



**NER S**

**SOFTWARE TEST DOCUMENT**

**(In accordance with IEEE 829 - 2008 )**

**v1.0**

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# 1. Introduction

These sections below identify this software test document and its scope. These sections also give information about the context in which this document is prepared and about detailed test conditions and results .

## 1.1 Document Identifier

This document is the Software Test Document of the project NERS by team CodeWhisperers. It is based on the IEEE Std 829 - 2008, IEEE Standard for Software and System Test Documentation.

Purpose of this document is, verifying and validating the system's feature, determining undesirable system's behavior and situation. Also, this document provides the team information about:

- Performance
- Bug Detection
- Logically Correctness of the System
- Usability and Reliable of the Product

## 1.2 Scope

The software product is location-based Android application developed with server-client architecture. It has four components which are Server, Client, Network and GPS. Therefore, each component of the system should be tested individually (component testing). Also, system testing should be conducted on a complete, integrated system. Since the product is developed in incremental development scrum methodology, unit testing has been applied during the development phase.

## 1.3 References

- IEEE Std 829-2008, IEEE Standard for Software and System Test Documentation
- Software Design Description of NERS
- Software Requirement Specification of NERS

## 1.4 Level in the Overall Sequence

There are three level testing which are unit, component and system testing.

## 1.5 Test Classes and Overall Test Conditions

Unit testing level covers unit functionalities described in SDD of NERS. It is performed to verify unit availability as expected.

Component testing level covers functionalities of components described in SDD of NERS. It is conducted to verify that each component functions as expected.

System testing level covers whole system. It is conducted to verify that communication between components operates as expected.

Hence, test conditions are composed by considering system and user requirements described in Software Requirement Specification Document of NERS and users' expectation/feedbacks.

## 2. Details for System Test Plan

These sections below describe test items, the features to be tested and not tested, traceability matrix, evaluation criteria for pass/fail the test and which approaches are used for testing.

### 2.1 Test Items and Their Identifiers

The test items that are used in this document are identified in SRS document of NERS so all of test items are found in this SRS document. NERS is the project that uses the properties Google Maps API, Google Cloud Messaging (GCM), Global Positioning System (GPS) and Web Application. In order to handle comprehensive testing, Test Cases and Use Cases are given below.

#### 2.1.1 Use Cases

- Use Case 1: Register
- Use Case 2: Send Event Participation Request
- Use Case 3: Show Participants of Event
- Use Case 4: Respond to Friend Request
- Use Case 5: Add Friend
- Use Case 6: Unfriend
- Use Case 7: See Location of Friends
- Use Case 8: See Friends
- Use Case 9: Message Each Other
- Use Case 10: Create Public Event
- Use Case 11: Create Private Event
- Use Case 12: Create Privileged Event
- Use Case 13: Participate Privileged Event

- Use Case 14: Response Event Invitation
- Use Case 15: Respond to Event Participation Request
- Use Case 16: Rate Event
- Use Case 17: Add Comment to Event
- Use Case 18: See Event Location
- Use Case 19: See User Profiles
- Use Case 20: See Comments of Events
- Use Case 21: Login/Logout as Privileged User
- Use Case 22: Create Privileged Event
- Use Case 23: Change in Profile Information
- Use Case 24: Cancel Event Participation
- Use Case 25: Cancel Participation Request
- Use Case 26: See Event

## 2.1.2 Test Cases

- Test Case 1: Registration from Android
- Test Case 2: Registration from Web-Interface as Privileged User
- Test Case 3: Login/Logout as Privileged User
- Test Case 4: Upload Event Photo
- Test Case 5: Add Event Description
- Test Case 6: Add Event Location in Web-Interface
- Test Case 7: Send Event Creation Data to Server
- Test Case 8: Phone Number Registration
- Test Case 9: Upload Cover Picture
- Test Case 10: Upload Profile Picture
- Test Case 11: Send Event Invitation to Friends
- Test Case 12: Get Event Data
- Test Case 13: Send Event Participation Data to Server
- Test Case 14: Comment on Event
- Test Case 15: Send Cancellation Request to Server
- Test Case 16: Vote Event
- Test Case 17: Add Friend
- Test Case 18: Get Data of Participated Event
- Test Case 19: Get Friend Location
- Test Case 20: Send Message to Friends
- Test Case 21: Get Friend Data
- Test Case 22: Respond to Friend Request
- Test Case 23: Respond to Event Notification
- Test Case 24: See All Notifications
- Test Case 25: Block one Friend from Seeing Location
- Test Case 26: Get Location Using GPS
- Test Case 27: Select Location from Google Maps
- Test Case 28: GCM Push Notification
- Test Case 29: GCM Receive Notification
- Test Case 30: Select Public Event Type
- Test Case 31: Get User Data
- Test Case 32: Unfriend
- Test Case 33: Event List Providing Time
- Test Case 34: Photo Uploading/Downloading Time



## 2.3. Features to be Tested

Firstly in NERS, the functional properties are to be tested. While testing functional properties we use specific parameters and inputs in order to see the software's behavior and see the related errors. During the test of functional properties, the nonfunctional features are to be tested. The nonfunctional features include properties like performance, reliability and storage requirements.

During the documentation of the NERS testing phase, functionalities and performance and efficiency are highlighted.

## 2.4 Features not to be Tested

Registration from Web-Interface as Privileged User and Login/Logout as Privileged User (TC2, TC3) can not be tested because implementation is not finalized yet.

## 2.5 Approach

Black-box testing which examines the functionality of an application without peering into its internal structures or workings is determined to be used based on our knowledge of internal operation and implementation of NERS.

## 2.6 Item Pass/Fail Criteria

In this testing report, two fault categories are considered; deficiency and defect. Deficiencies are faults that do not block the software from its functionality. Defects are faults that stop or break down the software from running and they do not meet the requirements.

The result is evaluated in three criteria which are pass, conditional pass and fail. **Pass** means the test case is run and no defects or deficiencies are observed. **Conditional pass** means when the test case is applied there is at least one deficiency observed but there are no defects. **Fail** means the test procedure includes a defect so it does not meet requirements.

After the tests are run, the failed ones and conditionally passed ones will be analyzed and required changes will be done accordingly. After the changes are done then we will evaluate the situation and select a case in terms of regression. There may be no regression which means there is no need for regression testing because nothing on the general program structure is affected by the change. There may be regression which means the segment of the code where the change is made should be evaluated and some test cases

may be run again. Lastly there may be full regression which means the changes affected general program structure so all changes should run again.

## 2.7 Test Deliverables

In NERS, there will have two different deliverables. The first one is STD also consists of system level test procedures/cases which are given in Section 4 of this document. The last deliverable for testing activities will be Test Report which will be prepared according to IEEE STD 829-2008 and presented in Section 5. In test report, the results of the designed testing activities will be summarized and will provide evaluations based on these results.

## 3. Test Management

### 3.1 Planned Activities and Tasks; Test Progression

The test process will start with analysis and inspection of the SDD in order to understand the requirements and design cases and code in order to find the error prone parts of the code in testing purposes. Then, necessary test cases will be determined and for better understanding, cases will be divided into groups according to their objectives. After that, the expected outputs for each test case will be decided and described. Finally, inputs for each test case will be determined.

In the final step, the results of each test will be gathered in a test results table. This will enable us to see what should be done in further steps of the software's development. The testing of this project will be done manually except performance testing. Performance testing is done while testing functional features.

### 3.2 Environment/Infrastructure

Test process has following hardware and software needs:

- **Hardware Needs:** The devices which will form the hardware components of the system shall have internet access as the system has both web and mobile platforms. Therefore, modem, WAN-LAN, Ethernet cross-cable, Mobile Internet can be considered as hardware needs. In addition, since NERS requires location, GPS is another hardware need.
- **Software Needs:** NERS system is both web and mobile platform. Mobile operating system Android 4.1 and above will be software need for smart-phone part of NERS. IE 9 and above, Firefox 4.0 and above or Chrome 8.0 and above and works on operating systems that support these browsers.



## 4. Test Case Details

This section provides the detailed explanation for each test case accompanied by the its inputs, outcomes, environmental and procedural requirements along with the dependencies among test cases. Environmental requirements clarify that in order to apply all test cases, whole system must be implemented and any web browser must be installed to computer, NERS application should be installed to smart-phone that is connected to Internet and GPS of phone should be enabled. This section includes the information for all test cases we run on the project.

For each test case, there are 7 fields; Test Case Identifier, Objective, Inputs, Outcomes, Environmental Needs, Special Procedural Requirements, Intercase Dependencies. Test case id is unique for each test case and is used for identifying test cases.

Test case objective explains why the test is run on the project. Inputs are what inputs are to be given to the program in order to run that test and parameters are changes in source code in order to see the behavior of the program. Outcomes are what we desire to see after the test is applied. Environmental Needs are needs for running the tests. There are no specific special procedural requirements. Intercase dependencies are dependencies between test cases.

### 4.1 Functionality Testing

<b>TC Identifier</b>	TC1
<b>Objective</b>	Registration from Android based smart-phone
<b>Inputs</b>	Phone Number, Username, Name, Surname, Birth year, email, Profile Picture
<b>Outcomes</b>	User data is added to database, User is redirected to main screen of NERS, General informations of user is stored to phone cache. Smart-phone is kept logged in after this case.
<b>Environmental Needs</b>	Server should run on PHP.
<b>Special Procedural Req.</b>	
<b>Intercase Dependencies</b>	

<b>TC Identifier</b>	TC2
<b>Objective</b>	Registration from Webpage as Privileged User
<b>Inputs</b>	Phone Number, Username, Name, Surname, Birth year, email, Profile Picture
<b>Outcomes</b>	User data is added to database, User is redirected admin page of NERS webpage.
<b>Environmental Needs</b>	Server should run on PHP.
<b>Special Procedural Req.</b>	
<b>Intercase Dependencies</b>	

<b>TC Identifier</b>	TC3
<b>Objective</b>	Login/Logout as Privileged User
<b>Inputs</b>	Email address or phone number and password is given.
<b>Outcomes</b>	User is redirected admin page of NERS webpage.
<b>Environmental Needs</b>	Server should run on PHP.
<b>Special Procedural Req.</b>	
<b>Intercase Dependencies</b>	TC2

<b>TC Identifier</b>	TC4
<b>Objective</b>	Upload Event Photo
<b>Inputs</b>	Selected Event photo will be uploaded.
<b>Outcomes</b>	Selected photo is added to current environment (Web page or NERS application).

<b>Environmental Needs</b>	Server should run on PHP. If photo is uploaded from smart-phone, Picasso library should run.
<b>Special Procedural Req.</b>	
<b>Intercase Dependencies</b>	TC3

<b>TC Identifier</b>	TC5
<b>Objective</b>	Add Event Description / Date&Time
<b>Inputs</b>	Event description is written and event date & time decided
<b>Outcomes</b>	Selected data is added to current environment (Web page or NERS application).
<b>Environmental Needs</b>	Server should run on PHP.
<b>Special Procedural Req.</b>	
<b>Intercase Dependencies</b>	TC3

<b>TC Identifier</b>	TC6
<b>Objective</b>	Add Event Location in Web-Interface
<b>Inputs</b>	GPS data or selected location from Google Maps.
<b>Outcomes</b>	Selected location is added to current environment (Web page or NERS application).
<b>Environmental Needs</b>	GPS of computer should be enabled.
<b>Special Procedural Req.</b>	
<b>Intercase Dependencies</b>	TC3

<b>TC Identifier</b>	TC7
<b>Objective</b>	Send Event Creation Data to Database
<b>Inputs</b>	Selected event data.
<b>Outcomes</b>	Event data is sent to NERS server.
<b>Environmental Needs</b>	Server should run on PHP. If photo is uploaded from smart-phone, Picasso library should run.
<b>Special Procedural Req.</b>	
<b>Intercase Dependencies</b>	TC3, TC4, TC5, TC6

<b>TC Identifier</b>	TC8
<b>Objective</b>	Phone Number Registration
<b>Inputs</b>	User types phone number.
<b>Outcomes</b>	Generated SMS is received and checked by the application.
<b>Environmental Needs</b>	Cellular uptake should be on.
<b>Special Procedural Req.</b>	Phone should send SMS.
<b>Intercase Dependencies</b>	

<b>TC Identifier</b>	TC9
<b>Objective</b>	Upload Cover Picture
<b>Inputs</b>	User selects a photograph from gallery.
<b>Outcomes</b>	Selected photograph should be saved to NERS server.
<b>Environmental Needs</b>	Server should run on PHP. Picasso library should work.
<b>Special Procedural</b>	

<b>Req.</b>	
<b>Intercase Dependencies</b>	

<b>TC Identifier</b>	TC10
<b>Objective</b>	Upload Profile Picture
<b>Inputs</b>	User selects a photograph from gallery.
<b>Outcomes</b>	Selected photograph should be saved to NERS server.
<b>Environmental Needs</b>	Server should run on PHP. Picasso library should work.
<b>Special Procedural Req.</b>	
<b>Intercase Dependencies</b>	

<b>TC Identifier</b>	TC11
<b>Objective</b>	Send Event Invitations to Friends
<b>Inputs</b>	User selects people from friends.
<b>Outcomes</b>	GCM notification is pushed to users that are invited. Corresponding invitation is stored in next user's smart-phone. They should be able to respond invitation.
<b>Environmental Needs</b>	Server should run on PHP and Curl. GCM server should send notification.
<b>Special Procedural Req.</b>	
<b>Intercase Dependencies</b>	TC7, TC28, TC29

<b>TC Identifier</b>	TC12
<b>Objective</b>	Get Event Data

<b>Inputs</b>	User clicks on any of event tabs, opens event notification screen, opens event comments page or opens event participations page.
<b>Outcomes</b>	General informations about event(s) that are: date&time, event creator, event creator name&surname, event participation indicator, event description, event picture, participant and comment count and event type indicator is shown.
<b>Environmental Needs</b>	Server should run on PHP. Picasso library should operate.
<b>Special Procedural Req.</b>	
<b>Intercase Dependencies</b>	

<b>TC Identifier</b>	TC13
<b>Objective</b>	Send Event Participation Data to Server
<b>Inputs</b>	Corresponding event and participation requestor's username.
<b>Outcomes</b>	Event participation record is stored in NERS server. If the event is Public Event, corresponding notification is sent and stored. If it is Privileged Event, user is stored as s/he is a participant of that event.
<b>Environmental Needs</b>	Server should run on PHP and Curl. GCM server should send notification to event creator.
<b>Special Procedural Req.</b>	
<b>Intercase Dependencies</b>	TC12, TC28, TC29

<b>TC Identifier</b>	TC14
<b>Objective</b>	Comment on Event
<b>Inputs</b>	User opens event comment page, writes comment and clicks on comment button
<b>Outcomes</b>	Corresponding comment is stored in NERS server, comment page and comment count are updated accordingly, Event participants and Users commented receives GCM notification.

<b>Environmental Needs</b>	Server should run on PHP and Curl. GCM should send notification
<b>Special Procedural Req.</b>	
<b>Intercase Dependencies</b>	TC12, TC28, TC29

<b>TC Identifier</b>	TC15
<b>Objective</b>	Send Cancellation Request to Server
<b>Inputs</b>	Event participation indicating participating or request is waiting is clicked.
<b>Outcomes</b>	User is shown as neither participant nor requestor to corresponding event. Event participation condition is updated in NERS server.
<b>Environmental Needs</b>	Server should run on PHP.
<b>Special Procedural Req.</b>	
<b>Intercase Dependencies</b>	TC13

<b>TC Identifier</b>	TC16
<b>Objective</b>	Send Vote
<b>Inputs</b>	User clicks rating button and selects desired vote.
<b>Outcomes</b>	Vote is stored in NERS server, voter count and average vote updated accordingly.
<b>Environmental Needs</b>	Server should run on PHP.
<b>Special Procedural Req.</b>	
<b>Intercase Dependencies</b>	TC12, TC18

<b>TC Identifier</b>	TC17
<b>Objective</b>	Add Friend Request to Server
<b>Inputs</b>	User clicks add button on page where all users (according to constraints, most of them are eliminated; desired ones are shown) are displayed.
<b>Outcomes</b>	Friend request is stored at NERS server, GCM notification is sent to corresponding user.
<b>Environmental Needs</b>	Server should run on PHP and Curl. GCM should send notification
<b>Special Procedural Req.</b>	
<b>Intercase Dependencies</b>	TC28, TC29, TC31

<b>TC Identifier</b>	TC18
<b>Objective</b>	Get Data of Participated Event
<b>Inputs</b>	In main event page or event page that indicates specific user's events, user clicks on event participants button or event location button.
<b>Outcomes</b>	Requested event data which is either location or event participants is received and corresponding screen which can be either map view that have event locations or event participant screen is opened.
<b>Environmental Needs</b>	Server should run on PHP. Picasso library should work.
<b>Special Procedural Req.</b>	
<b>Intercase Dependencies</b>	TC12

<b>TC Identifier</b>	TC19
<b>Objective</b>	Get Friend Location
<b>Inputs</b>	User opens messaging screen with one friend or nearby friends



<b>Outcomes</b>	Corresponding friends' location is taken from database and displayed in maps screen.
<b>Environmental Needs</b>	Server should run on PHP.
<b>Special Procedural Req.</b>	
<b>Intercase Dependencies</b>	TC21, TC31

<b>TC Identifier</b>	TC20
<b>Objective</b>	Send Message to Friend
<b>Inputs</b>	User opens messaging screen with one friend, types some message and clicks send button.
<b>Outcomes</b>	Message and its notification is sent to next user, message histories are stored in both sides. Local smart-phone database updated accordingly.
<b>Environmental Needs</b>	Server should run on PHP. SQLite should work on smart-phone
<b>Special Procedural Req.</b>	
<b>Intercase Dependencies</b>	TC21, TC28, TC29

<b>TC Identifier</b>	TC21
<b>Objective</b>	Get Friend Data
<b>Inputs</b>	User clicks on a friend's profile.
<b>Outcomes</b>	Friend's profile and cover pictures, her/his friends and public events are displayed.
<b>Environmental Needs</b>	Server should run on PHP. Picasso library should work.
<b>Special Procedural Req.</b>	

<b>Intercase Dependencies</b>	TC31
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<b>TC Identifier</b>	TC22
<b>Objective</b>	Respond Friend Request
<b>Inputs</b>	User clicks accept/reject button in waiting friends requests screen
<b>Outcomes</b>	User's response is sent to next user with a notification. NERS database is updated according to the response.
<b>Environmental Needs</b>	Server should run on PHP and Curl. GCM server should work.
<b>Special Procedural Req.</b>	
<b>Intercase Dependencies</b>	TC28, TC29, TC31

<b>TC Identifier</b>	TC23
<b>Objective</b>	Respond Event Notification
<b>Inputs</b>	User opens event notification screen, clicks on one of 4: - Accept participation request. - Reject participation request - Accept event invitation - Reject event invitation
<b>Outcomes</b>	If user responds participation request, notification is sent to next user. If user responds invitation request, notification is not sent. NERS database is updated accordingly.
<b>Environmental Needs</b>	Server should run on PHP and Curl. GCM server should work.
<b>Special Procedural Req.</b>	
<b>Intercase Dependencies</b>	TC28, TC29, TC31

<b>TC Identifier</b>	TC24
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<b>Objective</b>	See All Notifications
<b>Inputs</b>	User opens notification screen either inside the application or by clicking notification generated by NERS in notification panel of smart-phone.
<b>Outcomes</b>	User is able to see all event and friend notifications and navigate to them.
<b>Environmental Needs</b>	SQLite should run.
<b>Special Procedural Req.</b>	
<b>Intercase Dependencies</b>	

<b>TC Identifier</b>	TC25
<b>Objective</b>	Block Friend from Seeing Location
<b>Inputs</b>	User clicks block block button in friends page.
<b>Outcomes</b>	Blocked user becomes unable to see location of user who blocks the other.
<b>Environmental Needs</b>	Server should work on PHP.
<b>Special Procedural Req.</b>	
<b>Intercase Dependencies</b>	

<b>TC Identifier</b>	TC26
<b>Objective</b>	Get Location using GPS
<b>Inputs</b>	One of messaging screen, friends screen on map, events screen on map or create event screen is opened. In web-interface, select location is clicked for creating privileged event.
<b>Outcomes</b>	Needed location information is taken. In android location is update in map if the action is not event creation. In event creation, needed

	location is hold at platform.
<b>Environmental Needs</b>	Server should work on PHP. Smart-phone or laptop GPS should work.
<b>Special Procedural Req.</b>	GPS is enabled.
<b>Intercase Dependencies</b>	

<b>TC Identifier</b>	TC27
<b>Objective</b>	Select Location from Google Maps
<b>Inputs</b>	In event creation screen, user clicks on 'Let me choose event location' button. Nearby locations are listed according to user's current location taken by GPS
<b>Outcomes</b>	Selected location is hold at smart-phone and ready to be processed
<b>Environmental Needs</b>	Server should work on PHP. Smart-phone GPS should work.
<b>Special Procedural Req.</b>	GPS is enabled.
<b>Intercase Dependencies</b>	TC26

<b>TC Identifier</b>	TC28
<b>Objective</b>	GCM Push Notification
<b>Inputs</b>	One of responding event participation request, responding friends request, messaging with friend, sending event invitation action is triggered
<b>Outcomes</b>	Corresponding notification is sent and stored at next user.
<b>Environmental Needs</b>	Server should work on PHP and Curl. GCM server should work.
<b>Special Procedural Req.</b>	

<b>Intercase Dependencies</b>	
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<b>TC Identifier</b>	TC29
<b>Objective</b>	GCM Receive Notification
<b>Inputs</b>	
<b>Outcomes</b>	Notification is occurred in notification panel of smart-phone and necessary navigation is set.
<b>Environmental Needs</b>	Server should work on PHP and Curl. GCM server should work.
<b>Special Procedural Req.</b>	
<b>Intercase Dependencies</b>	

<b>TC Identifier</b>	TC30
<b>Objective</b>	Select Public Event Type
<b>Inputs</b>	Type is selected among Eating, Drinking, Coffee, Nightout, Gaming, Movie, Sports, Exercising, Shopping or Studying in event creation screen.
<b>Outcomes</b>	Public event type information is kept in smart-phone and set ready to be sent for event creation button trigger.
<b>Environmental Needs</b>	
<b>Special Procedural Req.</b>	
<b>Intercase Dependencies</b>	

<b>TC Identifier</b>	TC31
<b>Objective</b>	Get User Data

<b>Inputs</b>	One of event participants, event comments, event lists, friends, add friend, user profile or create event screen where displaying username, name, surname and profile picture is a must is opened.
<b>Outcomes</b>	Corresponding information is listed. Additional informations are ready to be displayed.
<b>Environmental Needs</b>	Server should work on PHP and Curl. Picasso library should work.
<b>Special Procedural Req.</b>	
<b>Intercase Dependencies</b>	

<b>TC Identifier</b>	TC32
<b>Objective</b>	Unfriend
<b>Inputs</b>	In friends screen, unfriend button is clicked.
<b>Outcomes</b>	Informations are updated accordingly.
<b>Environmental Needs</b>	Server should work on PHP.
<b>Special Procedural Req.</b>	
<b>Intercase Dependencies</b>	

## 4.2 Performance and Efficiency Testing

<b>TC Identifier</b>	TC33
<b>Objective</b>	Event List Providing Time
<b>Inputs</b>	-
<b>Outcomes</b>	Events are listed less than 1 second.
<b>Environmental Needs</b>	Server should work on PHP. Picasso library should work.
<b>Special Procedural Req.</b>	
<b>Intercase Dependencies</b>	

<b>TC Identifier</b>	TC34
<b>Objective</b>	Photo Uploading/Downloading Time
<b>Inputs</b>	-
<b>Outcomes</b>	Profile photo is uploaded/downloaded less than 1 second.
<b>Environmental Needs</b>	Server should work on PHP. Picasso library should work.
<b>Special Procedural Req.</b>	
<b>Intercase Dependencies</b>	

<b>TC Identifier</b>	TC35
<b>Objective</b>	GCM Notification Time
<b>Inputs</b>	Corresponding notification is generated.
<b>Outcomes</b>	Sent event waked notification instantly.

<b>Environmental Needs</b>	Server should work on PHP and Curl. GCM server should work.
<b>Special Procedural Req.</b>	
<b>Intercase Dependencies</b>	

<b>TC Identifier</b>	TC36
<b>Objective</b>	Memory Management
<b>Inputs</b>	1MB sized image is uploaded
<b>Outcomes</b>	Image scaled and size is decremented 40KB
<b>Environmental Needs</b>	Server should work on PHP. Picasso library should work.
<b>Special Procedural Req.</b>	
<b>Intercase Dependencies</b>	

## 5. System Test Report Details

### 5.1 Overview of Test Results

After all test cases have been conducted, it has been seen that system works as expected, learning that system can not pass all of the test cases. Two test cases failed. Results are analyzed immediately and necessary works are decided and divided among group members.

#### 5.1.1 Test Environments

- Ubuntu 14.10, 2.40Ghz Processor , 2 Mb cache ,143 GB Harddisk, 2 cores for the server
- Android 4.4.2 , 2.66 Gb Ram , 32GB Internal Storage for Client
- Android 4.4.2 , 2GB Ram , 16GB Internal Storage for Client
- Android 4.1.2 , 463 Mb Ram, 4 GB Internal Storage for Client



## 5.2. Detailed Test Results

TC1	Pass
TC2	Pass
TC3	Fail
TC4	Fail
TC5	Pass
TC6	Pass
TC7	Pass
TC8	Pass
TC9	Pass
TC10	Pass
TC11	Pass
TC12	Pass
TC13	Pass
TC14	Pass
TC15	Pass
TC16	Pass
TC17	Pass
TC18	Pass
TC19	Pass
TC20	Pass
TC21	Pass
TC22	Pass
TC23	Pass
TC24	Pass
TC25	Pass

<b>TC26</b>	Pass
<b>TC27</b>	Pass
<b>TC28</b>	Pass
<b>TC29</b>	Pass
<b>TC30</b>	Pass
<b>TC31</b>	Pass
<b>TC32</b>	Pass
<b>TC33</b>	Pass
<b>TC34</b>	Pass
<b>TC35</b>	Pass
<b>TC36</b>	Pass

### 5.3. Rationale for Decisions

Test results tells us that Android component is ready to use and publish it to Android Market. The result of the test run is checked to find errors, anomalies. In web-interface, creating two relatively implementable functionalities would not take too much work. These results indicates that NERS system is almost ready to establish. However, testing process does not guarantee that the application does not face with any more problems.

### 5.4 Conclusions and Recommendation

As a result, project NERS passed most of the tests cases. However, it does not mean that system will work perfectly. Also, unimplemented method/modules will be tested.