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|  | **MINISTRY OF EDUCATION AND TRAINING** |

**FPT UNIVERSITY**

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| Capstone Project Document |
| E-learning-website |

**Report #5 – Project Test Documentation**

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- Hanoi, 08/2012-

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# 5.1. Introduction

## 5.1 Purpose

This document is prepared as the test documentation for project E-learning-website, in scope of Capstone Project at FPT University

## 5.2 Reference

|  |  |  |  |
| --- | --- | --- | --- |
| # | Title | Version | Description |
| 1 | Report #1 – Project Description | 1.0 | Description of E-learning Project |
| 2 | Report #2 – Software Project Management Plan | 1.0 | Software Project Management Plan of E-learning Project |
| 3 | Report #3 – Software Requirement Specification | 1.0 | Software Requirement Specification of E-learning Project |
| 4 | Report #4 – Software Detailed Design | 1.0 | Software Detailed Design of E-learning Project |

# 5.2. Test plan

## 5.2.1 Feature to be tested

|  |  |  |
| --- | --- | --- |
| Component Name | Function | Description |
| **Theory library** | View subject name | User views all subject name on the main menu |
| View chapter name | User views all chapter names after select subject by header link on content area. |
| View theory name | User views all theory names after click header by header link on content area. |
| View theory content | User view content of theory on content area after click theory name. |
| View video of theory | User view video in theory content on content area. |
| View questions of theory | User does exercise. |
| **Exercise library** | Select subject name | User select subject name by combo box. |
| Select chapter name | User select chapter name by combo box. |
| Select theory name | User select theory name by combo box. |
| Select number question | User select number question by combo box. |
| Select difficulty of question | User select difficulty of question by combo box. |
| View questions follow selections | User view questions content on content area. |
| View answer of question | User view answer when click header link”Hint”. |
| **Exam** | Login on the home site | Login to show tab “Đề thi” |
| Authenticate account user before do exam. | Authenticate account to do exam. |
| Do exam in site “Làm bài thi” | Show all exams and do exam. |
| Calculate result of exam | Calculate result of exam |
| Do exam by account Admin | Do exam by account admin like user. |
| Add new question for a new exam | Admin can make question for exam. |
| Add new subject | Admin add subject for exam. |
| Manage account in exam. | Admin manage account in exam |
| Make new exam | Admin make new exam. |
| Manage Report | Admin manage report. |
| **Forum** | Login forum | Login forum and auto login in home site |
| Logout forum | Logout forum and auto login in home site |
| Post new thread in forum | Make new thread in forum |
| Change profile account user | Change profile account user |
| Component Name | Function | Description |
| **Theory library** | View subject name | User view all subject name on the main menu |
| View chapter name | User views all chapter names after select subject by header link on content area. |
| View theory name | User views all theory names after click header by header link on content area. |
| View theory content | User view content of theory on content area after click theory name. |
| View video of theory | User view video in theory content on content area. |
| View questions of theory | User does exercise. |
| **Exercise library** | Select subject name | User select subject name by combo box. |
| Select chapter name | User select chapter name by combo box. |
| Select theory name | User select theory name by combo box. |
| Select number question | User select number question by combo box. |
| Select difficulty of question | User select difficulty of question by combo box. |
| View questions follow selections | User view questions content on content area. |
| View answer of question | User view answer when click header link”Hint”. |

## 5.2.2 Feature not to be tested

|  |  |  |
| --- | --- | --- |
| Component Name | Function | Description |
| Exam site | Manage profile account user | Change and show all profile of account user. |
| Read repost account | Read repost from site exam. |
| Change user group | Change user group to delegate user |
| Show member online | Show member online if login by admin account |
| Forum site | Create new subject | Create new subject |
| Forget password “Quên mật khẩu” | Send password to mail of account |
| View your post ”Xem bài viết của bạn” | View post of account |
| View thread unanswered ”Xem bài viết chưa trả lời” | View thread unanswered |
|  | View thread unread post “Xem bài viết chưa xem” | View thread unread post |
|  | View new post ”Xem bài viết mới” | View new post |
|  | Mark all forum as read “Đánh dấu tất cả các chuyên mục ” | Mark all forum as read |
|  | View active topic “Xem chủ đề đang hoạt động” | View active topic |
|  | Delete cookies of forum | Delete cookies of forum |
|  | Help “Trợ giúp” | All help to member |
| Home site | News in front page | Show news in content area |
| New thread in forum | Show subject of new thread in left menu |
| Show member online | Show member online in left menu |

# 5.3. Test strategy

## 5.3.1. Test types

### 5.3.1.1 Function Testing

The objective of function test is to measure the quality of the functional components of the system like verify proper data acceptance, processing, and retrieval, and the appropriate implementation of the business rules.  This type of testing is based upon black box testing that is verifying the application and its internal processes by interacting with the application

Table identified below is an outline of the testing recommended for each component of e-learning website:

|  |  |
| --- | --- |
| Test Objective | Verify proper target-of-test functionality, including navigation, data entry, processing, and retrieval. |
| Technique | Execute each use case, use-case flow, or 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. * Some case for exception occur when special data is used |
| Completion Criteria | * All planned tests have been executed. * All identified defects have been addressed and closed |
| Special Considerations | Identify or describe those items or issues (internal or external) that impact the implementation and execution of function test |

### 

### 5.3.1.2. User Interface Testing

User Interface (UI) testing verifies a user’s interaction with the website.  The objective of UI testing is to ensure that the User Interface provides the user with the appropriate access and navigation through the functions of the target-of-test.  In addition, UI testing ensures that the objects within the UI function as expected and conform to corporate or industry standards.

|  |  |
| --- | --- |
| Test Objective | Verify the following:   * Navigation through the target-of-test properly reflects business       functions and requirements, including window-to-window,, and use of access methods (mouse movements, accelerator keys) * Website window objects and characteristics, such as menus, size, position, state, and focus conform to standards. |
| Technique | Create or modify tests for each screen 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. |

### 

### 5.3.1.3. Performance testing

Performance profiling is a performance test in which response times, transaction rates, and other time-sensitive requirements are measured and evaluated.  The objective of Performance Test is to verify performance requirements have been achieved.

|  |  |
| --- | --- |
| Test Objective | Verify performance behaviors for designated transactions or business functions under the following conditions:   * normal anticipated workload * anticipated worst case workload |
| Technique | * Use Test Procedures developed for Function or Business Cycle Testing. * Modify data files to increase the number of transactions or the scripts to increase the number of iterations each transaction occurs. * Scripts should be run on one machine (best case to benchmark single user, single transaction) and be repeated with multiple clients (virtual or actual, see Special Considerations below). |
| Completion Criteria | * Single Transaction or single user:  Successful completion of the test scripts without any failures and within the expected or required time allocation per transaction. * Multiple transactions or multiple users:  Successful completion of the test scripts without any failures and within acceptable time allocation. |
| Special Considerations | Comprehensive performance testing includes having a background workload on the server.  There are several methods that can be used to perform this, including:   * “Drive transactions” directly to the server, usually in the form of Structured Query Language (SQL) calls. * Create “virtual” user load to simulate many clients, usually several hundred.  Remote Terminal Emulation tools are used to accomplish this load. This technique can also be used to load the network with “traffic”. * Use multiple physical clients, each running test scripts to place a load on the system.   Performance testing should be performed on a dedicated machine or at a dedicated time.  This permits full control and accurate measurement.  The databases used for Performance Testing should be either actual size or scaled equally. |

### 5.3.1.4 Security and Access Control Testing

Security and Access Control Testing focus on two key areas of security:

* Application-level security, including access to the Data or Business Functions
* System-level Security, including logging into or remote access from the system.

Application-level security ensures that, based upon the desired security, actors are restricted to specific functions or use cases, or are limited in the data that is available to them.  For example, everyone may be permitted to enter data and create new accounts, but only managers can delete them. If there is security at the data level, testing ensures that” user type one” can see all customer information, including financial data, however,” user two” only sees the demographic data for the same client.

System-level security ensures that only those users granted access to the system are capable of accessing the applications and only through the appropriate gateways.

|  |  |
| --- | --- |
| Test Objective | * Application-level Security:  Verify that an actor can access only those functions or data for which their user type is provided permissions. * System-level Security:  Verify that only those actors with access to the system and applications are permitted to access them. |
| Technique | * Function-level Security: Identify and list each user type and the functions or data each type has permissions for. * Create tests for each user type and verify all permission by creating transactions specific to each user type. * Modify user type and re-run tests for same users.  In each case, verify those additional functions or data are correctly available or denied. * System-level Access: See Special Considerations below |
| Completion Criteria | For each known actor type the appropriate function or data are available, and all transactions function as expected and run in prior Application Function tests. |
| Special Considerations | Access to the system must be reviewed or discussed with the appropriate network or systems administrator.  This testing may not be required as it may be a function of network or systems administration. |

## 5.3.2. Test environment

Test server configuration:

1. **Hardware:**

* CPU: core i7 2630
* RAM: 4GB
* HDD: 320GB
* OS :window 7 professional 64-bit

1. **Software:**

* Macromedia Dreamweaver 8
* Wamp Server 2.2
* Notepad++

1. **Test client configuration:**

* Windows 7
* Chrome 21; Mozilla Firefox 14.0

## 5.3.3. Risk list

* Web-based test experience
* Compatibility test
* Performance test

# 5.4. Deliverables

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Deliverables | Delivered Date | Delivered by | Delivered to |
| 1 | Test Plan | 18-06-2012 | Hungnt | Unicorn team |
| 2 | System Test case | 20-07-2012 | Hungnt | Unicorn team |
| 3 | Defect | Update daily | Huynt  Hungnt | Unicorn team |
| 4 | Test report | After finish testing | Hungnt | Unicorn team |

# 5.5. Test cases

## 5.5.1. Home site

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ID | Test Case Description | | Test Case Procedure | Expected Output | Result |
|  | **1. Theory Library** | | |  |  |
| [Home-1] | View subject name | | Click “Thư viện lý thuyết” link in the left menu or tab “Thư viện lý thuyết” in the menu bar | Show list of subject in exist left menu. And show Subject and all chapter names of each subject. |  |
| [Home -2] | View chapter name | | 1. Click “Thư viện lý thuyết” link in the left menu or tab “Thư viện lý thuyết” in the menu bar 2. If click “Thư viện lý thuyết” link in the left menu then click on a subject in the left menu or link of subject in content area. If click or tab “Thư viện lý thuyết” in the menu bar user can only click link of subject in content area. | Show lists all chapters below subject name in the content area. If click on a subject, show list all chapter in that subject. |  |
| [Home -3] | View theory name | | 1. Click “Thư viện lý thuyết” link in the left menu or tab “Thư viện lý thuyết” in the menu bar 2. If click “Thư viện lý thuyết” link in the left menu then click on a subject in the left menu or link of subject in content area. If click or tab “Thư viện lý thuyết” in the menu bar user can only click link of subject in content area. 3. Click on the chapter name. | Show lists of all theory names below chapter name in the content area. |  |
| [Home -4] | View theory content | | 1. Click “Thư viện lý thuyết” link in the left menu or tab “Thư viện lý thuyết” in the menu bar 2. If click “Thư viện lý thuyết” link in the left menu then click on a subject in the left menu or link of subject in content area. If click or tab “Thư viện lý thuyết” in the menu bar user can only click link of subject in content area. 3. Click on the chapter name.  4. Click on the theory name. | Show content of theory in the content area and related exercises below content theory. |  |
| [Home -5] | View video of theory | | 1. Click “Thư viện lý thuyết” link in the left menu or tab “Thư viện lý thuyết” in the menu bar 2. If click “Thư viện lý thuyết” link in the left menu then click on a subject in the left menu or link of subject in content area. If click or tab “Thư viện lý thuyết” in the menu bar user can only click link of subject in content area. 3. Click on the chapter name. 4. Click on the theory name. | Show related video of theory content in the theory content. |  |
| [Home -6] | View questions of theory | | 1. Click “Thư viện lý thuyết” link in the left menu or tab “Thư viện lý thuyết” in the menu bar 2. If click “Thư viện lý thuyết” link in the left menu then click on a subject in the left menu or link of subject in content area. If click or tab “Thư viện lý thuyết” in the menu bar user can only click link of subject in content area. 3. Click on the chapter name. 4. Click on the theory name. | Show related questions below theory content. |  |
|  | **2. Exam** | | |  |  |
| [Home -7] | Login on the home site | Log in by user who having access right in the tab exam. | | 1. Log in successfully 2. Show tab exam in the menu bar. |  |
| [Home -8] | Authenticate account user before do exam. | 1. Log in by user who having access right in the tab exam. 2. Click tab exam in the menu bar. 3. Show site “Xác thực tài khoản” request user authenticate account before do exam. | | Show site “Xác thực tài khoản” and authenticate account successful. |  |
| [Home -9] | Do exam in site “Làm bài thi” | 1. Log in by user who having access right in the tab exam. 2. Click tab exam in the menu bar. 3. Show site “Xác thực tài khoản ” request user authenticate account before do exam. 4. Click “Làm bài”. 5. Click link name of exam. | | 1. Log in successful in the home site. 2. Authenticate account user before do exam in the site “Xác thực tài khoản ”. 3. After click link “Làm bài” 4. Do exam after click link name of exam. |  |
| [Home-10] | Calculate result of exam | 1. Log in by user who having access right in the tab exam. 2. Click tab exam in the menu bar. 3. Show site “Xác thực tài khoản ” request user authenticate account before do exam. 4. Click “Làm bài”. 5. Click link name of exam. 6. Answer all question in exam | | 1. Log in successful in the home site. 2. Authenticate account user before do exam in the site “Xác thực tài khoản ”. 3. After click link “Làm bài” 4. Do exam after click link name of exam. 5. Show result of exam. |  |
| [Home -11] | Do exam by account Admin | 1. Log in by admin who having access right in the tab exam. 2. Click tab exam in the menu bar. 3. Show site “Xác thực tài khoản ” request user authenticate account before do exam. 4. Click “Làm bài”. 5. Click link name of exam. | | 1. Log in successful in the home site. 2. Authenticate account user before do exam in the site “Xác thực tài khoản ”. 3. After click link “Làm bài” 4. Do exam after click link name of exam. |  |
| [Home -12] | Add new question for a new exam | 1. Log in by admin who having access right in the tab exam. 2. Click tab exam in the menu bar. 3. Show site “Xác thực tài khoản ” request user authenticate account before do exam. 4. Click “Ngân hang câu hỏi”. 5. Click image C:\Users\hungnt00838\Desktop\question-bank.gif . 6. Select “Loại cau hỏi” by combobox. 7. Select “Đề tài cầu hỏi” by combobox. 8. Select “Số những câu trả lời” by combo box. 9. Enter content of question in text area. 10. Enter answer content in text area. 11. Tick in check box “Chọn đáp án đúng” and enter percent right if it is correct answer. | | 1. Log in successful in the home site. 2. Authenticate account admin in the site “Xác thực tài khoản ”. 3. After click link “Ngân hang câu hỏi” and click link image in that site, go to site “Tạo câu hỏi”.  4. Make new question success. |  |
| [Home -12] | Add new subject | 1. Log in by admin who having access right in the tab exam. 2. Click tab exam in the menu bar. 3. Show site “Xác thực tài khoản ” request user authenticate account before do exam. 4. Click “Ngân hang câu hỏi”. 5. Click link “Môn học”. 6. Click image C:\Users\hungnt00838\Desktop\question-bank.gif . 7. Select “Loại cau hỏi” by combo box. 8. Select “Đề tài cầu hỏi” by combo box. 9. Select “Số những câu trả lời” by combo box. 10. Enter content of question in text area. 11. Enter answer content in text area. 12. Tick in check box “Chọn đáp án đúng” and enter percent right if it is correct answer. | | 1. Log in successful in the home site. 2. Authenticate account admin in the site “Xác thực tài khoản ”. 3. After click link “Ngân hang câu hỏi” and click link image in that site, go to site “Môn học”.  4. Make new subject success. |  |
| [Home -13] | Manage account in exam. | 1. Log in by admin who having access right in the tab exam. 2. Click tab exam in the menu bar. 3. Show site “Xác thực tài khoản ” request user authenticate account before do exam. 4. Click link “Administration (Quản lý)”.  5. Click link “Quản lý tài khoản” | | Show all account in the table |  |
| [Home -14] | Make new exam | 1. Log in by admin who having access right in the tab exam. 2. Click tab exam in the menu bar. 3. Show site “Xác thực tài khoản ” request user authenticate account before do exam. 4. Click link “Quản lý đề thi”. 5. Click image C:\Users\hungnt00838\Desktop\question-bank.gif . 6. Enter information, click “Cập nhật” | | Go to site “Quản lý đề thi”, enter information then click “Cập nhật” and add question in question bank. |  |
| [Home -15] | Manage Report | 1. Log in by admin who having access right in the tab exam. 2. Click tab exam in the menu bar. 3. Show site “Xác thực tài khoản ” request user authenticate account before do exam. 4. Click link “Quản lý báo cáo”. | | Enter information to search report show in table. |  |
|  | **3. Exercise library** | | | | |
| [Home -16] | Select exercise in chapter and theory | 1. Click tab “Thư viện bài tập”. 2. Select Subject 3. Select chapter. 4. Select theory. 5. Select difficulty (or not)  6. Number questions. | | Select question selections and can do it. |  |
| [Home -17] | Show result when do exercise. | 1. Click tab “Thư viện bài tập”. 2. Select Subject 3. Select chapter. 4. Select theory. 5. Select difficulty ( optional ) 6. Number questions. 7. Click answer | | Show answer of questions below question. |  |
| [Cent-18] | Login home site | 1. Login by account user or admin in the left menu | | Login successful. |  |
| [Cent-19] | Test show site “Đề thi” | 1. Login by account user or admin in the left menu. 2. Click tab “Đề thi” | | Show tab “Đề thi” after login successful. If not login, don’t show tab “Đề thi” |  |

## 5.5.2. Forum site

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ID | Test Case Description | | Test Case Procedure | Expected Output | Result |
|  | | 1. **Log in, Log out, post new thread** | | | |
| [Foru-1] | | Login forum | 1. Log in by user who having access right in the home site, or login in forum site. 2. Click on “Diễn đàn”. | In forum has been login by account in home site. |  |
| [Foru-2] | | Logout forum | 1. Log in by user who having access right in the home site, or login in forum site. 2. Click on “Thoát”. | In forum and home site have been logout account |  |
| [Foru-3] | | Post new thread in forum | 1. Log in by user or admin in site forum 2. Click on one topic in “Chuyên mục”. 3. Click on “Tạo chủ đề mới” | Make new thread in that topic |  |
| [Foru-4] | | Change profile account user | 1. Log in by user or admin in site forum 2. Click on one topic in “Thiết lập cá nhân”. | Change profile account successful |  |

# 5.6. Test Summary Report

## 5.6.1. Text execution summary

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Test Execution Summary** | | | | | | |
|  | **Pass** | **Fail** | **Untested** | **Accepted** | **N/A** | **Number of Test cases** |
|  | *0* | *0* | *0* | *0* | *0* | *0* |
| **Function** | *0* | *0* | *0* | *0* | *0* | *0* |
| **Workflow** | *0* | *0* | *0* | *0* | *0* | *0* |
| **Permission** | *0* | *0* | *0* | *0* | *0* | *0* |
| **GUI** | *0* | *0* | *0* | *0* | *0* | *0* |
| **External Interface** | *0* | *0* | *0* | *0* | *0* | *0* |
| **Performance** | *0* | *0* | *0* | *0* | *0* | *0* |
| **Data migration** | *0* | *0* | *0* | *0* | *0* | *0* |
| **Test coverage** |  |  |  |  |  |  |
| Test coverage |  |  |  |  |  | ***100%*** |
| Test successful coverage |  |  |  |  |  | ***100%*** |

## 5.6.2. Text results

### 5.6.2.1. Summary of Incident Reports Raised During Project

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Severity | Total Defect | Open Defect | | | |
| **Assigned** | **Corrected** | **Accepted** | **Total Open defects** |
| Fatal | **0** | 0 | 0 | 0 | **0** |
| Serious | **0** | 0 | 0 | 0 | **0** |
| Medium | **0** | 0 | 0 | 8 | **8** |
| Cosmetic | **0** | 0 | 0 | 4 | **4** |
| **Total (Status)** | **0** | **0** | **0** | **12** | **12** |
| **Total (W.def)** | **0** | **0** | **0** | **28** | **28** |

Total defects above exclude “Cancelled” defects.

### 5.6.2.2. Action Plan for Outstanding Incidents

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| # | Defect ID | Defect Title | Severity | Next action | Confirmed By | Notes |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

## 5.6.3. Conclusion

### 5.6.3.1. System Test Success Criteria

|  |  |  |
| --- | --- | --- |
| # | Criteria | Status |
| 1 | All the inputs of system testing are baselined and approved by relevant stakeholders (Common requirement, ADD, SRS, Design,Software package, System test cases). |  |
| 2 | System testing is over and all known issues (if any) are aware by relevant stakeholders (Team lead, Test lead, PM, Tech lead) and documented in Test summary report. |  |
| 3 | All planned Test Cases have been executed (100% test execution coverage) |  |
| 4 | At least 95% executed system test cases have to be passed. (More than 95% test successful coverage) |  |
| 5 | 100% high priority test cases in scope are passed. |  |
| 6 | Only Cosmetic defects can be accepted |  |

### 5.6.3.2. Conclusion