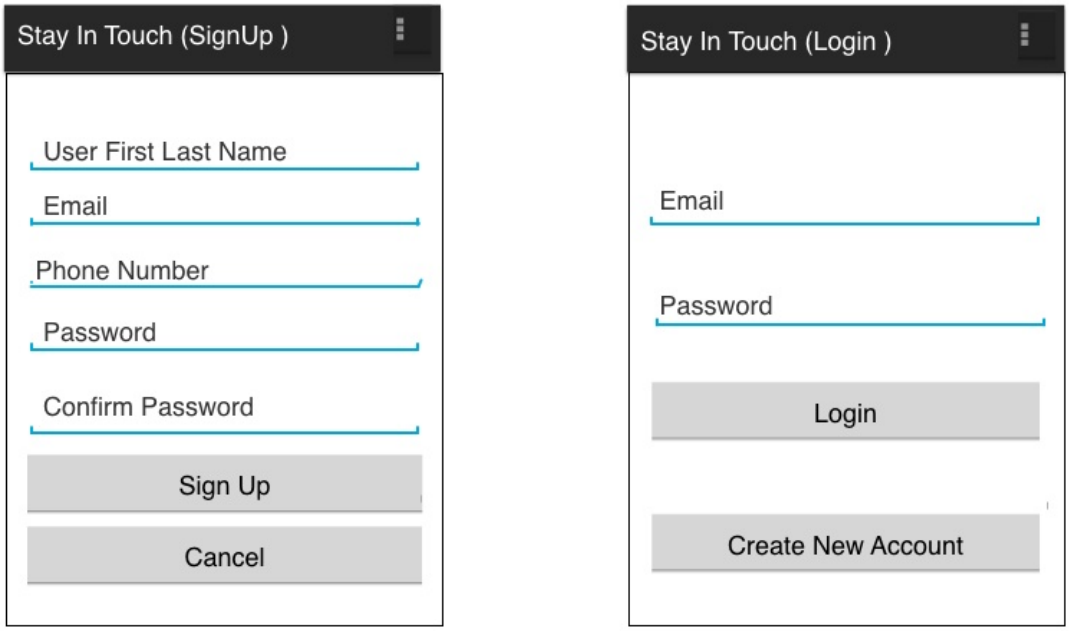
ITIS/ITCS 4180/5180 Mobile Application Development
Homework 8

Basic Instructions:

1. In every file submitted you MUST place the following comments:
    a. Assignment #.
    b. File Name.
    c. Full name of all students in your group.
2. Each group should submit only one assignment. Only the group leader is supposed to submit the assignment on behalf of all the other group members.
3. Your assignment will be graded for functional requirements and efficiency of your submitted solution. You will loose points if your code is not efficient, does unnecessary processing or blocks the UI thread.
4. Please download the support files provided with this assignment and use them when implementing your project.
5. Export your Android project and create a zip file which includes all the project folder and any required libraries.
6. Submission details:
    a. Only a single group member is required to submit on moodle for each group.
    b. The file name is very important and should follow the following format: **Group#_HW08.zip**
    c. You should submit the assignment through Moodle: Submit the zip file.
7. **Failure to follow the above instructions will result in point deductions.**

Homework 8 (100 Points)

In this assignment you will implement an app called “Stay in Touch” to enable users to have conversations with other users, make calls to these users, and see their own contact information. You will use Firebase to store/retrieve the messages and users’ information.



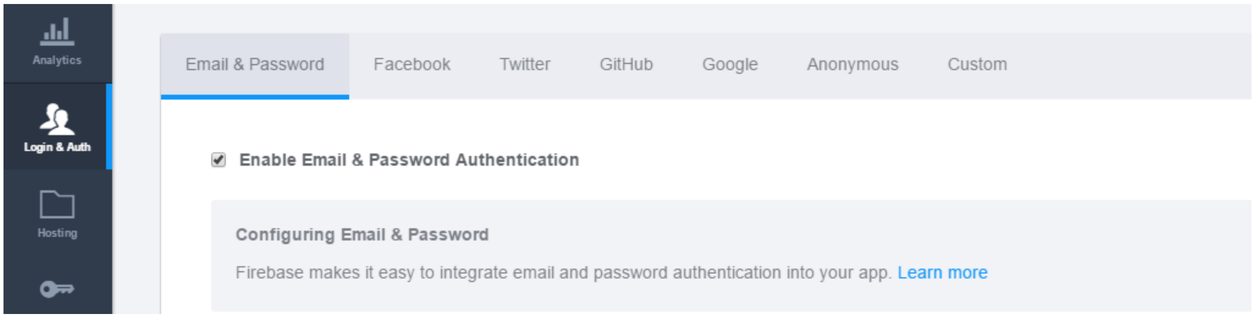
(a) Login Activity

(b) SignUp Activity

Figure 1, Wireframe for Login and SignUp Activities

Part A: User Signup and Login (20 Points)

Your app should implement both login and signup functionalities. You should use Firebase to register user using email and password and also store the user’s username, phone number, email address, password, profile image (base 64 encoded string) in the User object. The requirements are as follows:

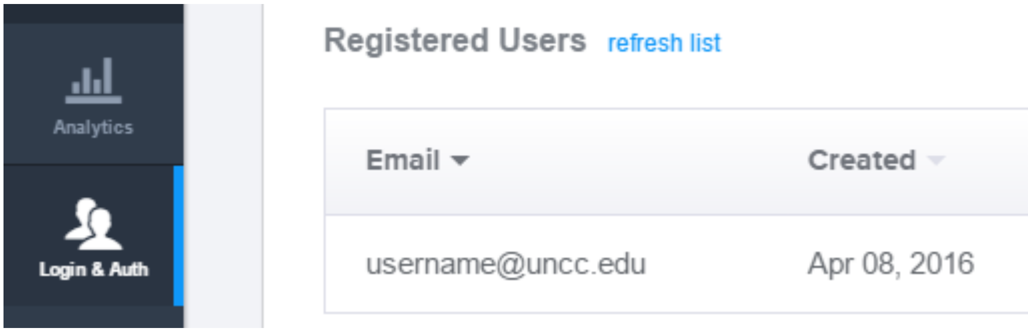


☑ Enable Email & Password Authentication

Configuring Email & Password

Firebase makes it easy to integrate email and password authentication into your app. Learn more

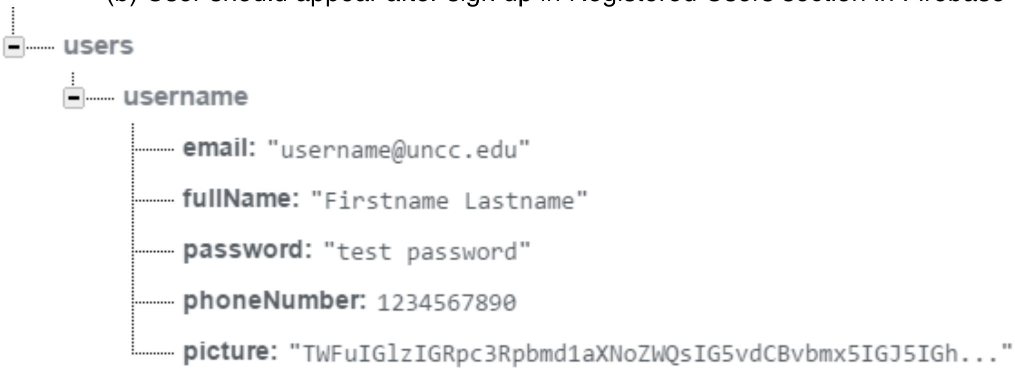
(a) Enable Email & Password Authentication in Login & Auth section in Firebase



Registered Users refresh list

Email	Created
username@uncc.edu	Apr 08, 2016

(b) User should appear after sign up in Registered Users section in Firebase



```
users
  username
    email: "username@uncc.edu"
    fullName: "Firstname Lastname"
    password: "test password"
    phoneNumber: 1234567890
    picture: "TWFuIGlzIGRpc3Rpbmd1aXNoZWQsIG5vdCBvbmx5IGJ5IGh..."
```

(c) User should also be added to the Users object

1. Please make sure to enable Email & Password Authentication, see figure (a)
2. The launcher activity should be set to the Login activity. When the app first starts, the Login activity should check if there is a current user session, by using the Firebase provided methods to check if there is a valid current user:
   a) If there is a current valid user, then start the Conversation activity, and finish the Login activity.
   b) If there is no current valid user, then the Login activity should be used to provide user login.
3. Create a Login activity (Figure 1(a)):
   a) The user should provide their email and password. The provided credentials should be used to authenticate the user using Firebase. Clicking the “Login” button should submit the login information to Firebase to verify the user’s credentials.
      - If the user is successfully logged in then start the Conversations activity, and finish the Login activity.
      - If the user is not successfully logged in, then show a toast message indicating that the login was not successful.
   b) Clicking the “Create New Account” button should start the Signup activity and finish the login activity.
4. Create a Signup activity (Figure 1(b)):
   a) Clicking the “Cancel” button should finish the Signup activity and start the Login activity.

b) The user should provide their email and password. The provided credentials should be added as a registered user as shown in the figure (b). Clicking the “Sign Up” button should submit the user’s information to Firebase to verify the user’s credentials.
    - If an account with the same email already exists, display an error message indicating that the account was not created and the user should select a different email.
    - If an account with the provided credentials does not already exist, then store the new account information and display a Toast indicating that the user has been created. Then start the Login activity and finish the Signup activity.
    - Create a user object in the firebase with name, email, password, phone number and a default profile picture in base 64 encoded string format.
        - Note that on creating a user, the user data should be stored in a Firebase Users object as data as shown in the figure (c), as this is not done automatically through email/password authentication in Firebase.

Part B: Conversations Activity (30 Points)

The Conversations activity should show the list of contacts created in Firebase other than the current logged in user. The requirements are as following.

1. Each list item in the ListView should contains the profile picture and full name of the contact. It should also have unread message symbol (red dot icon) if applicable, and a call button.
2. If a contact has sent a message to you and if the message is unread (check message_read field in message object) then show the red dot icon in the list item next to contact name. This is to identity the unread messages.
3. OnClick of the list item should open the ViewMessages activity for that particular contact.
4. If the contact had unread messages, then upon opening the ViewMessages activity for that conversation please mark the message_read as true, so that next time when the current logged user opens Conversations Activity he/she will not see the red icon for that contact.
5. OnClick of the Call button should dial the contact using the implicit intent with the contact person phone number provided, as shown in the figure 2d.
6. Conversation activity should contain Edit Profile and Logout Menu Items.
    a) On clicking on the Edit Profile, it should open the EditProfile activity as shown in the figure 2c
    b) Clicking the “Logout” action bar menu item should logout the current user, start the Login Activity and finish the Conversations Activity.

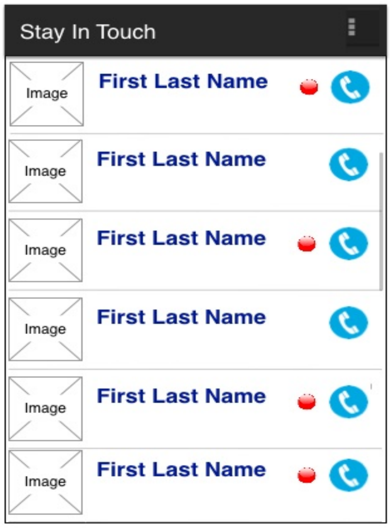


Figure 2a. Conversations Activity

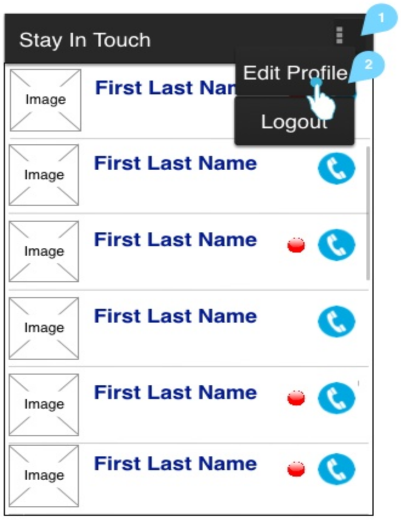
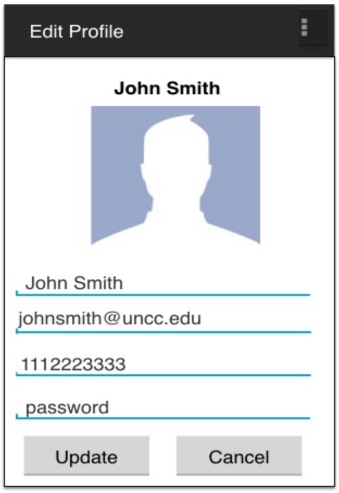


Figure 2b. Edit Profile Menu Item



John Smith

John Smith

johnsmith@uncc.edu

1112223333

password

Figure 2c, Profile editing

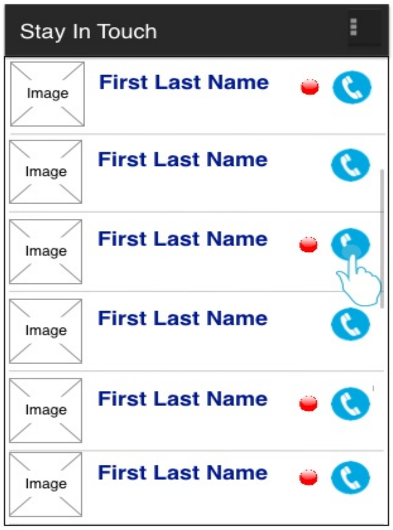
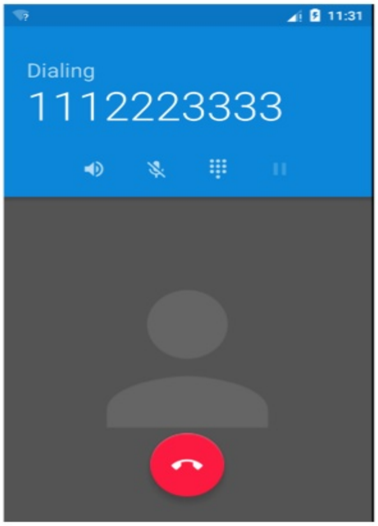


Figure 2d, On click on the call button a call should be placed to the contact



1112223333

Figure 2d, Make call with Implicit Android intent

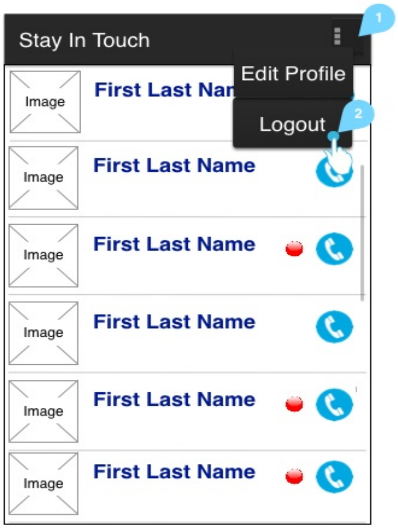


Figure 2e. Logout Menu Item

Part C: Edit Profile Activity (10 Points)

The Edit Profile activity should be displayed when user clicks on the “Edit Profile” Menu Item in Conversations activity. The requirements are as follows:

1. The Edit Profile activity should look like Figure 3(b). It should display the name, email, phone number, password and the current profile picture of the current logged in user.
2. The values should be populated for the current logged in user.
3. User should be able to change the profile picture by clicking on the picture as shown in the Figure 3(b) and uploading from the device’s photo gallery. The image should be saved as base64-encoded String into Firebase user object.

4. Clicking on the update button should save the changes to the Firebase for that user and the changes should be reflected for the current logged in session.
5. Clicking on the Cancel button should dismiss all the changes, also should open the Conversation activity and finishes the Edit profile activity (same should happen up on back button press)
6. Upon successfully updating the data, a toast message should be displayed saying that changes have been successfully updated and should close the Edit Profile activity and open Conversations Activity, see Figure3e.

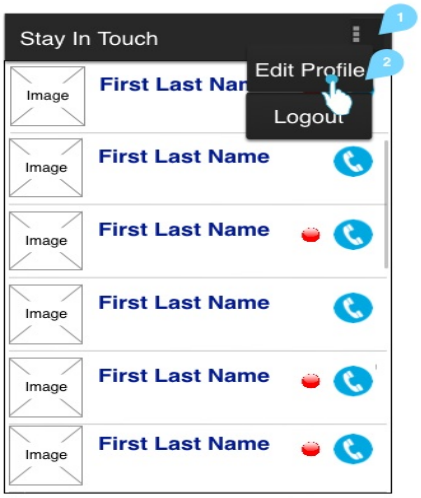
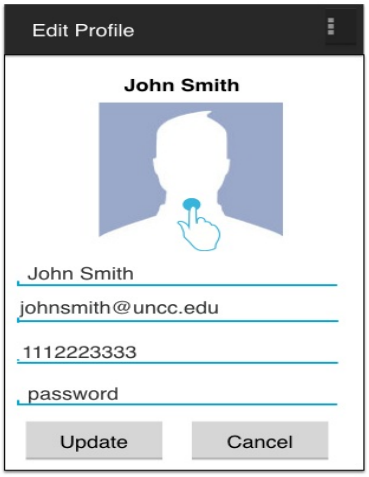


Figure 3a, On clicking Edit profile menu item opens the Edit Profile



John Smith

johnsmith@uncc.edu

1112223333

password

Figure 3b, For changing profile picture click on the default picture

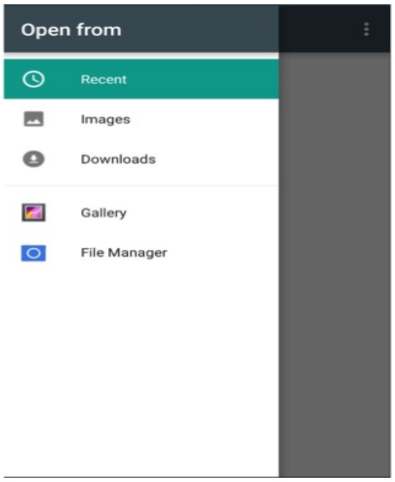


Figure 3c, Select gallery

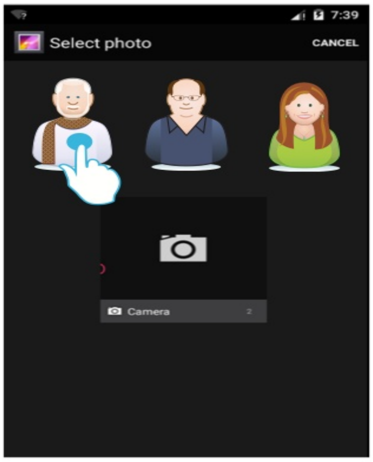
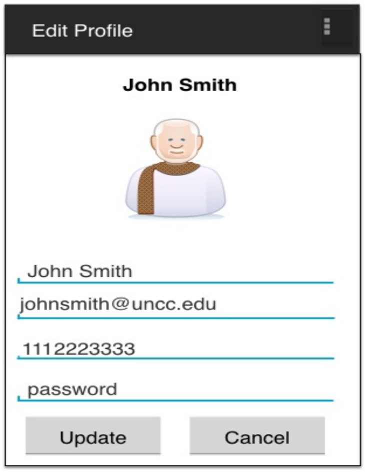


Figure 3c, Select Picture



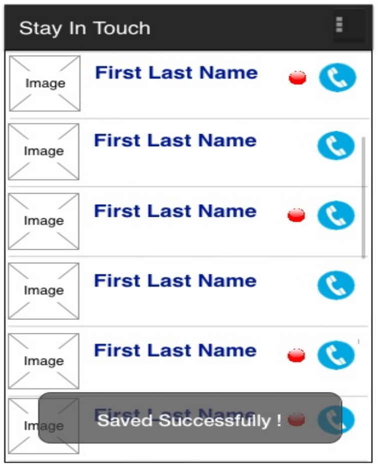
John Smith

johnsmith@uncc.edu

1112223333

password

Figure 3d, Click on update and validate the data entered



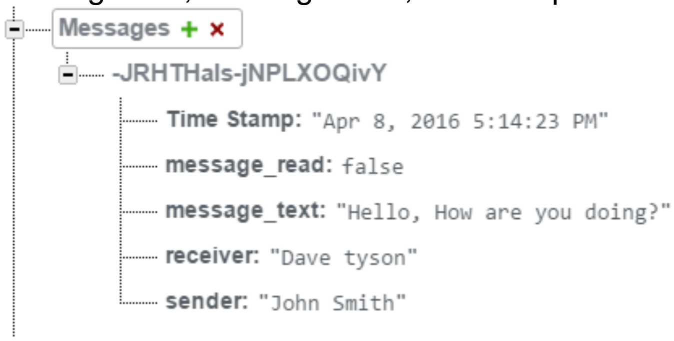
Saved Successfully !

Figure 3e, showing toast message upon successful updating

Part D: View Messages Activity (40 Points)

The View Messages activity should retrieve all the messages that are stored in the messages object on Firebase that contains logged in user and a particular contact person as sender or receiver. A ListView should display the items in the messages list, see Figure 4(a). The requirements are as follows:

1. In Firebase create a messages object to store the messages.
2. Each message object should contain sender username, receiver username, message text, message read, timestamp as shown in the below figure.



```
Messages + ×
  -JRHTHals-jNPLXOQivY
    Time Stamp: "Apr 8, 2016 5:14:23 PM"
    message_read: false
    message_text: "Hello, How are you doing?"
    receiver: "Dave tyson"
    sender: "John Smith"
```

3. A message object will be created when the current logged in user will compose the message in the text box located in the bottom of the activity and by clicking on **send** button. The message will be created with current logged in user as sender and the current contact as receiver.
4. Message object should make the message_read as false while creating.
5. The message text should have a maximum of 140 characters. You should validate the user's input and ensure that the text is provided. If no input is provided, display a Toast.
6. Upon successful creation of the message in Firebase, the ListView should update to show the newly created message.
7. The messages from sender and receiver should be differentiated. For example, if the message being viewed was sent by the currently logged in user, then the background color should be grey, and otherwise, the message should have normal white background.
8. The delete icon should be displayed beside messages that were created by the currently logged in user. Tapping the delete icon in the list item should Delete the current message from the Messages object.
   - There are multiple ways to do this, but optionally, check documentation for https://www.firebase.com/docs/web/api/firebase/remove.html

9. The should have View Contact and Call Contact menu items.
   - On Click of the View Contact menu item, View Contact activity should be opened showing contact information of current contact person.
   - On Click of Call Contact menu item, should initiate a call using the implicit dialing intent with the contact person phone number.

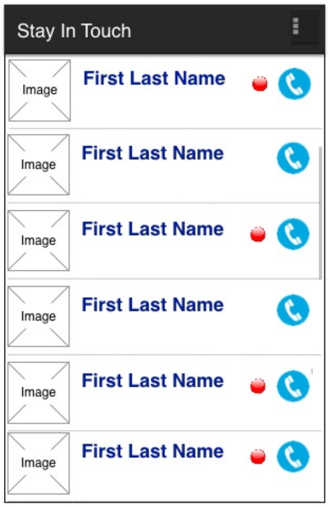
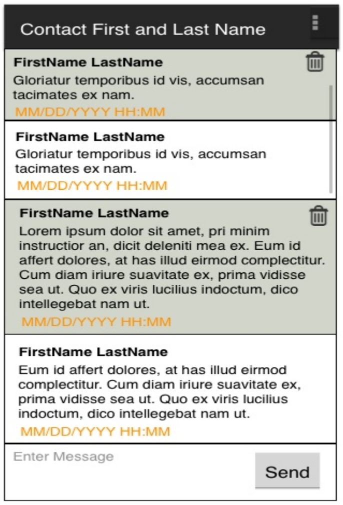


Figure 4, On Clicking the particular contact will open the View messages activity



FirstName LastName
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MM/DD/YYYY HH:MM

FirstName LastName
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Figure 4a, View Messages Activity

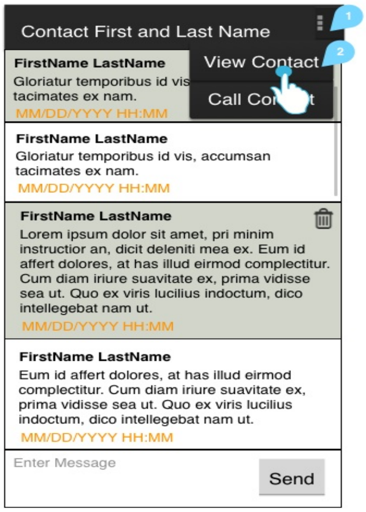

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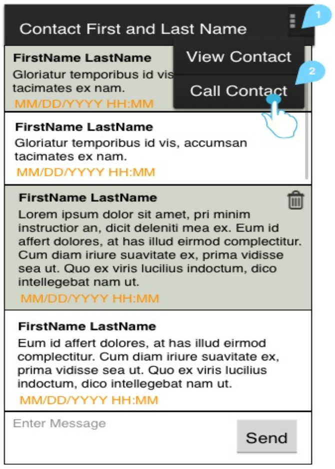
Figure 4b, View Contact menu item



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FirstName LastName
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Figure 4c, On clicking on the call contact should place the call for that contact

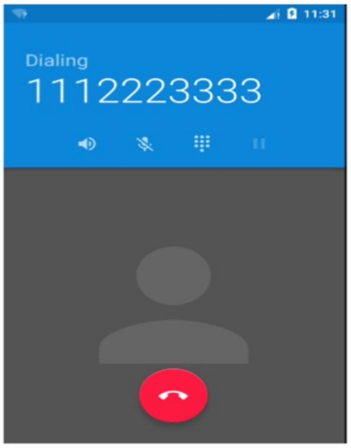
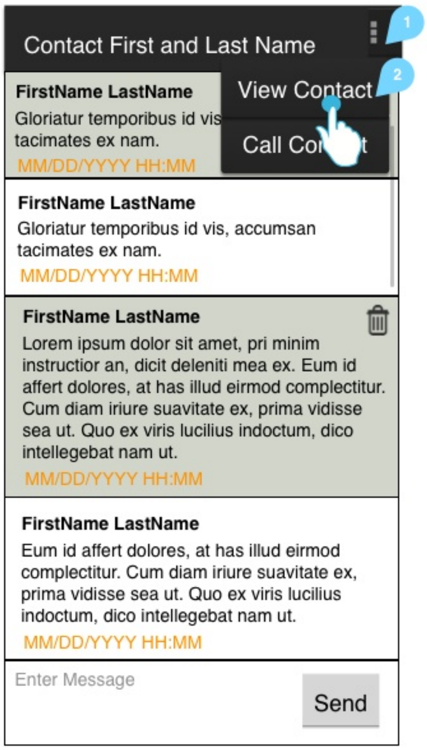


Figure 4d, Make call with Implicit Calling feature of Android

Part E: View Contact Activity (10 Points)

The View Contacts activity should be displayed once user clicks on View contact in View Messages Activity. View Contacts activity is displayed in Figure 5b. Implement the following requirements:

- View Activity displays full name, profile picture, phone number, and email
- On clicking on the back button should go back to View messages activity of the contact and finish the view contact activity.



Contact First and Last Name

FirstName LastName
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tacimates ex nam.
MM/DD/YYYY HH:MM

FirstName LastName
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FirstName LastName
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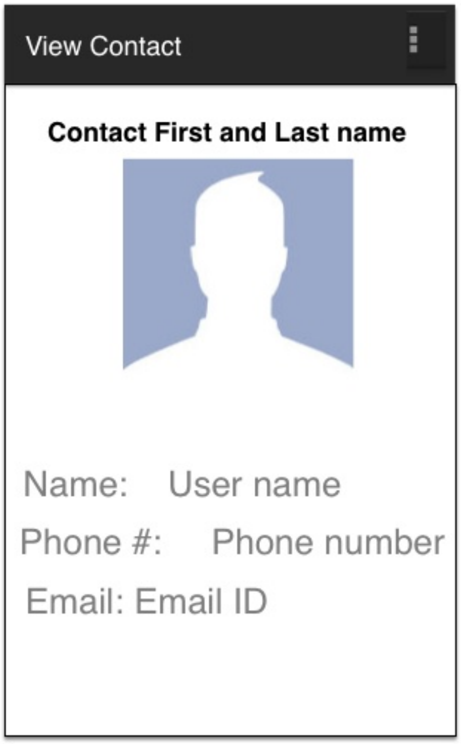
Figure 5a, On clicking on the View contact should open the View Contact Activity



View Contact

Contact First and Last name

Name: User name

Phone #: Phone number

Email: Email ID

Figure 5b, View Contact Activity