

**Elephant Learn**

**A sentimental analysis system for Thai stock market**

Test Plan

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**Document History**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **History** | **Version** | **status** | **Date** | **Viewable** | **Editable** | **Responsible** |
| Add Chapter I   * Objective * Scope * Acronyms and Definitions   Add Chapter II   * Scope of testing * Test Duration * Test Responsibility * Test Strategy * Result of Testing * Test Environment   Add Chapter III  Add Chapter IV | ElephantLearn- TestPlan\_v0.1  .docx | Draft | June  30th,  2019 | PT | CY, PM | CY, PM |
| Update Chapter III  Update Chapter IV | ElephantLearn- TestPlan\_v0.1  .docx | Draft | July  27th,  2019 | PT | CY, PM | CY, PM |

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# **Chapter I | Introduction**

## **1.1 Objectives**

The objective of the test plan of Elephant Learn 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 the implemented method in the Elephant Learn system. The system testing covers the user requirements.

## **1.2 Scope**

In the progress I, the Test Record document contain the unit testing of Feature #01: Retrieve comments, Feature #02: Data cleaning, Data preprocessing, Data analysis,

Feature #04: View statistic

## **1.3 Acronyms and Definitions**

### **1.3.1 Acronyms**

URS User Requirement Specification

UTC Unit Test Case

STC System Test Case

### **1.3.2 Definitions**

|  |  |
| --- | --- |
| **Name** | **Definitions** |
| Test Plan | Document detailing the objectives, resources, and processes for a specific test for a software or hardware product. The plan typically contains a detailed understanding of the eventual workflow |
| Feature | Transformation of input parameters to output parameters based on a specified algorithm. It describes the functionality of the product in the language of the product. Used for requirements analysis, design,  coding, testing or maintenance. |
| Unit testing | A level of the software testing process where individual units/components of a software/system are tested. The purpose is to validate that each unit of the software performs as designed. |
| System testing | A level of the software testing process where a complete, integrated system/software is tested. The purpose of this test is to evaluate the system’s compliance with the specified requirements. |

# **Chapter II | Test Plan and Test Procedure**

## **2.1 Scope of testing**

Elephant Learn will be tested by white-box and black-box testing techniques that are unit testing and system testing and record the test results in the test record.

## **2.2 Test Strategy**

Elephant Learn test strategy will be following:

1. Design test case for each feature.

2. Prepare test data for each feature.

3. Determine the expected results.

4. Perform testing on individual features.

5. Result of testing will be a record.

6. All test files will be stored in the project repository.

## **2.3 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 the actual result is same as the expected result.

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

## **2.4 Test Environment**

### **2.4.1 Hardware**

**Laptops**

DELL G3 15 3579 Gaming

* CPU: Intel Core i7-8750H
* GPU: NVIDIA GeForce GTX 1050Ti (4GB GDDR5)
* DISPLAY: 15.6 inch (1920x1080) Full HD IPS
* RAM: 8 GB DDR4, 2666 MHz
* STORAGE: 1 TB 5400 RPM + 128 GB SSD
* OS: Window10

DELL INSPIRON 5559

* CPU: Intel Core i7-6500U
* GPU: Intel HD Graphics 520
* DISPLAY: 15.6”, Full HD (1920 x 1080), TN
* RAM: 8GB DDR3, 1600 MHz
* STORAGE: 240 GB SSD
* OS: Window10

# **Chapter III | Unit Test**

## **UTC-01: removeNoise(text: String)**

**Test Class**: TextCleaning

**Test Method**: removeNoise

**Description**: The test case is created for evaluating the result of the procedure when working with Text cleaning class. The method should return the result of cleaned data from noise removal, such as html tag.

**Prerequisites or Test input**:

|  |  |  |  |
| --- | --- | --- | --- |
| **Test No.** | **Description** | **Input** | **Expected Output** |
| 1. | Test the correct case. | <hml><body><a> ทำไมในรายงานข่าวถึงใช้หน่วยเงินของ USA สลับไปมา ระหว่าง ""เหรียญ"" กับ ""ดอลล่าร์สหรัฐ"</a></body></htm> | ทำไมในรายงานข่าวถึงใช้หน่วยเงินของ USA สลับไปมา ระหว่าง ""เหรียญ"" กับ ""ดอลล่าร์สหรัฐ" |

## **UTC-02: removePunctuation(text: String)**

**Test Class**: TextCleaning

**Test Method**: removePunctuation

**Description**: The test case is created for evaluating the result of the procedure when working with TextCleaning class. The method should return the cleaned data from punctuation removal such as question mark (?).

**Prerequisites or Test input**:

|  |  |  |  |
| --- | --- | --- | --- |
| **Test No.** | **Description** | **Input** | **Expected Output** |
| 1. | Test the correct case. | “เหตุผลอะไร!!! ทำไมคนไทยถึงไม่ค่อยลงทุน? | เหตุผลอะไร ทำไมคนไทยถึงไม่ค่อยลงทุน |

## **UTC-03: removeWhiteSpace(text: String)**

**Test Class**: TextCleaning

**Test Method**: removeWhiteSpace

**Description**: The test case is created for evaluating the result of the procedure when working with TextCleaning class. The method should return cleaned data from white space removal.

**Prerequisites or Test input**:

|  |  |  |  |
| --- | --- | --- | --- |
| **Test No.** | **Description** | **Input** | **Expected Output** |
| 1. | Test the correct case. | ไซด์เวย์​ มีโอกาสปรับฐาน​ ถือ​ ซื้อสะสม​ | ไซด์เวย์​มีโอกาสปรับฐาน​ถือ​ซื้อสะสม​ |

## **UTC-04: removeNumber(text: String)**

**Test Class**: TextCleaning

**Test Method**: removeNumber

**Description**: The test case is created for evaluating the result of the procedure when working with TextCleaning class. The method should return the result of text without number.

**Prerequisites or Test input**:

|  |  |  |  |
| --- | --- | --- | --- |
| **Test No.** | **Description** | **Input** | **Expected Output** |
| 1. | Test the correct case. | อยากได้เงินมาปิดหนี้บัตร ประมาณ 150,000 มีธนาคารไหนช่วยได้บ้างค่ะ | อยากได้เงินมาปิดหนี้บัตร ประมาณ มีธนาคารไหนช่วยได้บ้างค่ะ |

## **UTC-05: Tokenize(text: String)**

**Test Class**: Tokenization

**Test Method**: tokenize

**Description**: The test case is created for evaluating the result of the procedure when working with ….class. The method should return the…….

**Prerequisites or Test input**:

|  |  |  |  |
| --- | --- | --- | --- |
| **Test No.** | **Description** | **Input** | **Expected Output** |
| 1. | Test the correct case. | รบกวนข้อมูลหน่อยครับ ทำสัญญาไว้ 6 ปี ปัจจุบันผ่อนเดือนล่ะ 15,719 บาท ครับ | ['รบกวน', 'ข้อมูล', 'หน่อย', 'ครับ', 'ทำสัญญา', 'ไว้', '6', 'ปี', 'ปัจจุบัน', 'ผ่อน', 'เดือน', 'ล่ะ', '15,719', 'บาท', 'ครับ'] |

## **UTC-06: checkAvailableSpell(text: String)**

**Test Class**: Spell

**Test Method**:

**Description**: The test case is created for evaluating the result of the procedure when working with Spell class. The method should return the array of probable correctness of words

**Prerequisites or Test input**:

|  |  |  |  |
| --- | --- | --- | --- |
| **Test No.** | **Description** | **Input** | **Expected Output** |
| 1. | Test the correct case. | เหลืยม | ['เหลียม', 'เหลือม'] |

## **UTC-07: getCorrection(text: String)**

**Test Class**: Spell

**Test Method**: getCorrection

**Description**: The test case is created for evaluating the result of the procedure when working with Spell class. The method should return the most correctness of word.

**Prerequisites or Test input**:

|  |  |  |  |
| --- | --- | --- | --- |
| **Test No.** | **Description** | **Input** | **Expected Output** |
| 1. | Test the correct case. | เหลืยม | เหลียม |

## **UTC-08: getPOSTagging(words: String[])**

**Test Class**: POSTagging

**Test Method**: getPOSTagging

**Description**: The test case is created for evaluating the result of the procedure when working with POSTagging class. The method should return the array of words with its part of speech tags.

**Prerequisites or Test input**:

|  |  |  |  |
| --- | --- | --- | --- |
| **Test No.** | **Description** | **Input** | **Expected Output** |
| 1. | Test the correct case. | ["การ","เดินทาง"] | [('การ', 'FIXN'), ('เดินทาง', 'VACT')] |

## **UTC-09: generateBagOfWord(words: String[])**

**Test Class**: BagOfWord

**Test Method**: generateBagOfWord

**Description**: The test case is created for evaluating the result of the procedure when working with BagOfWord class. The method should return the array of integer that represent the existing of words of system’s corpus inside the text.

**Prerequisites or Test input**:

|  |  |  |  |
| --- | --- | --- | --- |
| **Test No.** | **Description** | **Input** | **Expected Output** |
| 1. | Test the correct case. | ปิดบัตรเฟิสช้อย | [0, …1, ..1,,0,1,..,0,..1] |

## **UTC-10: sort(words: String[])**

**Test Class**: Sorting

**Test Method**: sort

**Description**: The test case is created for evaluating the result of the procedure when working with Sorting class. The method should return the sorted array of words.

**Prerequisites or Test input**:

|  |  |  |  |
| --- | --- | --- | --- |
| **Test No.** | **Description** | **Input** | **Expected Output** |
| 1. | Test the correct case. | ["ค้อน", "กระดาษ", "กรรไกร", "ไข่", "ผ้าไหม"] | ['กรรไกร', 'กระดาษ', 'ไข่', 'ค้อน', 'ผ้าไหม'] |

## **UTC-11: sortReverse(words: String[])**

**Test Class**: Sorting

**Test Method**: sortReverse

**Description**: The test case is created for evaluating the result of the procedure when working with Sorting class. The method should return the sorted array of words.

**Prerequisites or Test input**:

|  |  |  |  |
| --- | --- | --- | --- |
| **Test No.** | **Description** | **Input** | **Expected Output** |
| 1. | Test the correct case. | ["ค้อน", "กระดาษ", "กรรไกร", "ไข่", "ผ้าไหม"] | ['ผ้าไหม', 'ค้อน', 'ไข่', 'กระดาษ', 'กรรไกร'] |

## **UTC-12: removeStopWord(words: String[])**

**Test Class**: StopWord

**Test Method**: removeStopWord

**Description**: The test case is created for evaluating the result of the procedure when working with StopWord class. The method should return the array of words that has been removed stopword.

**Prerequisites or Test input**:

|  |  |  |  |
| --- | --- | --- | --- |
| **Test No.** | **Description** | **Input** | **Expected Output** |
| 1. | Test the correct case. | ['รักกกกกกกก','แมวววววววว'] | ['รัก','แมว'] |

## **UTC-13: stemming(words: String[])**

**Test Class**: Stemming

**Test Method**: stemming

**Description**: The test case is created for evaluating the result of the procedure when working with Stemming class. The method should return the array of words that has been reduced similarly words.

**Prerequisites or Test input**:

|  |  |  |  |
| --- | --- | --- | --- |
| **Test No.** | **Description** | **Input** | **Expected Output** |
| 1. | Test the correct case. | ['เชียงใหม่','จังหวัดเชียงใหม่'] | ['เชียงใหม่'] |

## **UTC-14: Sentiment: String)**

**Test Class**: Sentiment

**Test Method**: Sentiment

**Description**: The test case is created for evaluating the result of the procedure when working with Sentiment class. The method should return the percentage of sentimental analysis of text.

**Prerequisites or Test input**:

|  |  |  |  |
| --- | --- | --- | --- |
| **Test No.** | **Description** | **Input** | **Expected Output** |
| 1. | Test the correct case. | ฉันรักเธอ | 1 |
| 2. | Test the correct case. | ฉันไม่รักเธอ | 0.25 |

## **UTC-15: parse(): List<Post>**

**Test Class**: PostSpider

**Test Method**: parse(): List<Post>

**Description**: The test case is created for evaluating the result of the procedure when working with CommenSpider class.

**Prerequisites or Test input**:

|  |  |  |  |
| --- | --- | --- | --- |
| **Test No.** | **Description** | **Input** | **Expected Output** |
| 1. | Test the correct case. | - | CSV file has been generated |

## **UTC-16: parse(): List< PostComment >**

**Test Class**: CommenSpider

**Test Method**: parse(): List<Post>

**Description**: The test case is created for evaluating the result of the procedure when working with CommenSpider class.

**Prerequisites or Test input**:

|  |  |  |  |
| --- | --- | --- | --- |
| **Test No.** | **Description** | **Input** | **Expected Output** |
| 1. | Test the correct case. | - | CSV file has been generated |

## **UTC-17: generateGraph(file: CSVFile)**

**Test Class**: Statistic

**Test Method**: generateGraph(file: CSVFile)

**Description**: The test case is created for evaluating the result of the procedure when working with Statistic class. The method should return the result of statistic calculation that has been reduced similarly words.

**Prerequisites or Test input**:

|  |  |  |  |
| --- | --- | --- | --- |
| **Test No.** | **Description** | **Input** | **Expected Output** |
| 1. | Test the correct case. | - | HTML file has been generated |

# **Chapter IV | System Testing**

## **STC-01: Admin can view the retrieved comments from Pantip blog.**

**Description**: The system testing for URS-01: Admin can view the retrieved comments from Pantip blog.

**Prerequisite**:

* Admin is on home page which contains the view retrieved comments.
* Test data in Appendix A.

**Test Script**:

1. Click on view retrieved comments button on home page.

**Test Case**:

|  |  |  |  |
| --- | --- | --- | --- |
| **ID** | **Description** | **input** | **Expected Result** |
| 1 | Test the correct case. | - | The system redirects to view retrieved comments page, which shows the retrieved comments. |
| 2 | Test the case that internet is not connected. | - | The system displays the alert message “The database cannot be connected.” |
| 3 | Test the case that database empty. | - | The system displays the alert message “No data” and showing the retrieved comments page without table of comments list |
| 4 | Test the case that no internet connection | - | The system display error message “No internet connection.” |

## **STC-02: Admin can view the result of sentimental analysis of each comment in the topic.**

**Description**: The system testing for URS-02: Admin can view the result of sentimental analysis of each comment in the topic.

**Prerequisite**:

* Admin is on homepage.
* Test data in Appendix A.

**Test Script**:

1. Click view result on menu bar which locates on top left of the page header.

**Test Case**:

|  |  |  |  |
| --- | --- | --- | --- |
| **ID** | **Description** | **input** | **Expected Result** |
| 1 | Test the correct case. | - | The system redirects to view result page, which shows the result of the percentage of each comment in the topic. |
| 2 | Test the case that internet is not connected. | - | The system displays the error message “The database cannot be connected.” |
| 3 | Test the case that database empty. | - | The system displays the alert message “No data” and showing the result comments page without table of comments list |
| 4 | Test the case that no internet connection | - | The system display error message “No internet connection.” |

## **STC-03: Admin can view the statistic of information which is the number of users, date and time of the comments.**

**Description**: The system testing for URS-03: Admin can view the statistic of information, which is the number of users, date and time of the comment by showing the result of the statistic**.**

**Prerequisite**:

* Admin is on homepage.
* Test data in Appendix A.

**Test Script**:

1. Click view statistic on menu bar which locates on top left of the page header.

**Test Case**:

|  |  |  |  |
| --- | --- | --- | --- |
| **ID** | **Description** | **input** | **Expected Result** |
| 1 | Test the correct case. | - | The system redirects to view statistic page, which shows the statistic of information of the number of users, date and time of the comment. |
| 2 | Test the case that internet is not connected. | - | The system displays the error message “The database cannot be connected.” |
| 3 | Test the case that database empty. | - | The system displays the alert message “No data” and showing the view statistic page with blank content. |
| 4 | Test the case that no internet connection | - | The system display error message “No internet connection.” |

## **Appendix A**

|  |  |  |  |
| --- | --- | --- | --- |
| **User ID** | **Post Date** | **Post URL** | **Post Title** |
| สมาชิกหมายเลข 4609805 | 07/22/2019 20:46:14 | /topic/39078154 | หนังสือหุ้น เล่มนี้security analysis ต้องเสียภาษีนำเข้าไหม |
| สมาชิกหมายเลข 5372779 | 07/22/2019 20:44:44 | /topic/39078149 | "เก็บเงินแสนแรก 100,000 ++ (HOW TO)" |
| สมาชิกหมายเลข 4606747 | 07/22/2019 20:41:54 | /topic/39078145 | ศาลตัดสินให้นำรถไปคืนหรือจ่ายค่าเสียหาย เรายอมจ่ายแต่ไฟแนนท์ไม่ยอม เลยปล่อยรถโดนยึดไป |
| สมาชิกหมายเลข 1793035 | 07/22/2019 20:37:38 | /topic/39078130 | GPSC ได้ฤกษ์เพิ่มทุน ประมานวันไหน แล้วสัดส่วนละกี่บาทครับ |
| สมาชิกหมายเลข 4748430 | 07/22/2019 20:35:46 | /topic/39078126 | จะไม่ให้เป็นตลาดหุ้นที่ผันผวนน้อยได้ยังไง จ้าวกองไก่อ่อน มันเล่นเขี่ย ๆ ทุกวัน |
| สมาชิกหมายเลข 3495682 | 07/22/2019 20:34:00 | /topic/39078122 | "ทำไมในรายงานข่าวถึงใช้หน่วยเงินของ USA สลับไปมา ระหว่าง ""เหรียญ"" กับ ""ดอลล่าร์สหรัฐ"" มันต่างกันอย่างไร?" |
| รัตติกาตาหวาน | 07/22/2019 20:25:48 | /topic/39078085 | จะหาอัตราผลตอบแทนเฉลี่ยของตลาดหลักทรัพย์ย้อนหลัง 10 ปี ได้ยังไงหรอคะ |
| ชีวิตเรา | ,07/22/2019 20:13:09 | /topic/39078036 | แนะนำบัตรเครดิตให้ทีครับ รายละเอียดด้านในครับ |
| Sojimay & love | 07/22/2019 20:01:43 | /topic/39078009 | "อยากได้เงินมาปิดหนี้บัตร ประมาณ 150,000 มีธนาคารไหนช่วยได้บ้างค่ะ" |
| สมาชิกหมายเลข 3978059 | 07/22/2019 20:00:15 | /topic/39078002 | รบกวนช่วยคำนวณดอกเบี้ยบ้านให้ทีครับ ว่าแบงค์ไหนคุ้มที่สุด |