**Emergency Information on Mobile**

Test Plan

By

Putchakarn Jaikon 542115031

Sawatdiporn Kitirot 542115065

Department of Software Engineering

College of Arts, Media and Technology

Chiang Mai University

Project Advisor

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**Aj.Chartchai Doungsa-ard**

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# Chapter One | Introduction

## 1.1 Objectives

The objectives of the test plan of Emergency Information on Mobile project is to establish test plan of the unit testing and system testing and make sure that the bugs or the defects are discovered and fixed. The unit testing covers all of the implemented methods in the Emergency Information on Mobile system. The system testing covers the user requirements.

## 1.2 Scope

This test plan describes the unit testing activities to detect the defects on the system and describes the system testing activities for testing a completely integrated system to verify that it meets the user requirements.

## Acronyms and Definitions

* + 1. **Acronyms**

EIOM Emergency Information on Mobile

SRS Software Requirement Specification

URS User Requirement Specification

SDD Software Design Document

UI User Interface

* + 1. **Definitions**

|  |  |
| --- | --- |
| Feature | Transformation of input parameters to output parameters based on a specified algorithm. It describes the functionality of a product in the language of the product. Used for requirements analysis, design, coding, testing or maintenance.[IEEE90] |
| IEEE | Institute for Electrical and Electronics Engineers. Biggest global interest group for engineers of different branches and for computer scientists.[IEEE90] |
| Requirement | (1) A condition or capability needed by a user to solve a problem or achieve an objective.(2) A condition or capability that must be met or possessed by a system or system component to satisfy a contract, standard, specification, or other formally imposed document.(3) A documented representation of a condition or capability as in definition (1) or (2).[IEEE90] |

|  |  |
| --- | --- |
| Specification | Precise description of an activity or work product which serves as basis or input for further activities or work product. A specification can comprise requirements to a  Product and how they will be solved. Different parts of a specification (e.g. what is to be done, how it will be done) must not be mixed.[IEEE90] |
| UML | Unified Modeling Languages. Standardized notation for Modeling design descriptions, architectures or scenarios. Not depending on a specific method. Issued and maintained by the Object Management Group (OMG).[IEEE90] |
| Use case | (1)Concept to describe a system based on usage of system resources by its environment. Characterized by an objective-set of interactions within and at the borders of that system. (2) Notation from UML for describing a scenario(Usage approach, operational scenario)from the perspective of this user.[IEEE90] |

# Chapter Two | Test Plan and Test Procedure

## 2.1 Test Objective

The objectives of testing Emergency Information on Mobile project are:

1. All bugs or defects are detected.
2. Those bugs or defects are fixed.
3. Functions and user interface covered the requirements.
4. All functions and features must be there.

## 2.2 Scope of testing

Emergency Information on Mobile will test by white-box testing techniques that are unit testing and system testing and record the test results in the test record.

## 2.3 Purpose of Test Plan and Test Procedure

In this document consist of test plan and test procedure of progress report I. So the stakeholder of Emergency Information on Mobile can review the test in the project.

## 2.4 Test Duration

|  |  |
| --- | --- |
| **Progress** | **Date and Duration** |
| Progress Report I | **Perform date:** 10/03/14 -11/07/14  **Duration:** 124 days |

## 2.5 Test Responsibility

|  |  |
| --- | --- |
| **Item** | **Responsibility** |
| Unit test of server part (web application) | Sawatdiporn |
| Unit test of mobile part (mobile application) | Putchakarn |
| Record unit test of server part | Sawatdiporn |
| Record unit test of mobile part | Putchakarn |

## 2.6 Test Strategy

Emergency Information on Mobile test strategy will be follow by:

1. Design test case for each feature.
2. Prepare test data for each feature.
3. Determine expected results.
4. Perform testing on individual features.
5. Result of testing will be recorded.
6. All test files will be stored in the project repository.

## 2.7 Result of Testing

In the test record the test result will separate into two parts, which are:

1. Actual output: The actual outputs that are performed by each test case.

2. Pass/Fail criteria:

2.1 Pass: The result of actual is same like expected result.

2.2 Fail: the result of actual result is not same like expected result.

## Test Environment

**2.8.1 Hardware**

* **Computers**
  + Apple Macbook Pro mid 2013
    - Processor: Intel® Core™ i7-3520M CPU @ 2.90GHz 2.90GHz
    - RAM: 8.00 GB
    - Operating System: Windows 7 Ultimate
  + Dell Inspiron n5110
    - Processor: Intel® Core™ i5-2410M CPU @ 2.30GHz 2.30GHz
    - RAM: 4.00 GB
    - Operating System: Windows 7 Ultimate
* **Mobile phones:** Android Operating System
  + Samsung Galaxy Grand 2 SM-G7102
    - CPU: Quad-core 1.2 GHz Cortex-A7
    - RAM: 1.5 GB
    - Operating System: Android OS, v4.3 (Jelly Bean)
  + Samsung Galaxy S DUOS
    - CPU: 1GHz Cortex-A5
    - RAM: 768 MB
    - Operating System: Android OS, v4.04 (Ice Cream Sandwich)
    1. **Software**
* IntelliJ IDEA
* Eclipse
* Google chrome

# Chapter Three | Unit testing of EIOM

## 3.1 Server Part

**3.1.1 Class name for testing**: HelpPlaceServiceImpl

**Unit Test Case 1 (UTC-01):** getHelpPlaces():List<HelpPlace>

**Class name:** HelpPlaceServiceImplTest **Test Data:** Test Record 1 in appendix A

|  |  |  |
| --- | --- | --- |
| **Case** | **Description** | **Expected Result** |
| **List of help place object** |
| **ID** |
| 1 | Test get all help place in database | 1,2,3,4,5 |

**Unit Test Case 2 (UTC-02):** findById(Integer id):HelpPlace

**Class name:** HelpPlaceServiceImplTest **Test Data:** Test Record 1 in appendix A

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Case** | **Description** | **Input** | **Expected Result** | | | | | | | | |
| **Help place object** | | | | | | | | |
| **Name** | **Address** | **District** | **Province** | **Zip code** | **Phone Number** | **Latitude** | **Longitude** | **Category** |
| 1 | Test find help place by input ID which is in database | 1 | Maharaj Nakorn Chiang Mai Hospital | 10 Suthep Rd | Mueang Chiang Mai | Chiang Mai | 50200 | 053947700 | 18.789602 | 98.974209 | Hospital |
| 2 | Test find help place by input ID which is not in database | 6 | null | | | | | | | | |

**Unit Test Case 3 (UTC-03):** updateHelpPlace(HelpPlace helpPlace):HelpPlace

**Class name:** HelpPlaceServiceImplTest **Test Data:** Test Record 1 in appendix A

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Case** | **Description** | **Input** | | | | | | | | |
| **Help place object** | | | | | | | | |
| **Name** | **Address** | **District** | **Province** | **Zip code** | **Phone Number** | **Latitude** | **Longitude** | **Category** |
| 1 | Test update help place into database | Maharaj Nakorn Chiang Mai Hospital | 10 Suthep Rd | Mueang Chiang Mai | Chiang Mai | 50200 | 053111111 | 18.789602 | 98.974209 | Hospital |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Case** | **Expected Result** | | | | | | | | |
| **Help place object** | | | | | | | | |
| **Name** | **Address** | **District** | **Province** | **Zip code** | **Phone Number** | **Latitude** | **Longitude** | **Category** |
| 1 | Maharaj Nakorn Chiang Mai Hospital | 10 Suthep Rd | Mueang Chiang Mai | Chiang Mai | 50200 | 053111111 | 18.789602 | 98.974209 | Hospital |

**Unit Test Case 4 (UTC-04):** deleteHelpPlace(HelpPlace helpPlace):boolean

**Class name:** HelpPlaceServiceImplTest **Test Data:** Test Record 1 in appendix A

|  |  |  |  |
| --- | --- | --- | --- |
| **Case** | **Description** | **Input** | **Expected Result** |
| **Help place object** | **Boolean** |
| **ID** |
| 1 | Test delete help place in database | 1 | true |
| 2 | Test delete help place in database | 4 | true |
| 3 | Test delete help place which not in database | 7 | false |

**Unit Test Case 5 (UTC-05):** getHelpPlacesByCategory(Integer categoryId)**:**List<HelpPlace>

**Class name:** HelpPlaceServiceImplTest **Test Data:** Test Record 1 in appendix A

|  |  |  |  |
| --- | --- | --- | --- |
| **Case** | **Description** | **Input** | **Expected Result** |
| **List of help place object** |
| **ID** |
| 1 | Test get help place by input category id | 1 | 1,2,3 |
| 2 | Test get help place by input category id | 3 | 5 |
| 3 | Test get help place by input category id which is not in database | 5 | null |

**Unit Test Case 6 (UTC-06):** getHelpPlacesByProvince(Integer provinceId)**:**List<HelpPlace>

**Class name:** HelpPlaceServiceImplTest **Test Data:** Test Record 1 in appendix A

|  |  |  |  |
| --- | --- | --- | --- |
| **Case** | **Description** | **Input** | **Expected Result** |
| **List of help place object** |
| **ID** |
| 1 | Test get help place by input province id | 1 | 1,2,5 |
| 2 | Test get help place by input province id | 2 | 4 |
| 3 | Test get help place by input province id which is not in database | 5 | null |

**Unit Test Case 7 (UTC-07):** getHelpPlacesByCategoryAndProvince(Integer categoryId,Integer provinceId)**:**List<HelpPlace>

**Class name:** HelpPlaceServiceImplTest **Test Data:** Test Record 1 in appendix A

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Case** | **Description** | **Input** | | **Expected Result** |
| **Category ID** | **Province ID** | **List of help place object** |
| **ID** |
| 1 | Test get help place by input category id and province id | 1 | 1 | 1,2 |
| 2 | Test get help place by input category id and province id | 1 | 3 | 3 |
| 3 | Test get help place by input category id and province id which is not in database | 3 | 3 | null |
| 4 | Test get help place by input category id and province id which is not in database | 2 | 1 | null |

**3.1.2 Class name for testing**: CategoryServiceImpl

**Unit Test Case 8 (UTC-08):** getCategories():List<Category>

**Class name:** CategoryServiceImplTest  **Test Data:** Test Record 2 in appendix A

|  |  |  |
| --- | --- | --- |
| **Case** | **Description** | **Expected Result** |
| **List of category object** |
| **ID** |
| 1 | Test get all categories in database | 1,2,3 |

**Unit Test Case 9 (UTC-09):** getCategoryById (Integer id):Category

**Class name:** CategoryServiceTest  **Test Data:** Test Record 2 in appendix A

|  |  |  |  |
| --- | --- | --- | --- |
| **Case** | **Description** | **Input** | **Expected Result** |
| **Category object** |
| **ID** |
| 1 | Test find category by input ID which is in database | 1 | 1 |
| 2 | Test find category by input ID which is not in database | 5 | null |

**3.1.3 Class name for testing**: ProvinceServiceImpl

**Unit Test Case 10 (UTC-10):** getProvinces():List<Province>

**Class name:** ProvinceServiceImplTest  **Test Data:** Test Record 3 in appendix A

|  |  |  |
| --- | --- | --- |
| **Case** | **Description** | **Expected Result** |
| **List of province object** |
| **ID** |
| 1 | Test get all provinces in database | 1,2,3 |

**Unit Test Case 11 (UTC-11):** getProvinceById (Integer id):Province

**Class name:** ProvinceServiceTest  **Test Data:** Test Record 3 in appendix A

|  |  |  |  |
| --- | --- | --- | --- |
| **Case** | **Description** | **Input** | **Expected Result** |
| **Province object** |
| **ID** |
| 1 | Test find province by input ID which is in database | 1 | 1 |
| 2 | Test find province by input ID which is not in database | 5 | null |

## 3.2 Mobile Part

**3.2.1 Class name for testing**: HelpPlaceServiceImpl

**Unit Test Case 12 (UTC-12):** testGetHelpPlaceByJsonOBJ (JSONObject jsonOBJ):JSONArray

**Class name:** HelpPlaceServiceImplTest  **Test Data:** Test Record 4 in appendix A

|  |  |  |  |
| --- | --- | --- | --- |
| **Case** | **Description** | **input** | **Expected Result** |
| **JSON object** | **Size of JSON Array** |
| 1 | Test to get JSON array by input JSON object | {"Android":[{"Address":"110 Suthep Rd, Mueang Chiang Mai District, Chiang Mai","PhoneNumber":"053947700","Latitude":"18.789602","Longitude":"98.974209","Name":"Maharaj Nakorn Chiang Mai Hospital"}]} | 1 |

**Unit Test Case 13 (UTC-13):** testGetHelpPlacesOnDevice():HelpPlace []

**Class name:** HelpPlaceServiceImplTest  **Test Data:** Test Record 4 in appendix A

|  |  |  |
| --- | --- | --- |
| **Case** | **Description** | **Expected Result** |
| **Size of HelpPlace Array** |
| 1 | Test get value from input help place in array list to array | 5 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Case** | **Description** | **Expected Result** | | | | | |
| **HelpPlace object** | | | | | |
| **Id** | **Name** | **Address** | **Phone Number** | **Latitude** | **Longitude** |
| 1 | Test to get help place from device database | 1 | Maharaj Nakorn Chiang Mai Hospital | 110 Suthep Rd, Mueang Chiang Mai District, Chiang Mai | 053947700 | 18.789602 | 98.974209 |
| 2 | Test to get help place from device database | 2 | Lanna Hospital | Chang Phuak Amphoe Mueang Chiang Mai, Chang Wat Chiang Mai | 053999758 | 18.812723 | 98.991151 |
| 3 | Test to get help place from device database | 3 | Muang Chiang Mai Police Station | Si Phum Mueang Chiang Mai District, Chiang Mai | 053276040 | 18.788341 | 98.984755 |
| 4 | Test to get help place from device database | 4 | Chang Phueak Police Station | Mueang Chiang Mai District, Chiang Mai | 053218443 | 18.818822 | 98.975520 |
| 5 | Test to get help place from device database | 5 | Kriangkrai Konlakan Garage | 7/2, See Ping Mueang Road, Tambon Chang Khlan, Amphoe Mueang, Chiang Mai | 053244599 | 18.771195 | 98.983062 |

**Appendix A**

* Test Record 1

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Help Place Object** | | | | | | | | | |
| **ID** | **Name** | **Address** | **District** | **Province** | **Zip code** | **Phone Number** | **Latitude** | **Longitude** | **Category** |
| 1 | Maharaj Nakorn Chiang Mai Hospital | 10 Suthep Rd | Mueang Chiang Mai | Chiang Mai | 50200 | 053947700 | 18.789602 | 98.974209 | Hospital |
| 2 | Lanna Hospital | Chang Phuak | Mueang Chiang Mai | Chiang Mai | 50300 | 053999758 | 18.812723 | 98.991151 | Hospital |
| 3 | Lampang Hospital | Tambon Phrabat | Amphoe Mueang Lampang | Lampang | 52000 | 054237400 | 18.285378 | 99.506305 | Hospital |
| 4 | Chiang Rai Police Station | Rattanakeat Road | Mueang Chiang Rai | Chiang Rai | 57000 | 053603100 | 19.912221 | 99.832526 | Police Station |
| 5 | Ruangchai Yon Garage | Outer Ring Road | Saraphi District | Chiang Mai | 50000 | 053242999 | 18.750651 | 99.055108 | Garage |

* Test Record 2

|  |  |
| --- | --- |
| **Category Object** | |
| **ID** | **Name** |
| 1 | Hospital |
| 2 | Police Station |
| 3 | Garage |

* Test Record 3

|  |  |
| --- | --- |
| **Province Object** | |
| **ID** | **Name** |
| 1 | Chiang Mai |
| 2 | Chiang Rai |
| 3 | Lampang |

* Test Record 4

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **JSON object** | | | | | |
| **ID** | **Name** | **Address** | **Phone Number** | **Latitude** | **Longitude** |
| 1 | Maharaj Nakorn Chiang Mai Hospital | 110 Suthep Rd, Mueang Chiang Mai District, Chiang Mai | 053947700 | 18.789602 | 98.974209 |
| 2 | Lanna Hospital | Chang Phuak Amphoe Mueang Chiang Mai, Chang Wat Chiang Mai | 053999758 | 18.812723 | 98.991151 |
| 3 | Muang Chiang Mai Police Station | Si Phum Mueang Chiang Mai District, Chiang Mai | 053276040 | 18.788341 | 98.984755 |
| 4 | Chang Phueak Police Station | Mueang Chiang Mai District, Chiang Mai | 053218443 | 18.818822 | 98.975520 |
| 5 | Kriangkrai Konlakan Garage | 7/2, See Ping Mueang Road, Tambon Chang Khlan, Amphoe Mueang, Chiang Mai | 053244599 | 18.771195 | 98.983062 |