**Emergency Information on Mobile**

Test Plan

By

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**Aj.Chartchai Doungsa-ard**

**Document History**

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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 II. 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 |
| Progress Report II | **Perform date:** 22/07/14 – 29/10/14  **Duration:** 100 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, N/A 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.

2.3 N/A: the result of actual result is not available.

## 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 12 (UTC-12):** getNearestHelpPlace(double userLatitude,double userLongitude,Integer categoryId) :HelpPlace

**Class name:** HelpPlaceServiceImplTest **Test Data:** Test Data 1, 2, 3 in appendix A

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Case** | **Description** | **Input** | | | **Expected Result** | | | | | | | | |
| **User’s latitude** | **User’s longitude** | **Category’s Id** | **Help place object** | | | | | | | | |
| **Name** | **Address** | **District** | **Province** | **Zip code** | **Phone Number** | **Latitude** | **Longitude** | **Category** |
| 1 | Test find nearest help place by input category’s ID which is in database | 18.789643 | 98.969758 | 1 | Maharaj Nakorn Chiang Mai Hospital | 10 Suthep Rd | Mueang Chiang Mai | Chiang Mai | 50200 | 053947700 | 18.789602 | 98.974209 | Hospital |
| 2 | Test find nearest help place by input category’s ID which is not in database | 18.789643 | 98.969758 | 8 | null | | | | | | | | |

**Unit Test Case 13 (UTC-13):** getHelpPlacesInScope(double userLatitude, double userLongitude, double scope)**:**List<HelpPlace>

**Class name:** HelpPlaceServiceImplTest **Test Data:** Test Data 1, 3 in appendix A

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Case** | **Description** | **Input** | | | **Expected Result** |
| **User’s latitude** | **User’s longitude** | **Scope(meter)** | **List of help place object** |
| **ID** |
| 1 | Test get help places by input scope which have help place locate | 18.789643 | 98.969758 | 1000 | 1 |
| 2 | Test get help places by input scope which have help place locate | 18.789643 | 98.969758 | 4000 | 1,2 |
| 3 | Test get help places by input scope which does not have help place locate | 18.789643 | 98.969758 | 1 | Empty List |

**Unit Test Case 14 (UTC-14):** getLatitudeDistance(double latitude)**:**double

**Class name:** HelpPlaceServiceImplTest **Test Data:** Test Data 3 in appendix A

|  |  |  |  |
| --- | --- | --- | --- |
| **Case** | **Description** | **Input** | **Expected Result** |
| **Latitude** | **Latitude surface distance** |
| 1 | Test get latitude surface distance by input latitude | 18.789643 | 110649.0 |
| 2 | Test get latitude surface distance by input latitude | 19.912221 | 110649.0 |

**Unit Test Case 15 (UTC-15):** getLongitudeDistance(double longitude)**:**double

**Class name:** HelpPlaceServiceImplTest **Test Data:** Test Data 3 in appendix A

|  |  |  |  |
| --- | --- | --- | --- |
| **Case** | **Description** | **Input** | **Expected Result** |
| **Latitude** | **Longitude surface distance** |
| 1 | Test get longitude surface distance by input latitude | 18.789602 | 107551.0 |
| 2 | Test get longitude surface distance by input latitude | 19.912221 | 107551.0 |

**Unit Test Case 16 (UTC-16):** findDistance(double la1, double long1, double la2, double long2)**:**double

**Class name:** HelpPlaceServiceImplTest **Test Data:** Test Data 1, 3 in appendix A

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Case** | **Description** | **Input** | | | | **Expected Result** |
| **Place 1 Latitude** | **Place 1 Longitude** | **Place 2 Latitude** | **Place 2 Longitude** | **Distance (meter)** |
| 1 | Test get distance between two places by input latitude and longitude | 18.789643 | 98.969758 | 18.789602 | 98.974209 | 478.7309966661931 |
| 2 | Test get distance between two places by input latitude and longitude | 18.789643 | 98.969758 | 19.912221 | 99.832526 | 155044.92200234122 |

## 3.2 Mobile Part

**3.2.1 Class name for testing**: HelpPlaceServiceImpl

**Unit Test Case 17 (UTC-17):** insertHelpPlace(ArrayList <HelpPlace> helpPlace): int

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Case** | **Description** | **Input** | **Expected Result** |
| **List of Help Places**  **ID** | **List of Help Places**  **ID** |
| 1 | Test insert array list of help places into database | 1,2,3,4,5 | 1,2,3,4,5 |
| 2 | Test insert array list of help places are not null | 1,2,3,4,5 | Not null |

**Unit Test Case 18 (UTC-18):** deleteAllHelpPlaces (): boolean

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

|  |  |  |
| --- | --- | --- |
| **Case** | **Description** | **Expected Result** |
| **Boolean** |
|
| 1 | Test delete all help places in database | true |

**Unit Test Case 19 (UTC-19):** getJSONObjShowHelpPlacesInOnlineMap(String url): JSONObject

**Class name:** HelpPlaceServiceImplTest  **Test Data:** Test Record 5, 7 in appendix A

|  |  |  |  |
| --- | --- | --- | --- |
| **Case** | **Description** | **input** | **Expected Result** |
| **URL** | **JSON Object** |
| 1 | Test to get JSON object. | “http://192.168.1.9:8089/helpPlace/listJson” | {"Helpplaces":[{"id":1,"category":"Hospital","phoneNumber":"053-947700","address":"110 Suthep Rd, Mueang Chiang Mai, Chiang Mai, 50200","name":"Maharaj Nakorn Chiang Mai Hospital","longitude":98.974209,"latitude":18.789602},{"id":2,"category":"Hospital","phoneNumber":"053-999758","address":"Chang Phuak, Mueang Chiang Mai, Chiang Mai, 50300","name":"Lanna Hospital","longitude":98.991151,"latitude":18.812723},{"id":3,"category":"Hospital","phoneNumber":"054-237400","address":"Tambon Phrabat, Amphoe Mueang Lampang, Lampang, 52000","name":"Lampang Hospital","longitude":99.506305,"latitude":18.285378},{"id":4,"category":"Police Station","phoneNumber":"053-603100","address":"Rattanakeat Road, Mueang Chiang Rai, Chiang Rai, 57000","name":"Chiang Rai Police Station","longitude":99.832526,"latitude":19.912221},{"id":5,"category":"Garage","phoneNumber":"053-242999","address":"Outer Ring Road, Saraphi District, Chiang Mai, 50000","name":"Ruangchai Yon Garage","longitude":99.055108,"latitude":18.750651}]} |

**Unit Test Case 20 (UTC-20):** getJSONArrayShowHelpPlacesInOnlineMap(JSONObjetc jsonOBJ): JSONArray

**Class name:** HelpPlaceServiceImplTest  **Test Data:** Test Data 5, 6 in appendix A

|  |  |  |  |
| --- | --- | --- | --- |
| **Case** | **Description** | **input** | **Expected Result** |
| **JSON Object** | **JSON Array** |
| 1 | Test to get JSON array. | {"Helpplaces":[{"id":1,"category":"Hospital","phoneNumber":"053-947700","address":"110 Suthep Rd, Mueang Chiang Mai, Chiang Mai, 50200","name":"Maharaj Nakorn Chiang Mai Hospital","longitude":98.974209,"latitude":18.789602},{"id":2,"category":"Hospital","phoneNumber":"053-999758","address":"Chang Phuak, Mueang Chiang Mai, Chiang Mai, 50300","name":"Lanna Hospital","longitude":98.991151,"latitude":18.812723},{"id":3,"category":"Hospital","phoneNumber":"054-237400","address":"Tambon Phrabat, Amphoe Mueang Lampang, Lampang, 52000","name":"Lampang Hospital","longitude":99.506305,"latitude":18.285378},{"id":4,"category":"Police Station","phoneNumber":"053-603100","address":"Rattanakeat Road, Mueang Chiang Rai, Chiang Rai, 57000","name":"Chiang Rai Police Station","longitude":99.832526,"latitude":19.912221},{"id":5,"category":"Garage","phoneNumber":"053-242999","address":"Outer Ring Road, Saraphi District, Chiang Mai, 50000","name":"Ruangchai Yon Garage","longitude":99.055108,"latitude":18.750651}]}  - | [{"id":1,"longitude":98.974209,"category":"Hospital","latitude":18.789602,"phoneNumber":"053-947700","address":"110 Suthep Rd, Mueang Chiang Mai, Chiang Mai, 50200","name":"Maharaj Nakorn Chiang Mai Hospital"},{"id":2,"longitude":98.991151,"category":"Hospital","latitude":18.812723,"phoneNumber":"053-999758","address":"Chang Phuak, Mueang Chiang Mai, Chiang Mai, 50300","name":"Lanna Hospital"},{"id":3,"longitude":99.506305,"category":"Hospital","latitude":18.285378,"phoneNumber":"054-237400","address":"Tambon Phrabat, Amphoe Mueang Lampang, Lampang, 52000","name":"Lampang Hospital"},{"id":4,"longitude":99.832526,"category":"Police Station","latitude":19.912221,"phoneNumber":"053-603100","address":"Rattanakeat Road, Mueang Chiang Rai, Chiang Rai, 57000","name":"Chiang Rai Police Station"},{"id":5,"longitude":99.055108,"category":"Garage","latitude":18.750651,"phoneNumber":"053-242999","address":"Outer Ring Road, Saraphi District, Chiang Mai, 50000","name":"Ruangchai Yon Garage"}] |
| 2 | Test length of JSON array by input JSON Object | 5 |

**Unit Test Case 21 (UTC-21):** getJSONObjToSaveInDB(String url): JSONObject

**Class name:** HelpPlaceServiceImplTest  **Test Data:** Test Data 5, 7 in appendix A

|  |  |  |  |
| --- | --- | --- | --- |
| **Case** | **Description** | **input** | **Expected Result** |
| **URL** | **JSON Object** |
| 1 | Test to get JSON object. | “http://192.168.1.9:8089/helpPlace/scopeJson/19.789602/99.974209/30000.0” | {"HelpplacesInScope":[{"id":4,"category":"Police Station","phoneNumber":"053-603100","address":"Rattanakeat Road, Mueang Chiang Rai, Chiang Rai, 57000","name":"Chiang Rai Police Station","longitude":99.832526,"latitude":19.912221}]} |
| 2 | Test to get JSON object. | “http://192.168.1.9:8089/helpPlace/scopeJson/19.789602/99.974209/1” | {“HelpplacesInScope”[]} |

**Unit Test Case 22 (UTC-22):** getJSONArrayToSaveInDB (JSONObjetc jsonOBJ): JSONArray

**Class name:** HelpPlaceServiceImplTest  **Test Data:** Test Data 5, 6 in appendix A

|  |  |  |  |
| --- | --- | --- | --- |
| **Case** | **Description** | **input** | **Expected Result** |
| **JSON Object** | **JSON Array** |
| 1 | Test to get JSON array. | {"HelpplacesInScope":[{"id":4,"category":"Police Station","phoneNumber":"053-603100","address":"Rattanakeat Road, Mueang Chiang Rai, Chiang Rai, 57000","name":"Chiang Rai Police Station","longitude":99.832526,"latitude":19.912221}]} | [{"id":4,"category":"Police Station","phoneNumber":"053-603100","address":"Rattanakeat Road, Mueang Chiang Rai, Chiang Rai, 57000","name":"Chiang Rai Police Station","longitude":99.832526,"latitude":19.912221}] |
| 2 | Test to get JSON array. | {“HelpplacesInScope”[]} | null |

**Unit Test Case 23 (UTC-23):** findJSONObjNearestHelppalce (String url): JSONObject

**Class name:** HelpPlaceServiceImplTest  **Test Data:** Test Data 5, 7 in appendix A

|  |  |  |  |
| --- | --- | --- | --- |
| **Case** | **Description** | **input** | **Expected Result** |
| **URL** | **JSON Object** |
| 1 | Test to get JSON object. | “http://192.168.1.9:8089/helpPlace/nearestJson/18.789643/98.969758/2” | {"NearestHelpPlace":[{"id":4,"category":"Police Station","phoneNumber":"053-603100","address":"Rattanakeat Road, Mueang Chiang Rai, Chiang Rai, 57000","name":"Chiang Rai Police Station","longitude":99.832526,"latitude":19.912221}]} |
| 1 | Test to get JSON object. | “http://192.168.1.9:8089/helpPlace/nearestJson/18.789643/98.969758/3” | {"NearestHelpPlace":[{"id":5,"category":"Garage","phoneNumber":"053-242999","address":"Outer Ring Road, Saraphi District, Chiang Mai, 50000","name":"Ruangchai Yon Garage","longitude":99.055108,"latitude":18.750651}]} |

**Unit Test Case 24 (UTC-24):** findJSONArrayNearestHelppalce (JSONObjetc jsonOBJ): JSONArray

**Class name:** HelpPlaceServiceImplTest  **Test Data:** Test Data 5, 6 in appendix A

|  |  |  |  |
| --- | --- | --- | --- |
| **Case** | **Description** | **input** | **Expected Result** |
| **JSON Object** | **JSON Array** |
| 1 | Test to get JSON array. | {"NearestHelpPlace":[{"id":4,"category":"Police Station","phoneNumber":"053-603100","address":"Rattanakeat Road, Mueang Chiang Rai, Chiang Rai, 57000","name":"Chiang Rai Police Station","longitude":99.832526,"latitude":19.912221}]} | [{"id":4,"category":"Police Station","phoneNumber":"053-603100","address":"Rattanakeat Road, Mueang Chiang Rai, Chiang Rai, 57000","name":"Chiang Rai Police Station","longitude":99.832526,"latitude":19.912221}] |
| 2 | Test to get JSON array. | {"NearestHelpPlace":[{"id":5,"category":"Garage","phoneNumber":"053-242999","address":"Outer Ring Road, Saraphi District, Chiang Mai, 50000","name":"Ruangchai Yon Garage","longitude":99.055108,"latitude":18.750651}]} | [{"id":5,"category":"Garage","phoneNumber":"053-242999","address":"Outer Ring Road, Saraphi District, Chiang Mai, 50000","name":"Ruangchai Yon Garage","longitude":99.055108,"latitude":18.750651}] |

**Unit Test Case 25 (UTC-25):** getNearestHelpPlace (JSONArray jsonArray,

JSONObject jsonObject): HelpPlace

**Class name:** HelpPlaceServiceImplTest  **Test Data:** Test Data 4, 5, 6 in appendix A

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Case** | **Description** | **input** | | **Expected Result** |
| **JSON Object** | **JSON Array** | **Help Place Object id** |
| 1 | Test to get nearest help place by input JSON object and JSON array | {"NearestHelpPlace":[{"id":4,"category":"Police Station","phoneNumber":"053-603100","address":"Rattanakeat Road, Mueang Chiang Rai, Chiang Rai, 57000","name":"Chiang Rai Police Station","longitude":99.832526,"latitude":19.912221}]} | [{"id":4,"category":"Police Station","phoneNumber":"053-603100","address":"Rattanakeat Road, Mueang Chiang Rai, Chiang Rai, 57000","name":"Chiang Rai Police Station","longitude":99.832526,"latitude":19.912221}] | 4 |
| 2 | Test to get nearest help place by input JSON object and JSON array | {"NearestHelpPlace":[{"id":5,"category":"Garage","phoneNumber":"053-242999","address":"Outer Ring Road, Saraphi District, Chiang Mai, 50000","name":"Ruangchai Yon Garage","longitude":99.055108,"latitude":18.750651}]} | [{"id":5,"category":"Garage","phoneNumber":"053-242999","address":"Outer Ring Road, Saraphi District, Chiang Mai, 50000","name":"Ruangchai Yon Garage","longitude":99.055108,"latitude":18.750651}] | 5 |

**Unit Test Case 26 (UTC-26):** getHelpPlacesList (JSONArray jsonArray,

JSONObject jsonObject): ArrayList<HelpPlace>

**Class name:** HelpPlaceServiceImplTest  **Test Data:** Test Data 4, 5, 6 in appendix A

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Case** | **Description** | **input** | | **Expected Result** |
| **JSON Object** | **JSON Array** | **Array list of Help Place Object id** |
| 1 | Test to get all help places by input JSON object and JSON array | {"Helpplaces":[{"id":1,"category":"Hospital","phoneNumber":"053-947700","address":"110 Suthep Rd, Mueang Chiang Mai, Chiang Mai, 50200","name":"Maharaj Nakorn Chiang Mai Hospital","longitude":98.974209,"latitude":18.789602},{"id":2,"category":"Hospital","phoneNumber":"053-999758","address":"Chang Phuak, Mueang Chiang Mai, Chiang Mai, 50300","name":"Lanna Hospital","longitude":98.991151,"latitude":18.812723},{"id":3,"category":"Hospital","phoneNumber":"054-237400","address":"Tambon Phrabat, Amphoe Mueang Lampang, Lampang, 52000","name":"Lampang Hospital","longitude":99.506305,"latitude":18.285378},{"id":4,"category":"Police Station","phoneNumber":"053-603100","address":"Rattanakeat Road, Mueang Chiang Rai, Chiang Rai, 57000","name":"Chiang Rai Police Station","longitude":99.832526,"latitude":19.912221},{"id":5,"category":"Garage","phoneNumber":"053-242999","address":"Outer Ring Road, Saraphi District, Chiang Mai, 50000","name":"Ruangchai Yon Garage","longitude":99.055108,"latitude":18.750651}]} | [{"id":1,"category":"Hospital","phoneNumber":"053-947700","address":"110 Suthep Rd, Mueang Chiang Mai, Chiang Mai, 50200","name":"Maharaj Nakorn Chiang Mai Hospital","longitude":98.974209,"latitude":18.789602},{"id":2,"category":"Hospital","phoneNumber":"053-999758","address":"Chang Phuak, Mueang Chiang Mai, Chiang Mai, 50300","name":"Lanna Hospital","longitude":98.991151,"latitude":18.812723},{"id":3,"category":"Hospital","phoneNumber":"054-237400","address":"Tambon Phrabat, Amphoe Mueang Lampang, Lampang, 52000","name":"Lampang Hospital","longitude":99.506305,"latitude":18.285378},{"id":4,"category":"Police Station","phoneNumber":"053-603100","address":"Rattanakeat Road, Mueang Chiang Rai, Chiang Rai, 57000","name":"Chiang Rai Police Station","longitude":99.832526,"latitude":19.912221},{"id":5,"category":"Garage","phoneNumber":"053-242999","address":"Outer Ring Road, Saraphi District, Chiang Mai, 50000","name":"Ruangchai Yon Garage","longitude":99.055108,"latitude":18.750651}] | 1, 2, 3, 4, 5 |

**Appendix A**

* Test Data 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 Data 2

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

* Test Data 3

|  |  |  |
| --- | --- | --- |
| **User Location** | | |
| **Name** | **Latitude** | **Longitude** |
| Chiangmai Neurological Hospital | 18.789643 | 98.969758 |

* Test Data 4

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Help Place Object** | | | | | | |
| **ID** | **Name** | **Address** | **Phone Number** | **Latitude** | **Longitude** | **Category** |
| 1 | Maharaj Nakorn Chiang Mai Hospital | 110 Suthep Rd, Mueang Chiang Mai, Chiang Mai, 50200 | 053-947700 | 18.789602 | 98.974209 | Hospital |
| 2 | Lanna Hospital | Chang Phuak, Mueang Chiang Mai, Chiang Mai, 50300 | 053-999758 | 18.812723 | 98.991151 | Hospital |
| 3 | Lampang Hospital | Tambon Phrabat, Amphoe Mueang Lampang, Lampang, 52000 | 054-237400 | 18.285378 | 99.506305 | Hospital |
| 4 | Chiang Rai Police Station | Rattanakeat Road, Mueang Chiang Rai, Chiang Rai, 57000 | 053-603100 | 19.912221 | 99.832526 | Police Station |
| 5 | Ruangchai Yon Garage | Outer Ring Road, Saraphi District, Chiang Mai, 50000 | 053-242999 | 18.750651 | 99.055108 | Garage |

* Test Data 5

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| **JSON Object** |
| {"Helpplaces":[{"id":1,"category":"Hospital","phoneNumber":"053-947700","address":"110 Suthep Rd, Mueang Chiang Mai, Chiang Mai, 50200","name":"Maharaj Nakorn Chiang Mai Hospital","longitude":98.974209,"latitude":18.789602},{"id":2,"category":"Hospital","phoneNumber":"053-999758","address":"Chang Phuak, Mueang Chiang Mai, Chiang Mai, 50300","name":"Lanna Hospital","longitude":98.991151,"latitude":18.812723},{"id":3,"category":"Hospital","phoneNumber":"054-237400","address":"Tambon Phrabat, Amphoe Mueang Lampang, Lampang, 52000","name":"Lampang Hospital","longitude":99.506305,"latitude":18.285378},{"id":4,"category":"Police Station","phoneNumber":"053-603100","address":"Rattanakeat Road, Mueang Chiang Rai, Chiang Rai, 57000","name":"Chiang Rai Police Station","longitude":99.832526,"latitude":19.912221},{"id":5,"category":"Garage","phoneNumber":"053-242999","address":"Outer Ring Road, Saraphi District, Chiang Mai, 50000","name":"Ruangchai Yon Garage","longitude":99.055108,"latitude":18.750651}]} |
| {"NearestHelpPlace":[{"id":5,"category":"Garage","phoneNumber":"053-242999","address":"Outer Ring Road, Saraphi District, Chiang Mai, 50000","name":"Ruangchai Yon Garage","longitude":99.055108,"latitude":18.750651}]} |
| {"NearestHelpPlace":[{"id":4,"category":"Police Station","phoneNumber":"053-603100","address":"Rattanakeat Road, Mueang Chiang Rai, Chiang Rai, 57000","name":"Chiang Rai Police Station","longitude":99.832526,"latitude":19.912221}]} |
| {"HelpplacesInScope":[{"id":4,"category":"Police Station","phoneNumber":"053-603100","address":"Rattanakeat Road, Mueang Chiang Rai, Chiang Rai, 57000","name":"Chiang Rai Police Station","longitude":99.832526,"latitude":19.912221}]} |
| {“HelpplacesInScope”[]} |

* Test Data 6

|  |
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| **JSON Array** |
| [{"id":1,"category":"Hospital","phoneNumber":"053-947700","address":"110 Suthep Rd, Mueang Chiang Mai, Chiang Mai, 50200","name":"Maharaj Nakorn Chiang Mai Hospital","longitude":98.974209,"latitude":18.789602},{"id":2,"category":"Hospital","phoneNumber":"053-999758","address":"Chang Phuak, Mueang Chiang Mai, Chiang Mai, 50300","name":"Lanna Hospital","longitude":98.991151,"latitude":18.812723},{"id":3,"category":"Hospital","phoneNumber":"054-237400","address":"Tambon Phrabat, Amphoe Mueang Lampang, Lampang, 52000","name":"Lampang Hospital","longitude":99.506305,"latitude":18.285378},{"id":4,"category":"Police Station","phoneNumber":"053-603100","address":"Rattanakeat Road, Mueang Chiang Rai, Chiang Rai, 57000","name":"Chiang Rai Police Station","longitude":99.832526,"latitude":19.912221},{"id":5,"category":"Garage","phoneNumber":"053-242999","address":"Outer Ring Road, Saraphi District, Chiang Mai, 50000","name":"Ruangchai Yon Garage","longitude":99.055108,"latitude":18.750651}] |
| [{"id":5,"category":"Garage","phoneNumber":"053-242999","address":"Outer Ring Road, Saraphi District, Chiang Mai, 50000","name":"Ruangchai Yon Garage","longitude":99.055108,"latitude":18.750651}] |
| [{"id":4,"category":"Police Station","phoneNumber":"053-603100","address":"Rattanakeat Road, Mueang Chiang Rai, Chiang Rai, 57000","name":"Chiang Rai Police Station","longitude":99.832526,"latitude":19.912221}] |
| [{"id":4,"category":"Police Station","phoneNumber":"053-603100","address":"Rattanakeat Road, Mueang Chiang Rai, Chiang Rai, 57000","name":"Chiang Rai Police Station","longitude":99.832526,"latitude":19.912221}] |

* Test Data 7

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| **URL** |
| “http://192.168.1.9:8089/helpPlace/listJson” |
| “http://192.168.1.9:8089/helpPlace/scopeJson/19.789602/99.974209/30000.0” |
| “http://192.168.1.9:8089/helpPlace/scopeJson/19.789602/99.974209/1” |
| “http://192.168.1.9:8089/helpPlace/nearestJson/18.789643/98.969758/2” |
| “http://192.168.1.9:8089/helpPlace/nearestJson/18.789643/98.969758/3” |