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| Capstone Project Document |

**Carrier Trading Center**

Report #5 – Test Plan

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| **Carrier Trading Center** | | |
| **Group Members** | Lê Văn Dương | SE03290 |
| Vũ Văn Quyết | SE03344 |
| Đặng Lê Tuấn | SE03807 |
| Trịnh Đình Quyết | SE03159 |
| Lê Gia Hoàng | SE03200 |
| **Supervisor** | Mr. Nguyễn Văn Sang | |
| **Project code** | CTC | |

**- Hanoi, 02/2017-**

# SIGNATURE PAGE

AUTHOR: Trịnh Đình Quyết 23/02/2017

Team member

REVIEWERS: Lê Văn Dương 25/02/2017

Project manager

APPROVAL: Nguyễn Văn Sang --/--/2017

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# INTRODUCTION

## Purpose

This is the comprehensive test plan of the CTC project. The purpose of the document describes scopes of test and activities which need to be taken during test process of project. It addresses the following items: Scopes of Testing, Requirements for Testing, Test Strategy, Test Resources, Test Environment, Test Milestones and Deliverables.

## Definitions and Acronyms

This section describes the definitions, terms, and acronyms that are used in software requirements specification.

|  |  |  |
| --- | --- | --- |
| Acronym | Definition | Note |
| CTC | Carrier Trading Center |  |
| GUI | Graphic User Interface |  |
| KLOC | 1000 line of code |  |
| PM | Project Manager |  |
| SRS | Software Requirement Specification |  |
| TC | Test Case |  |

**Table 2-2:Definition and Acronyms**

## References

|  |  |  |  |
| --- | --- | --- | --- |
| Title/File name | Author | Version | Effective Date |
| CTC\_Software Requirement Specification\_v1.0\_EN | QuyetTD | v1.0 | 23/02/2017 |

## Background information

The target of testing is ensured all functions will be run correctly as SRS description. In addition, restrict maximum of defect during the user access in the application. To do this target, website will have to:

* Passed the stages of testing: Unit Testing, Integration Testing, System Testing, Acceptance Testing
* Passed the types of testing: Function Testing, User Interface Testing, Data and Data Integrity Testing
* Run normally in required devices/browsers.

## Scope of testing

CTC will be tested by 3 phases:

Phase 1: Unit testing

* Unit testing will be done by developers
* Developers use Unit test and integration test technique to do
* When executing unit testing, if any bugs are found, developers have to log bug on “hostedredmine” website and fix it until it is correct.

Rule for filling test result:

|  |  |
| --- | --- |
| Test result pass | Pass |
| Test result fail | Fail |
| Do not test | Untested |
| Cannot test | N/A (Not available) |

Phase 2: Integration testing

* After finishing component testing, integration testing will be performed by testers.
* Material are integration test cases, high- level design and test tools.
* Integration test focuses on specific areas of use cases when all requirements are completed.
* Integration test should be performed to ensure all components incorporate well.
* When executing integration testing, if any bugs are found, testers have to log on “http://hostedredmine.com” website file and assign to developer fix it and redo this process until it is correct.

Rule for filling test result:

|  |  |
| --- | --- |
| Test result pass | Pass |
| Test result fail | Fail |
| Do not test | Untested |
| Cannot test | N/A (Not available) |

Phase 3: System testing

* After finishing integration testing and developers collect all functions and items, testers will be performed system testing, it means doing test whole system.
* Material area system test case, SRS
* If any bugs are found, developers have to fix and testers will verify them. System test is ended only when test cases are passed and no bug is found.

Rule for filling test result:

|  |  |
| --- | --- |
| Test result pass | Pass |
| Test result fail | Fail |
| Do not test | Untested |
| Cannot test | N/A (Not available) |

## Constraints

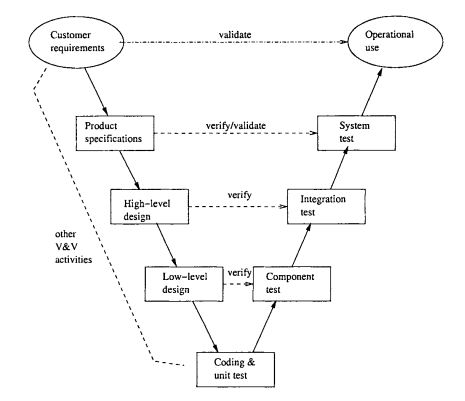
* Deadline for testing only can be met if development progress is on time.
* At least one round of testing must be performed for requirements.
* Have more environments should be tested: Window 8, Window 10… and more browsers: Firefox and Google Chrome …

## Risk list

* Not enough time to write enough test cases, execute test or re-test for fixed bug.
* Tester can be ill during the testing phase.

## Guarantee the quality model

CTC follows V-Model process:



**Figure 1: V-Model**

Testing progress is divided to 4 phases include: Unit test, Integration test, System test and Acceptance test

* Unit test:
* Unit testing is used to verify a single minimal unit of source code. The purpose of unit testing is to isolate the smallest testable parts of CTC and verify that they function properly in isolation.
* Unit testing is the first level of testing and is perform prior to component testing
* Unit testing will be done by developer.
* Integration test:
* Integration testing is a level of the software testing process where individual units or component are combined and tested as a group.
* The purpose is to expose faults in the interaction between integrated units.
* Integration testing is performed after component testing
* Integration testing will be done by tester
* There are two methods of doing integration testing: Bottom-up Integration testing and Top Down Integration testing:

|  |  |
| --- | --- |
| No | Integration Testing Method |
| 1 | Bottom-up integration  This testing begins with unit testing, followed by tests of progressively higher-level combinations of units called modules. |
| 2 | Top- Down integration  This testing, the highest-level modules are tested first and progressively lower-level modules are tested after that |

**Table 1-3: Integration test**

* System test:
* System Testing is a level of the software testing process where a complete, integrated system is tested
* The purpose is to evaluate the system’s compliance with the specified requirements
* System testing is performed after integration testing
* System testing will be done by tester
* Acceptance test: We make requirements, design product and launch to market, there is no end-user so we do not have acceptance test

# REQUIREMENTS FOR TEST

## Test item

|  |  |  |  |
| --- | --- | --- | --- |
| UC No. | Group Of Functions | Function | Glossary |
| **Guest** | | | |
| UC001 | **Register** | Register a new account |  |
| UC002 | **Bill of lading list** | Search bill of lading |  |
| UC003 | View bill of lading list |  |
| UC004 | **Price list** | View price |  |
| UC005 | Reference price |  |
| **Admin** | | | |
| UC006 | **Bill of lading list** | View bill of lading detail |  |
| UC007 | Search bill of lading |  |
| UC008 | View bill of lading list |  |
| UC009 | View carrier auction success |  |
| UC010 | Summary all bill of lading |  |
| UC011 | View carrier list who are auctioning |  |
| UC012 | **Manage user** | Search user |  |
| UC013 | View user profile |  |
| UC014 | Edit user profile |  |
| UC015 | Add company |  |
| UC016 | Account recharge for user |  |
| UC017 | Active user |  |
| UC018 | Deactivate user |  |
| UC019 | Edit company information |  |
| UC020 | View user list |  |
| UC021 | **Price list** | View price list |  |
| UC022 | Add a new price |  |
| UC023 | View price table history |  |
| UC024 | Edit price list |  |
| UC025 | Reference price |  |
| UC026 | Edit reference price |  |
| UC027 | **Transaction history** | Transaction History |  |
| UC028 | **Login** | Login |  |
| UC029 | **Logout** | Logout |  |
| UC030 | **Manage report** | Search report |  |
| UC031 | Response report |  |
| UC032 | View report list |  |
| UC033 | **Manage profile** | View profile |  |
| UC034 | Edit profile |  |
| UC035 | Forget password |  |
| UC036 | Change password |  |
| **Goods owner** | | | |
| UC037 | **Bill of lading list** | View bill of lading list |  |
| UC038 | View bill of lading detail |  |
| UC039 | Search bill of lading |  |
| UC040 | View carrier auction success |  |
| UC041 | Confirm complete transaction |  |
| UC042 | Post a new bill of lading |  |
| UC043 | Cancel bill of lading |  |
| UC044 | **Manage profile** | Edit profile |  |
| UC045 | View profile |  |
| UC046 | Change password |  |
| UC047 | Forget password |  |
| UC048 | Add company |  |
| UC049 | **Manage report** | Send report |  |
| UC050 | Search report |  |
| UC051 | Cancel report |  |
| UC052 | View report list |  |
| UC053 | **Price list** | Reference price |  |
| UC054 | View price list |  |
| UC055 | **Account recharge** | Account recharge |  |
| UC056 | **Transaction history** | Transaction history |  |
| UC057 | **Login** | Login |  |
| UC058 | **Logout** | Logout |  |
| UC059 | **Connect to carrier** | Connect to carrier |  |
| **Carrier** | | | |
| UC060 | **Bill of lading list** | View bill of lading list |  |
| UC061 | Confirm complete transaction |  |
| UC062 | View bill of lading detail |  |
| UC063 | Auction bill of lading |  |
| UC064 | Search bill of lading |  |
| UC065 | Cancel bill of lading |  |
| UC066 | **Manage profile** | Edit profile |  |
| UC067 | View profile |  |
| UC068 | Change password |  |
| UC069 | Forget password |  |
| UC070 | Add company |  |
| UC071 | **Manage report** | View report list |  |
| UC072 | Search report |  |
| UC073 | Cancel report |  |
| UC074 | Send report |  |
| UC075 | **Price list** | Reference price |  |
| UC076 | View pricing list |  |
| UC077 | **Transaction history** | Transaction history |  |
| UC078 | **Login** | Login |  |
| UC079 | **Logout** | Logout |  |
| UC080 | **Connect to goods owner** | Connect to goods owner |  |
| UC081 | **Account recharge** | Account recharge |  |

## Acceptance Test Criteria

* Criteria for Unit test of Development team, for Test team accepts to start testing:
* Number of TC/KLOC: 40TC/KLOC
* Number defects/KLOC: 3-4 defects/KLOC
* Path coverage: 100%
* Criteria for Integration test:
* Number of TC/KLOC: 30 TC/KLOC
* Number defects/KLOC: 2-3 defects/KLOC
* Criteria for System test:
* Number of TC/KLOC: 20 TC/KLOC
* Number defects/KLOC: 4-6 defects/KLOC
  1. Feature not to be tested
* Over than 10.000 users connect to system at the same time.

# TEST STRATEGY

## Test type

### Function Testing

|  |  |
| --- | --- |
| Test Objective: | The type of this test is to ensure proper target-of-test functionality, including user interaction, all function defined in specification document implemented correctly. |
| Technique: | Executing each use case, function, using valid and invalid data, to verify the following:  - The expected results occur when valid data is used.  - The appropriate error or warning messages are displayed when invalid data is used.  - Each business rule is properly applied. |
| Completion Criteria: | - All planned tests have been executed.  - All identified defects have been addressed and closed. |
| Special Considerations: | Testing may be stopped when  Time runs out  A certain number of defects found  Test coverage > 97%  Stop when testing becomes unproductive |

**Table 3-1: Function Testing**

### User Interface Testing

GUI testing is the process of ensuring proper functionality of the GUI for a given web and making sure it conforms to its written specifications.

GUI testing evaluates design elements such as layout, colors, [fonts](http://whatis.techtarget.com/definition/font), font sizes, labels, text boxes, text formatting, captions, buttons, lists, icons, links, content and more.

|  |  |
| --- | --- |
| Test Objective: | Verify the following:  - Navigation through the target-of-test properly reflects business functions and requirements, including window-to-window, field-to-field, and use of access methods (tab keys, mouse movements, accelerator keys)  - Window objects and characteristics, such as menus, size, position, state, and focus conform to standards. |
| Technique: | Create or modify tests for each window to verify proper navigation and object states for each application window and objects. |
| Completion Criteria: | Each window successfully verified to remain consistent with benchmark version or within acceptable standard |
| Special Considerations: | Not all properties for custom and third party objects can be accessed. |

**Table 3-2: GUI Testing**

## Data and Database Integrity Testing

The databases and the database processes should be tested as a subsystem within the Project. These subsystems should be tested without the target-of-test’s User Interface as the interface to the data. Additional research into the Database Management System (DBMS) needs to be performed to identify the tools and techniques that may exist to support the testing identified below.

|  |  |
| --- | --- |
| Test Objective: | Ensure database access methods and processes function properly and without data corruption. |
| Technique: | - Invoke each database access method and process, seeding each with valid and invalid data or requests for data.  - Inspect the database to ensure the data has been populated as intended, all database events occurred properly, or review the returned data to ensure that the correct data was retrieved for the correct reasons. |
| Completion Criteria: | All database access methods and processes function as designed and without any data corruption. |
| Special Considerations: | - Testing may require a DBMS development environment or drivers to enter or modify data directly in the databases.  - Processes should be invoked manually. |

**Table 3-3: Data and Data Integrity Testing**

## Test stages

Clearly state the stage in which the test will be executed. Identified below are the stages in which common test are executed

| Type of Tests | Stage of Test | | | |
| --- | --- | --- | --- | --- |
| Unit | Integration | System | Acceptance |
| Function Testing | X | X | X |  |
| User Interface Testing | X |  | X |  |

# RESOURCES

## Human resource

|  |  |  |
| --- | --- | --- |
| Worker/Doer | Role | Specific Responsibilities/Comments |
| QuyetTD | Test Leader | Manage Test Resource and assign test tasks.  Create and review Test Plan.  Create and review Test Case.  Execute test.  Create and review Test Report |
| TuanDL | Tester | Create and review Test Case.  Execute test.  Create Test view points  Create and review Test Report |

**Table 4-1: Human resource**

# TEST ENVIRONMENT

## Hardware

|  |  |  |
| --- | --- | --- |
| Name | Purpose | Detail |
| Laptop DELL | Device for create and execute test | Window 8.1 Pro Core i5 |

**Table 5-1: Hardware**

## Software

|  |  |  |
| --- | --- | --- |
| Name | Purpose | Detail |
| Test Plan | Managing test | Microsoft Word 2016 |
| Test case | Executing test | Microsoft Excel 2016 |
| Test report, Test checklist | Tracking test | Microsoft Excel 2016 |
| Chrome | Executing test | Chrome |
| Firefox | Executing test | Firefox |

**Table 5-2: Software**

## Infrastructure

|  |  |  |
| --- | --- | --- |
| Name | Purpose | Detail |
| HostedRedmine.com | Tracking bug during testing time |  |

**Table 5-3: Infrastructure**

# DELIVERABLES

| No | Deliverables | Responsibilities | Delivered Date |
| --- | --- | --- | --- |
| 1 | Test Plan | Tester |  |
| 2 | Unit Test case | Tester |  |
| 3 | Integration Test case | Tester |  |
| 4 | System Test case | Tester |  |
| 5 | Defect Log Management | All members |  |
| 6 | Test report | PM |  |

**Table 6-1: Deliverables**