entries for all the fields. When the user fills data in all the fields properly and save, the transaction entries are saved in the database. User feeds a valid dealer code and system fetched the details from database and populates in the screen in the view segment. The same screen has both facilities.

Testing

5. Dealer Master View and Updation - Update Segment

This page validates for the availability of data entries for all the fields. User can update in the update-segment by selecting the values from the dropdown lists or entering valid entries in the space provided. System allows the user to capture the dealer image using the camera in his android mobile device by clicking the "Click" button. System saved the data successfully.
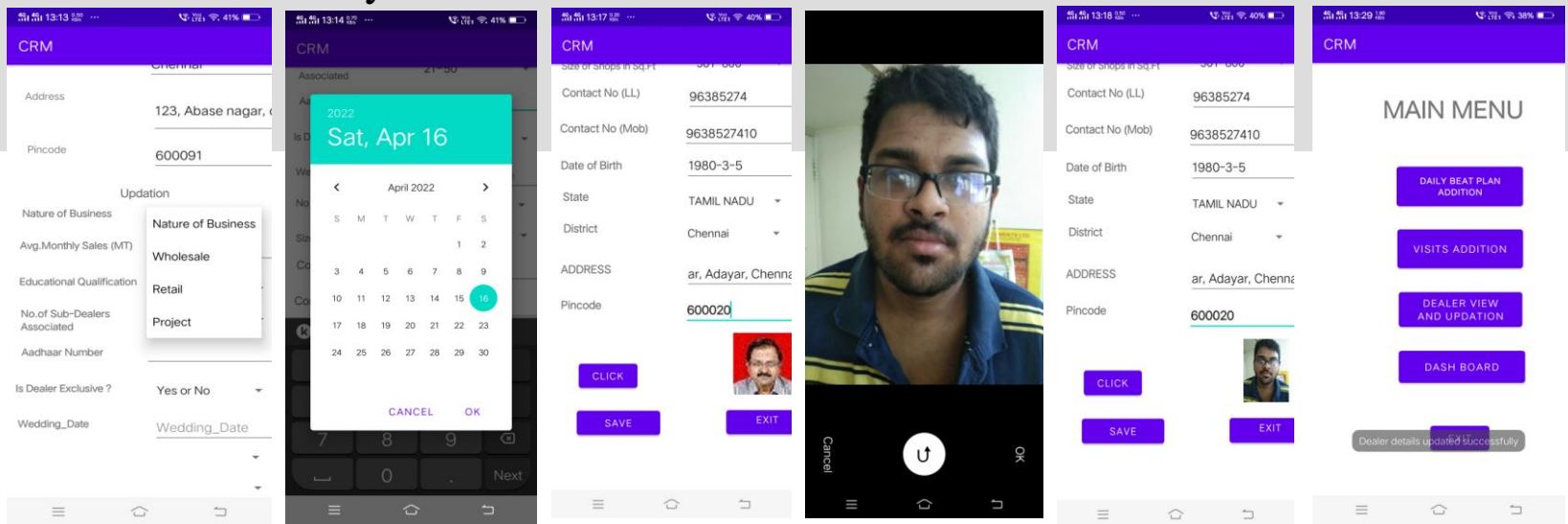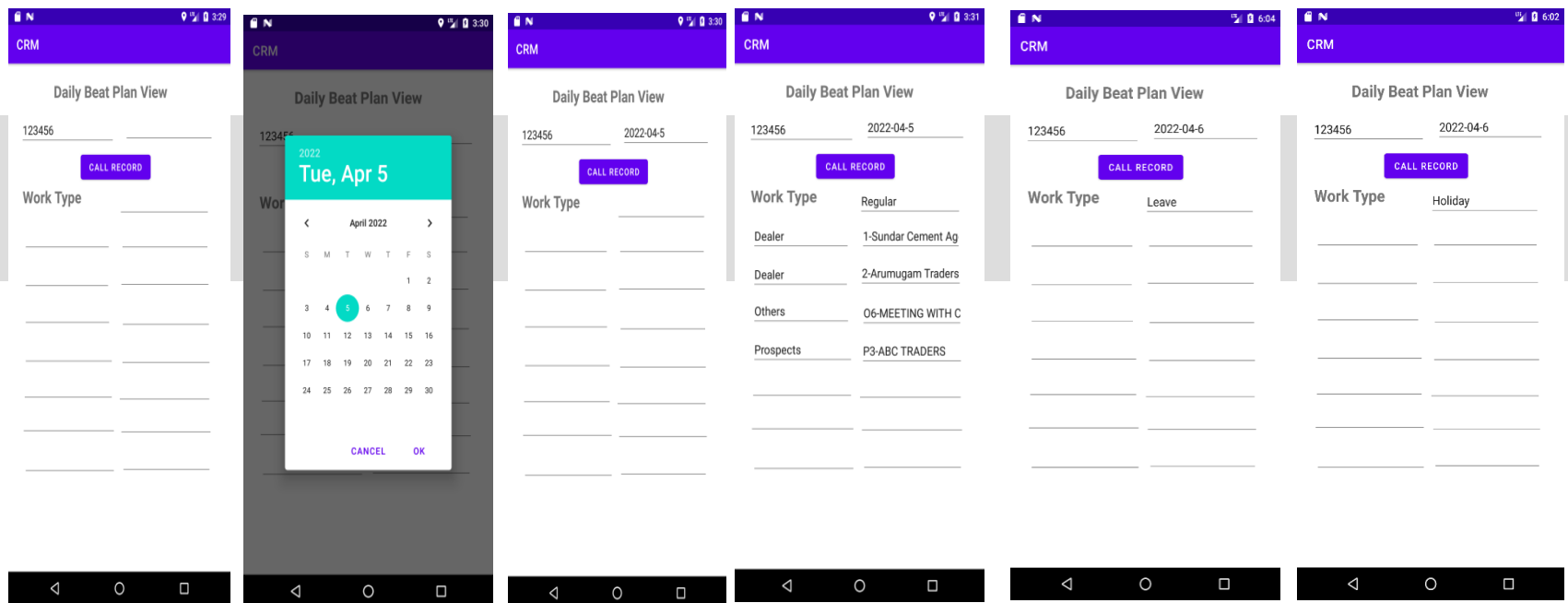
Testing

6. Daily Beat Plan Addition

User enters the data in the Daily Beat Plan entry screen and saves the record. System saves the record and throws a TOAST message as "Daily Beat Plan added successfully" and navigates to the Home page with the message.
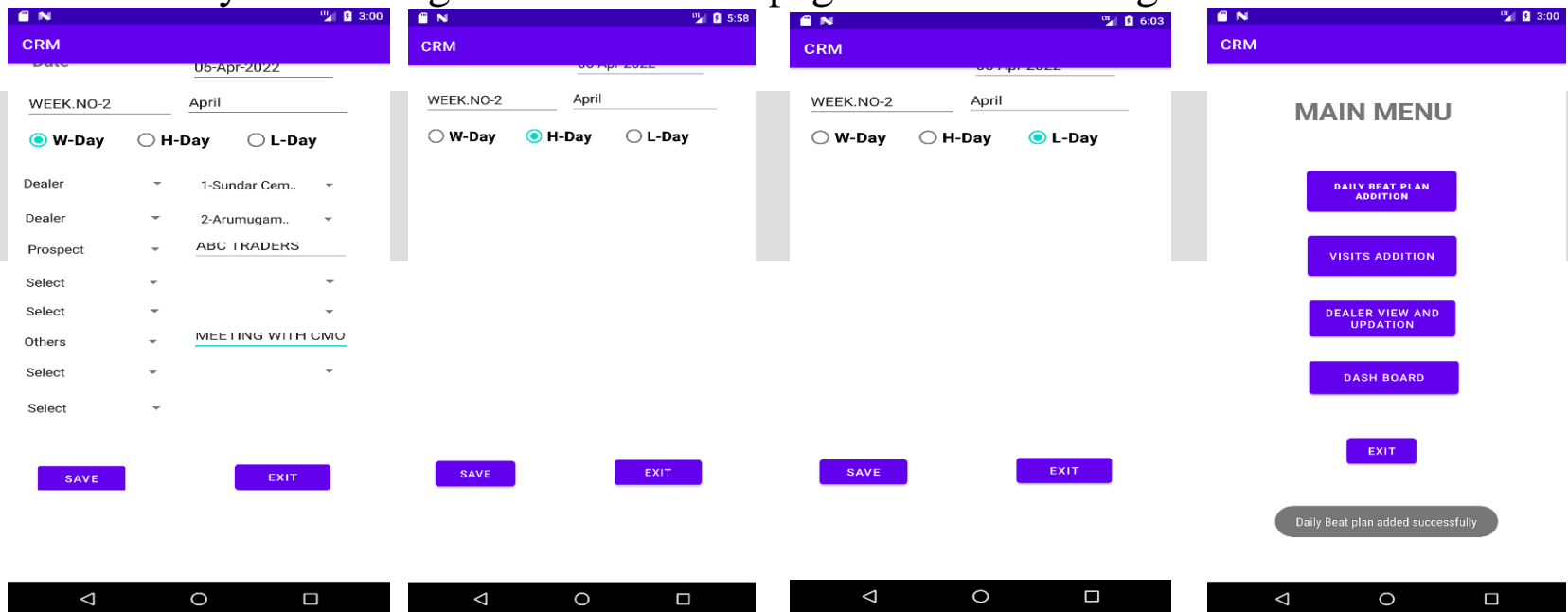
Testing

7. Daily Beat Plan View – W-Day, H-Day, L-Day

User can check the entries done in his Daily Beat Plan by selecting the required date through the Calendar control and clicking the "Call Record" button.
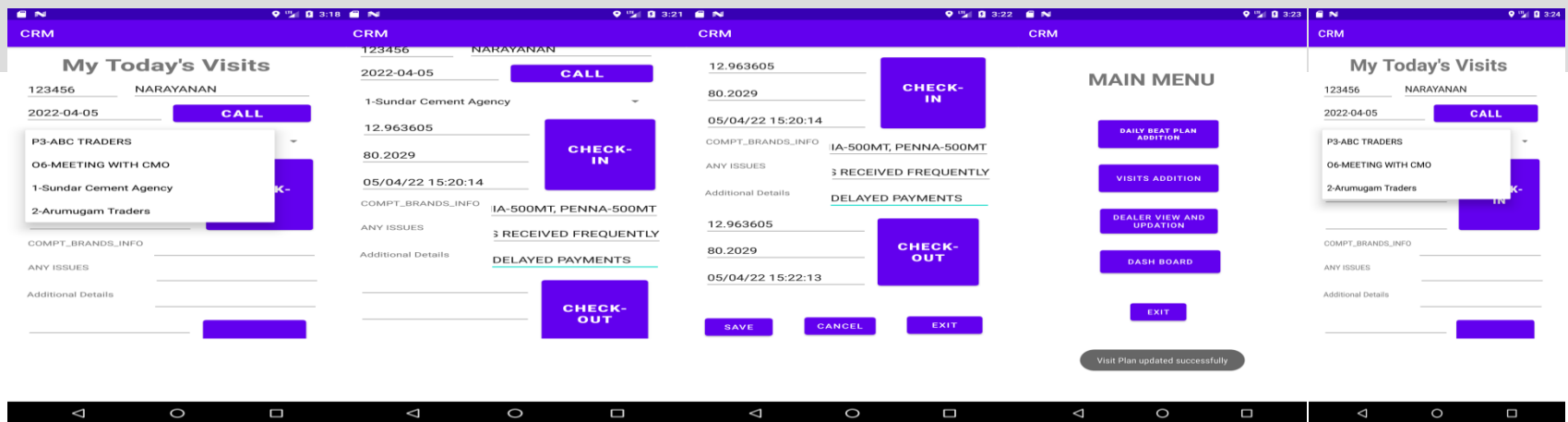
Testing

8. Daily Visits Addition

User selects the entry from the dropdown list where the scheduled visits are populated for the current date, click on the "Check-in" button to capture the GPS location with date and time, collects information from the dealer, click on the "check-out" button to capture the GPS location with date and time. Evidence is shown in the last screen, that once executed, that entry will not get listed in the dropdown list for a day.

Testing

9. Daily Visits - Cancellation

If user wants to cancel a visit, he can select the appropriate entry on a particular day and straight away goes and click the "Cancel" button to get a text box for feeding a proper reason for cancellation and then clicks on "Submit" button in the box. System then updates the status of the entry as "Cancelled".
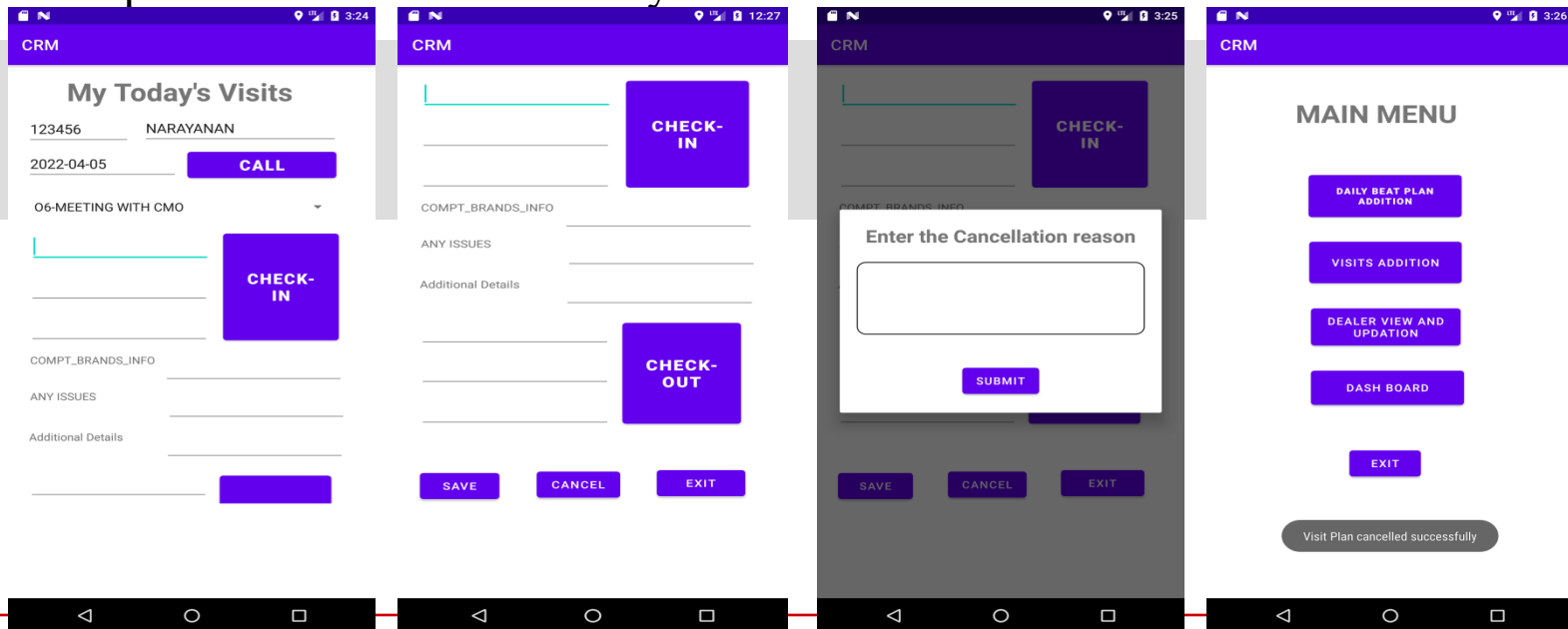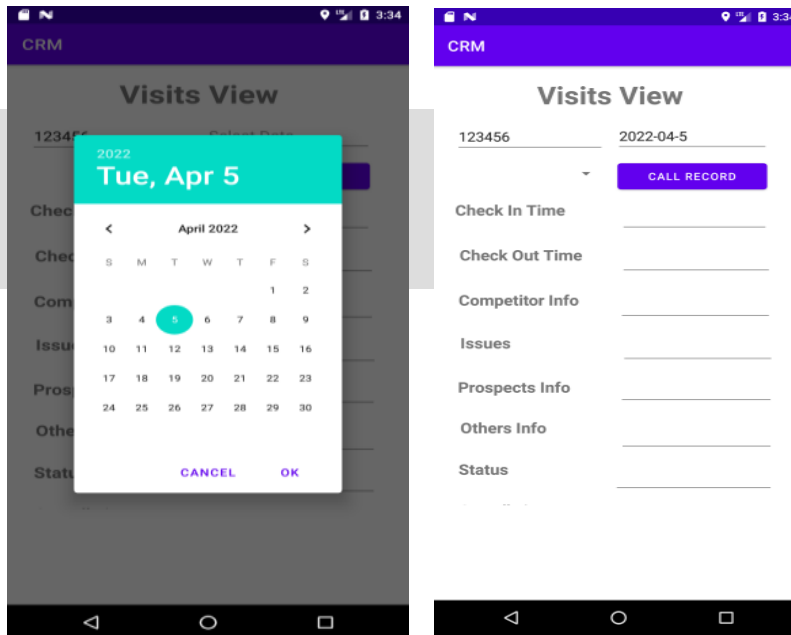
Testing

10. Visits View   …Contd..

User can check the entries done in his Visits by selecting the required date through the Calendar control and clicking the "Call Record" button.

Testing

11. Visits View   …Contd..

User can check the entries done in his Visits by selecting the required date through the Calendar control and clicking the "Call Record" button. Sample screens shown for Pending, Executed and Cancelled.

Conclusions

This small scale CRM can be used as a Start-up Application for Sales Force to get familiarized with the concepts.

This application is easy to understand and operate by the Sales force.

Future Enhancements

- ❏ The application can be augmented further with more functionalities like approval mechanism by higher authorities like RRM (Regional Relationship Managers) for an ARM's Beat Plan.

- ❏ Monthly Sales Targets (MT) can be incorporated as part of an ARM to be assigned to the associated Dealers as his KRA (Key Responsibility Area).

- ❏ More MIS related reports can be generated subject to data availability such as business charts revealing the pattern of price variation and its impact on the product demand from the dealers in the concerned market.

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Thank You