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Appendix A - Quality Assurance (Test Cases)

Test Case for Item Recognition & web URL (QR Code)

Test Case:	Item Recognition		
Description:	Scan barcode and get item details as voice and scan QR code to navigate to url.		
Actors:	User, Admin		
Preconditions:	Camera enabled android with minimum api 16		
Feature	Procedure	Expected Result	Status
Scan barcode	Scanning of the item's barcode	Display barcode number(for other reference)	PASS
Item description	Web returns item description and voice over tech convert it to voice	Description including price and its details coming in voice form	PASS
Navigation to the web pages	Scan QR Code	After scanning URL if you want to go that url just say "OK" and then it will take you to that page	PASS

Table A.1: Test Case for Travel Card windows application

Test Case for location tracking

Test Case:	GPS wallet		
Description:	Listen place description		
Actors:	User		
Preconditions:	Users should have an android based phone with minimum API - 16, GPS enabled		
Feature	Procedure	Expected Result	Status
Add address	Voice command is given	Display address	PASS
Find location	Google API is used	Direction is shown	PASS
Converted to voice command	Text to voice command is used	Voice command	PASS

Table A.2: Test Case for Travel Card mobile application

Test Case for Facebook integration

Test Case:	Facebook integration		
Description:	User access fb in his/her mobile application		
Actors:	User, Admin		
Preconditions:	User should be authenticated		
Feature	Procedure	Expected Result	Status

Login	Click login button(voice command)	Successfully logged in move to next page	PASS
Select particular friend to chat	Voice over command – friend name	Provide chat option	In-Process

Table A.3: Test Case for Tourist Ticket Book application

Test Case for Web Portal and Braintree Payment

Test Case:	Web Portal		
Description:	Manage retrieve and save details		
Actors:	User, Admin		
Preconditions:	Internet enabled		
Feature	Procedure	Expected Result	Status
Update item details	Add item details via interface	Record added successfully	PASS
Customer details (Admin)	Enter customer details with card details	Record added successfully	PASS
Return item details for particular barcode	Scan and send , webservice (php) search and return	Voice command will describe the feature	PASS
Braintree nonce return	Send appid and get nonce	On the result of the callback method in front end nonce returns	PASS
Credit card payment via pay-pal	With setting nonce and credit card details and amount send request	Payment successfully completes	PASS

Table A.4: Test Case for Web portal

Test Case for Item detection - augmented

Test Case:	Item Detection		
Description:	Camera will scan the item (eg: faces or items) and read the no of item near by		
Actors:	User, Admin		
Preconditions:	Camera enabled android with minimum api 21		
Feature	Procedure	Expected Result	Status
Scanning item	Camera will be focused on surrounding around the user	Detect the item and give message by voice	

Appendix B - Questionnaire Used For User Evaluation

Basic Information

Name of the Person:	
Place:	If working years of experience:
Working/Studying/Other..... Gender:.....	Age:

Questionnaire - Set A

Basic information of about yourself, your project, team (Tick on your selection please)

1	Have you ever used similar application before? i) Yes <input type="checkbox"/> ii) No <input type="checkbox"/>
2	If yes how many different kind of apps? i) < 3 ii) 3 – 5 iii) 6 – 10 iv) > 10
3	The biggest problem area which you think you have is i) Communication ii) Shopping (Item recognition) iii) Travelling (Recognizing places) iv) Reading/Writing Messages v) All above
4	The most required feature? i) Reading ii) Writing iii) Guiding iv) Identifying item

Questionnaire - Set B

Please tick your answer

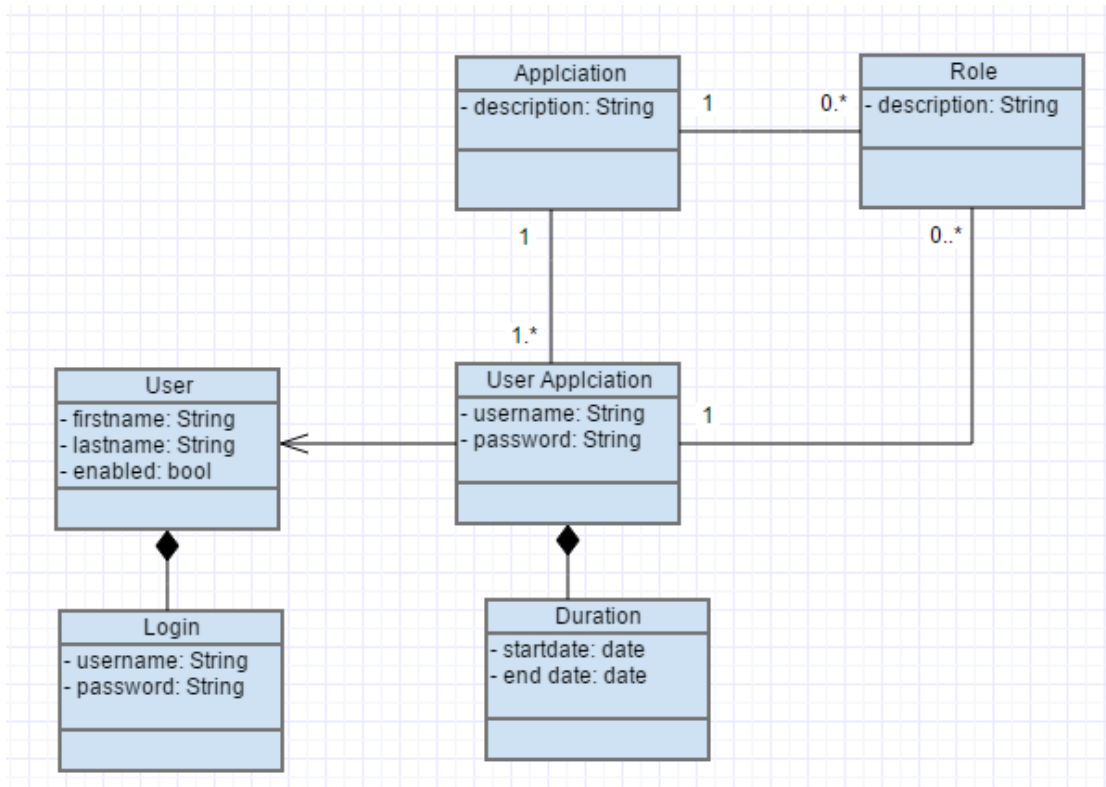
Strongly Disagree (SD)	1
Disagree(D)	2
Neither Agree or Disagree (NAD)	3

Agree(A)	4
Strongly Agree(SA)	5

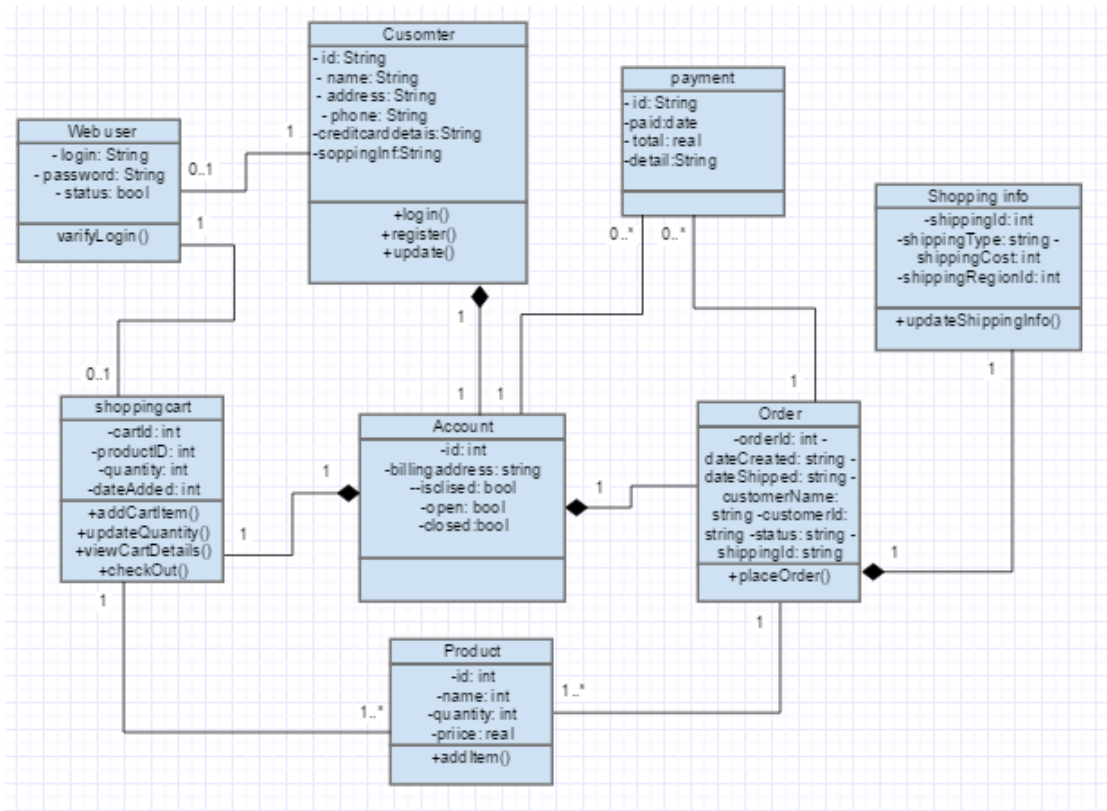
No		SD 1	D 2	M 3	A 4	SA 5
	Familiarity of the Application					
6	I can understand the flow of the app	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	I'm satisfied with navigation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Operations for the functions are easy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	Myself alone I can operate this function	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	Tap, long press, double tap events are obvious	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Satisfaction					
11	I'm satisfied with the functionalities available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	The options provided by this app is enough for the basic needs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	Voice commands and Morse code are helpful?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
No		VL 1	L 2	N 3	M 4	VM 5
	Ease of use					
14	Easy to move one item to another	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	User friendly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	Many menu items are in the only app but easy to operate each functions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Communication					
17	Localization option is a useful option	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18	Can use morse code in case if I don't hear	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19	Text – to – Speech and Speech to Text option is useful and used in appropriate place.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Meeting planned goal					
20	Does project meet all Operational/functional requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21	Does the product delivered at the end of the project match the original requirements and scope?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22	Does project efficiency being very high?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Appendix C - Class diagrams

Login



Item purchasing



Appendix D - Crucial part in implementation..

```
@Override
public boolean onTouch(View v, MotionEvent event) {
    final float xc = mCircle.getWidth() / 2;
    final float yc = mCircle.getHeight() / 2;

    final float x = event.getX();
    final float y = event.getY();

    mPrevAngle = mCurrAngle;
    mCurrAngle = Math.toDegrees(Math.atan2(x - xc, yc - y));
    animate(mPrevAngle, mCurrAngle, 0);
    int rotateAngle = (int) mCurrAngle;

    switch (rotateAngle){
        case 30:
            tv.setText("30");
            builder.setText("Do you want to go to Guide Tour page?",
speaker, context, "G");
            builder.show();
            break;
    }
}
```

Source 1.0

“Speaker object” is initialised to enable text to voice conversion.

```
speaker = new Speaker(this);
speaker.allow(true);
```

```
Parcelable[] data =
intent.getParcelableArrayExtra(NfcAdapter.EXTRA_NDEF_MESSAGES);
if (data != null) {
    try {
        for (int i = 0; i < data.length; i++) {
            NdefRecord[] recs = ((NdefMessage)data[i]).getRecords();
            for (int j = 0; j < recs.length; j++) {
                if (recs[j].getTnf() == NdefRecord.TNF_WELL_KNOWN &&
                    Arrays.equals(recs[j].getType(), NdefRecord.RTD_TEXT)) {
                    String textEncoding = ((payload[0] & 0200) == 0) ? "UTF-8" : "UTF-16";
                    int langCodeLen = payload[0] & 0077;
                    s+= new String(payload, langCodeLen + 1, payload.length -
langCodeLen - 1,
```

Source 1.1

```
Parcelable[] data =
intent.getParcelableArrayExtra(NfcAdapter.EXTRA_NDEF_MESSAGES);
if (data != null) {
    try {
        for (int i = 0; i < data.length; i++) {
            NdefRecord[] recs = ((NdefMessage)data[i]).getRecords();
            for (int j = 0; j < recs.length; j++) {
                if (recs[j].getTnf() == NdefRecord.TNF_WELL_KNOWN &&
                    Arrays.equals(recs[j].getType(), NdefRecord.RTD_TEXT)) {
                    String textEncoding = ((payload[0] & 0200) == 0) ? "UTF-8" : "UTF-16";
                    int langCodeLen = payload[0] & 0077;
                    s+= new String(payload, langCodeLen + 1, payload.length -
langCodeLen - 1,
```

Source 1.2

```

public void surfaceChanged(SurfaceHolder _holder, int format, int width, int height)
{
    Log.d(TAG, "surfaceChanged");
    if (mCamera != null) {
        Camera.Parameters params = mCamera.getParameters();
        List<Camera.Size> sizes = params.getSupportedPreviewSizes();

        mFrameWidth = width / 2;
        mFrameHeight = height / 2;

        // selecting optimal camera preview size
        {
            double minDiff = Double.MAX_VALUE;
            for (Camera.Size size : sizes) {
                Log.d(TAG, "size : " + size.width + ", " + size.height);
                if (Math.abs(size.height - height) < minDiff) {
                    mFrameWidth = size.width;
                    mFrameHeight = size.height;
                    minDiff = Math.abs(size.height - height);
                }
            }
        }
    }
}

```

Source 1.3

```

public void speak(String text){
    // Speak only if the TTS is ready
    // and the user has allowed speech
    if (ready && allowed) {
        HashMap<String, String> hash = new HashMap<String, String>();
        hash.put(TextToSpeech.Engine.KEY_PARAM_STREAM,
            String.valueOf(AudioManager.STREAM_NOTIFICATION));
        tts.speak(text, TextToSpeech.QUEUE_ADD, hash);
    }
}

```

Source 1.4

```

mname = object.getString("name").toString();
ttshowstatus.setText(mname+" Please wait...");

new GraphRequest(
    tokenToken.getAccessToken(),
    "/me/taggable_friends",
    null,
    HttpMethod.GET,
    new GraphRequest.Callback() {
        public void onCompleted(GraphResponse response) {
            Intent intent = new Intent(LoginActivity.this, GetFriends.class);
            try {
                JSONArray rawName =
response.getJSONObject().getJSONArray("data");

                intent.putExtra("jsondata", rawName.toString());
                startActivity(intent);
                ttshowstatus.setText("");
            } catch (JSONException e) {
                e.printStackTrace();
            }
        }
    }
)

```

Source 1.5

```

for (int l=0; l < friendslist.length(); l++) {
    final JSONObject obj = friendslist.getJSONObject(l);
    handler1.postDelayed(new Runnable() {
        @Override
        public void run() {
            try{
                User us=new User();
                us.setID(obj.getString("id"));
                us.setName(obj.getString("name"));
                us.setPictureURL(obj.getString("picture"));
                speaker.allow(true);
                speaker.speak(obj.getString("name"));
                speaker.allow(false);
                friends.add(us);
            } catch (JSONException e) {
                e.printStackTrace();}
        }
    });
}

```

Source 1.6

```

if (cur.getCount() > 0) {
    while (cur.moveToNext()) {
        String id = cur.getString(cur.getColumnIndex(ContactsContract.Contacts._ID));
        String name =
cur.getString(cur.getColumnIndex(ContactsContract.Contacts.DISPLAY_NAME));
        if
(Integer.parseInt(cur.getString(cur.getColumnIndex(ContactsContract.Contacts.HAS_PHONE_NUMB
ER))) > 0) {
            System.out.println("name : " + name + ", ID : " + id);
            // get the phone number
            Cursor pCur = cr.query(ContactsContract.CommonDataKinds.Phone.CONTENT_URI,
null,
                ContactsContract.CommonDataKinds.Phone.CONTACT_ID + " = ?",
                new String[]{id}, null);
            while (pCur.moveToNext()) {
                String phone = pCur.getString(
pCur.getColumnIndex(ContactsContract.CommonDataKinds.Phone.NUMBER));
                System.out.println("phone" + phone);
            }
            pCur.close();
        }
    }
}

```

Source 1.7

```

void testEntity() {
    AsyncHttpClient client = new AsyncHttpClient();
    StringEntity entity = null;
    try {
        entity = new StringEntity("{aa:sss}");
    } catch (UnsupportedEncodingException e) {
        e.printStackTrace();}
    client.post(this, "http://wallet.tigrimigri.com/serconfig.php", entity,
null,
        new TextHttpResponseHandler() {
            @Override
            public void onSuccess(int statusCode, Header[] headers,
                String responseString) {
                    try {
                        JSONObject obj = new JSONObject(responseString);

                        String success = obj.getString("result");
                        String customerid = obj.getString("cust_id");
                        String token = obj.getString("token_name");
                        // tv_result.setText(success);
                        clientToken = token;
                        mBraintreeFragment =
BraintreeFragment.newInstance(PaypalActivity.this, clientToken);
                    }
                }
            }
        }
    }
}

```

Source 1.8

```

@Override
public void onNewIntent(Intent intent) {
    String action = intent.getAction();
    Tag tag = intent.getParcelableExtra(NfcAdapter.EXTRA_TAG);
}

```

Source 1.9

```

require_once("lib/Braintree.php");
Braintree_Configuration::environment('sandbox');
Braintree_Configuration::merchantId('n7z5dzhpmwgc92kr');
Braintree_Configuration::publicKey('dqyq6kpp8vrc436t');
Braintree_Configuration::privateKey('6e2c5906103b87f87e2547c7b088ca25');
$clientToken = Braintree_ClientToken::generate();
$array = array("result" => $result->success,
    "cust_id" => $result->customer->id,
    "token_name" => $clientToken);
echo json_encode($array);

```

Source 2.0

```

$conection = new Connection();
$link = $conection->getConnection();
$query = "SELECT * FROM item where itemcode = '$itemid' ";
$result = mysql_query($query, $link) or die('Errant query: '.$query);
if(mysql_num_rows($result)) {
    while($post = mysql_fetch_assoc($result)) {
        //$posts[] = array('post'=>$post);
        $posts[] = $post; }
    }
if($format == 'json') {
    header('Content-type: application/json');
    $ret_value = json_encode(array('posts'=>$posts+"<br>"));
    }
else {
    $ret_value = $posts;
}

```

Source 2.1

```

long[] result = new long[len+1];
result[0] = 0;
int pos = 1;
lastWasWhitespace = true;
for (int i=0; i<strlen; i++) {
    char c = str.charAt(i);
    if (Character.isWhitespace(c)) {
        if (!lastWasWhitespace) {
            result[pos] = WORD_GAP;
            pos++;
            lastWasWhitespace = true;
        }
    } else {
        if (!lastWasWhitespace) {
            result[pos] = LETTER_GAP;
            pos++; }
        lastWasWhitespace = false;
        long[] letter = pattern(c);
        System.arraycopy(letter, 0, result, pos, letter.length);
        pos += letter.length;
    }
}

```

Source 2.2

Appendix E - Significance of the coding

Significant coding in this prototype app is mentioned in the below

Reading NFC

```
Parcelable[] data =
intent.getParcelableArrayExtra(NfcAdapter.EXTRA_NDEF_MESSAGES);
if (data != null) {
    try {
        for (int i = 0; i < data.length; i++) {
            NdefRecord[] recs = ((NdefMessage)data[i]).getRecords();
            for (int j = 0; j < recs.length; j++) {
                if (recs[j].getTnf() == NdefRecord.TNF_WELL_KNOWN &&
                    Arrays.equals(recs[j].getType(),
NdefRecord.RTD_TEXT)) {
                    byte[] payload = recs[j].getPayload();
                    String textEncoding = ((payload[0] & 0200) == 0) ? "UTF-
8" : "UTF-16";
                    int langCodeLen = payload[0] & 0077;

                    s += new String(payload, langCodeLen + 1,
payload.length - langCodeLen - 1,
                        textEncoding);
                }
            }
        }
    } catch (Exception e) {
        Log.e("TagDispatch", e.toString());
    }
}
```

Recognise an item

```
private void retrieveItemdata(){

    try {
        // SoapEnvelop.VER11 is SOAP Version 1.1 constant
        SoapSerializationEnvelope envelope = new
SoapSerializationEnvelope(SoapEnvelope.VER11);
        SoapObject request = new SoapObject(NAMESPACE_ITEM, METHOD_ITEM);
        request.addProperty("itemid", itemcode);
        envelope.bodyOut = request;
        HttpTransportSE transport = new HttpTransportSE(URL_ITEM);
        try {
            transport.call(NAMESPACE_ITEM + SOAP_ACTION_PREFIX_ITEM +
METHOD_ITEM, envelope);
        } catch (IOException e) {
            e.printStackTrace();
        } catch (XmlPullParserException e) {
            e.printStackTrace();
        }
        //bodyIn is the body object received with this envelope
        if (envelope.bodyIn != null) {

            SoapObject vectorOfSoapObject = (SoapObject) envelope.bodyIn;
```

```

System.out.println(vectorOfSoapObject.getProperty(0).toString());
String output = vectorOfSoapObject.getProperty(0).toString();
    resp = "";
    Vector<Object> mjson = (Vector<Object>)
vectorOfSoapObject.getProperty(0);
    //mjson.
    for (int i = 0; i < mjson.size(); i++) {
        SoapObject obj = (SoapObject) mjson.get(i);
        resp = resp +
obj.getPropertyAsString(0)/*+"\n"+obj.getPropertyAsString(1)*/+"
"+obj.getPropertyAsString(2)
        +" "+obj.getPropertyAsString(3)+"
"+obj.getPropertyAsString(4);

    }
}
} catch (Exception e) {

    e.printStackTrace();
    resp = e.getMessage();
}
}
/**
 * @see AsyncTask#onPostExecute(Object)
 */
@Override
protected void onPostExecute(String result) {
    // execution of result of Long time consuming operation
    // In this example it is the return value from the web service
    //Toast.makeText(this,result, Toast.LENGTH_LONG).show();
    //mtextView.setText(""+result);

    speaker.allow(true);
    speaker.speak(result);
    speaker.allow(false);
}

```

Facebook login and display taggable friends

/*In this method login (before that register with Facebook developer site and get appid and set in the manifest), then request for taggable friends using Facebook API, and display then using GetFriends class */.

```

protected void getLoginDetails(LoginButton login_button){
    // Callback registration
    login_button.registerCallback(callbackManager, new
FacebookCallback<LoginResult>() {

        LoginResult tokenToken = null;
        String mname;

        @Override
        public void onSuccess(LoginResult login_result) {

            tokenToken = login_result;
            ttshowstatus.setText("Please wait...");

            GraphRequest request = GraphRequest.newMeRequest(
                tokenToken.getAccessToken(),
                new GraphRequest.GraphJSONObjectCallback() {

```



```

        @Override
        public void onCompleted(
            JSONObject object,
            GraphResponse response) {
            try {
                mname = object.getString("name").toString();
                ttshowstatus.setText(mname+" Please
wait...");

                new GraphRequest(
                    tokenToken.getAccessToken(),
                    "/me/taggable_friends",
                    null,
                    HttpMethod.GET,
                    new GraphRequest.Callback() {
                        public void
onCompleted(GraphResponse response) {
                            Intent intent = new
Intent(LoginActivity.this, GetFriends.class);
                            try {
                                JSONArray rawName =
response.getJSONObject().getJSONArray("data");

                                intent.putExtra("jsondata", rawName.toString());
                                startActivity(intent);

                                ttshowstatus.setText("");
                            } catch (JSONException e) {
                                e.printStackTrace();
                            }
                        }
                    }
                ).executeAsync();

            } catch (Exception ex){}
        }
    });
    Bundle parameters = new Bundle();
    parameters.putString("fields", "id,name,email,gender,
birthday");
    request.setParameters(parameters);
    request.executeAsync();
}

@Override
public void onCancel() {
    // code for cancellation
}

@Override
public void onError(FacebookException exception) {
    // code to handle error
}
});
}

```

Appendix F - Evaluation results

Sample evaluation reports