**Programming Assignment Submission System (PASS)**

**系統需求規格書**

**Software Requirements Specification (SRS)**

**Version: 1.0**

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# **簡介 (Introduction)**

## **1.1系統 (System)**

### 1.1.1目標 (Purpose)

對於作業繳交，傳統上都是紙本繳交，造成地球環境負荷大，並且在管理上也費心費時。

現今資工系等理工學院的作業繳交已有電子化趨勢，但其批改方式跟紙本無異。

本系統希望提供一個作業繳交平台，藉由分離角色(權限)，學生能在自己的專區上傳作業，教師能輕鬆檢索學生，了解其繳交狀況，並可直接批改，而不會發生作業遺失或者因字體美觀而批改困難(誤改)。

系統還能提供統計數據讓學生了解自己的學習狀況，教師也能迅速了解教學成效，進而達到良好的教學品質。

### 1.1.2系統名稱 (Identification)

Programming Assignment Submission System (PASS)，

其子系統有:

a. 課程管理與作業繳交子系統(Course Managent and Homework Submit System,CMHSS)

b. 使用者管理子系統(User Account Management Subsystem, UMS)

### 1.1.3概觀 (Overview)

a. 課程管理與作業繳交子系統 負責 課程資料紀錄 及 作業繳交和紀錄作業狀態

b. 使用者管理子系統 負責 分離使用者權限 及 管理所有帳號

### 1.1.4控制文件 (Controlling Documents)

Capability Maturity Model-Integrated v1.02 (CMMI v1.2 軟體發展成熟度模型)

## **1.2文件 (Document)**

### 1.2.1目的 (Purpose)

文件目的 -> 說明系統功能以及子系統功能需求，並介紹各個系統關聯，作為系統開發者的溝通依據，也能讓 PO 了解專案開發的內容。

依據 Object-Oriented Software Engineering 的 Domain Analysis 來編排，並依照Capability Maturity Model-Integrated (CMMI) v1.2 中Require Development Process Area & Light-Weight Capability Maturity Model Integration (CMMI) for National Science Council (NSC) Open Source Project 所規範的方法來規劃。

### 1.2.2接受準則 (Acceptance Criteria)

Clearly and properly stated

Completely

Consistently

Uniquely Identified

Appropriately implement

Verifiably

### 1.2.3優先次序定義 (Priority Definition)

|  |  |
| --- | --- |
| 符號 | 描述 |
| PASS 1.0.0 | PASS 系統被標記為 1.0.0 |

|  |  |
| --- | --- |
| 符號 | 描述 |
| PASS-N-nn | PASS non-Functional Requirements |

### 1.2.4優先次序定義 (Priority Definition)

a. Critical : 系統完成時必須同時達成

b. Importance : 系統完成時，此項可延後達成

c. Describe : 此功能加入可以改善其他功能

d. Optional : 選擇性需求

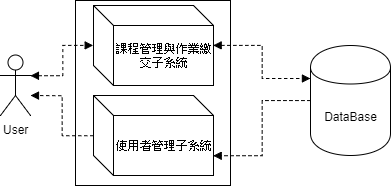
# **系統(System)**

## **2.1系統描述 (System Description)**

本系統分為2部分，課程管理與作業繳交子系統、使用者管理子系統，各子系統間的互動

如2.1.1所示。

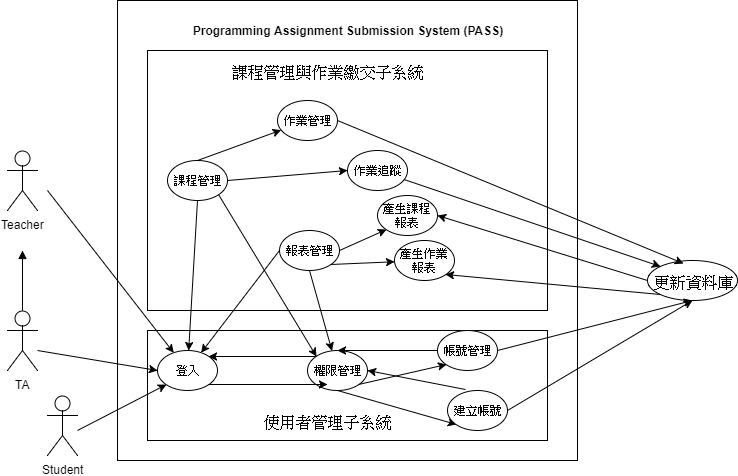
### 2.1.1系統架構圖 (System Context Diagram)



PASS-N-19

PASS-N-18

PASS-N-17



## **2.2操作概念 (Operational Concepts)**

分為三個角色的操作以及系統自動執行的動作:

a. Teacher : 開課，指派TA權限，批改作業，觀看所有課程內、所有作業的report

b. TA : 批改作業，觀看該課程內所有作業的report

c. Student : 上傳作業，觀看個人作業的report

d: System : 根據作業狀態即時產生報表，更新作業狀態，使用權限管理

## **2.3設計限制 (Design and Implementation Constrains)**

|  |  |  |
| --- | --- | --- |
| 需求編號 | 優先順序 | 需求描述 |
| PASS-N-01 | 1 | DataBase use MongoDB |
| PASS-N-02 | 1 | Model & communication between Models use JavaScrupt ES6 standard |
| PASS-N-03 | 1 | UI use Bootstrap |

## **2.4技術限制 (Technological Limitations)**

無

## **2.5介面需求 (Interface Requirements)**

### 2.5.1使用者介面需求 (User Interfaces Requirements)

|  |  |  |
| --- | --- | --- |
| 需求編號 | 優先順序 | 需求描述 |
| PASS-N-04 | 1 | Login View |
| PASS-N-05 | 1 | Account management View |
| PASS-N-06 | 1 | Report management View |
| PASS-N-07 | 1 | Upload homework View |
| PASS-N-08 | 1 | Course management View |
| PASS-N-09 | 1 | Homework management View |

### 2.5.2外部介面需求 (External Interface Requirements)

|  |  |  |
| --- | --- | --- |
| 需求編號 | 優先順序 | 需求描述 |
| PASS-N-10 | 1 | 課程管理與作業繳交子系統與資料庫間必須能傳送與接收課程資料 |
| PASS-N-11 | 1 | 帳號管理子系統與資料庫間必須能傳送與接收使用者資料 |
| PASS-N-12 | 1 | 帳號管理子系統允許使用者登入 |
| PASS-N-13 | 1 | 帳號管理子系統允許特定使用者瀏覽特定頁面 |
| PASS-N-14 | 1 | 課程管理與作業繳交子系統允許老師與TA管理作業 |
| PASS-N-15 | 1 | 課程管理與作業繳交子系統允許學生上傳作業 |
| PASS-N-16 | 1 | 透過網路傳送資料 |

### 2.5.3內部介面需求 (Internal Interface Requirements)

|  |  |  |
| --- | --- | --- |
| 需求編號 | 優先順序 | 需求描述 |
| PASS-N-17 | 1 | 課程管理與作業繳交子系統能夠向帳號管理子系統取得使用者登入Session資訊 |
| PASS-N-18 | 1 | 課程管理與作業繳交子系統能夠向帳號管理子系統取得帳號權限資訊 |
| PASS-N-19 | 1 | 課程管理與作業繳交子系統向資料庫拿取資料產生報表 |

## **2.6功能性需求 (Functional Requirements)**

|  |  |  |
| --- | --- | --- |
| 需求編號 | 優先順序 | 需求描述 |
| PASS-F-01 | 1 | 提供帳戶管理及權限辯識功能 |
| PASS-F-02 | 1 | 提供課程操作與管理功能 |
| PASS-F-03 | 1 | 提供報表產生管理功能 |
| PASS-F-04 | 1 | 提供作業上傳功能 |
| PASS-F-05 | 1 | 提供作業批改功能 |

## **2.7非功能性需求 (Non-Functional Requirements)**

### 2.7.1效能需求 (Performance Requirements)

|  |  |  |
| --- | --- | --- |
| 需求編號 | 優先順序 | 需求描述 |
| PASS-N-20 | 1 | 報表產生速度小於5秒 |

### 2.7.2測試需求 (Test Requirements)

|  |  |  |
| --- | --- | --- |
| 需求編號 | 優先順序 | 需求描述 |
| PASS-N-21 | 1 | 通過Use cass所寫的Test Case |

### 2.7.3可信度需求 (Reliability Requirements)

|  |  |  |
| --- | --- | --- |
| 需求編號 | 優先順序 | 需求描述 |
| PASS-N-22 | 1 | 定期備份資料庫 |

## **2.8其他需求 (Other Requirements)**

### 2.8.1環境需求 (Environmental Requirement)

|  |  |  |
| --- | --- | --- |
| 需求編號 | 優先順序 | 需求描述 |
| PASS-N-23 | 1 | 主機為Intel i7-6700以上的機器 |
| PASS-N-24 | 1 | 硬碟空間需要500MB以上 |
| PASS-N-25 | 1 | 記憶體16GB以上 |

### 2.8.2安裝需求 (Installation Requirement)

|  |  |  |
| --- | --- | --- |
| 需求編號 | 優先順序 | 需求描述 |
| PASS-N-26 | 1 | 安裝MongoDB |
| PASS-N-27 | 1 | 安裝Nodejs |
| PASS-N-28 | 1 | 安裝Aqua |
| PASS-N-29 | 1 | 安裝瀏覽器 |

### 2.8.3交付需求 (Delivery Requirement)

|  |  |  |
| --- | --- | --- |
| 需求編號 | 優先順序 | 需求描述 |
| PASS-N-30 | 1 | 通過Unit Test |
| PASS-N-31 | 1 | 通過Accertance Test |
| PASS-N-32 | 1 | 四份文件︰PEP、SRS、SDD、STD |

### 2.8.4維護性需求 (Maintainability Requirements)

|  |  |  |
| --- | --- | --- |
| 需求編號 | 優先順序 | 需求描述 |
| PASS-N-33 | 1 | 由developer進行維護 |

## **2.9追朔矩陣 (Traceability Matrix)**

### 2.9.1需求對需求 (Requirements vs. Requirements)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | PASS-N-01 | PASS-N-02 | PASS-N-03 | PASS-N-04 | PASS-N-05 | PASS-N-06 | PASS-N-07 | PASS-N-08 | PASS-N-09 |
| UMS | O | O | O | O | O |  |  |  |  |
| CMHSS | O | O | O |  |  | O | O | O | O |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | PASS-N-10 | PASS-N-11 | PASS-N-12 | PASS-N-13 | PASS-N-14 | PASS-N-15 | PASS-N-16 | PASS-N-17 | PASS-N-18 |
| UMS |  | O | O | O |  |  | O | O | O |
| CMHSS | O |  |  |  | O | O | O | O | O |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | PASS-N-19 | PASS-N-20 | PASS-N-21 | PASS-N-22 | PASS-N-23 | PASS-N-24 | PASS-N-25 | PASS-N-26 | PASS-N-27 |
| UMS |  |  | O | O | O | O | O | O | O |
| CMHSS | O | O | O | O | O | O | O | O | O |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | PASS-N-28 | PASS-N-29 | PASS-N-30 | PASS-N-31 | PASS-N-32 | PASS-N-33 |
| UMS | O | O | O | O | O | O |
| CMHSS | O | O | O | O | O | O |

### 2.9.2需求對使用案例 (Requirements vs. Use Cases)

使用者介面

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | PASS-N-01 | PASS-N-02 | PASS-N-03 | PASS-N-04 | PASS-N-05 | PASS-N-06 | PASS-N-07 | PASS-N-08 | PASS-N-09 |
| PASS-N-04 |  | O | O | O |  |  |  |  |  |
| PASS-N-05 |  | O | O |  | O |  |  |  |  |
| PASS-N-06 |  | O | O |  |  | O |  |  |  |
| PASS-N-07 |  | O | O |  |  |  | O |  |  |
| PASS-N-08 |  | O | O |  |  |  |  | O |  |
| PASS-N-09 |  | O | O |  |  |  |  |  | O |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | PASS-N-10 | PASS-N-11 | PASS-N-12 | PASS-N-13 | PASS-N-14 | PASS-N-15 | PASS-N-16 | PASS-N-17 | PASS-N-18 |
| PASS-N-04 |  |  | O | O |  |  | O |  |  |
| PASS-N-05 |  |  |  | O |  |  | O |  |  |
| PASS-N-06 |  |  |  | O |  |  | O |  |  |
| PASS-N-07 |  |  |  | O |  | O | O |  |  |
| PASS-N-08 |  |  |  | O | O | O | O |  |  |
| PASS-N-09 |  |  |  | O | O | O | O |  |  |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | PASS-N-19 | PASS-N-20 | PASS-N-21 | PASS-N-22 | PASS-N-23 | PASS-N-24 | PASS-N-25 | PASS-N-26 | PASS-N-27 |
| PASS-N-04 |  |  | O |  | O | O | O |  |  |
| PASS-N-05 |  |  | O |  | O | O | O |  |  |
| PASS-N-06 | O | O | O |  | O | O | O |  |  |
| PASS-N-07 |  |  | O |  | O | O | O |  |  |
| PASS-N-08 |  |  | O |  | O | O | O |  |  |
| PASS-N-09 |  |  | O |  | O | O | O |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | PASS-N-28 | PASS-N-29 | PASS-N-30 | PASS-N-31 | PASS-N-32 | PASS-N-33 |
| PASS-N-04 |  | O | O | O | O | O |
| PASS-N-05 |  | O | O | O | O | O |
| PASS-N-06 |  | O | O | O | O | O |
| PASS-N-07 |  | O | O | O | O | O |
| PASS-N-08 |  | O | O | O | O | O |
| PASS-N-09 |  | O | O | O | O | O |

外部介面

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | PASS-N-01 | PASS-N-02 | PASS-N-03 | PASS-N-04 | PASS-N-05 | PASS-N-06 | PASS-N-07 | PASS-N-08 | PASS-N-09 |
| PASS-N-10 | O | O |  |  |  |  |  |  |  |
| PASS-N-11 | O | O |  |  |  |  |  |  |  |
| PASS-N-12 | O | O | O | O |  |  |  |  |  |
| PASS-N-13 | O | O | O | O | O | O | O | O | O |
| PASS-N-14 | O | O | O |  |  |  |  | O | O |
| PASS-N-15 | O | O | O |  |  |  | O | O | O |
| PASS-N-16 |  |  |  | O | O | O | O | O | O |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | PASS-N-10 | PASS-N-11 | PASS-N-12 | PASS-N-13 | PASS-N-14 | PASS-N-15 | PASS-N-16 | PASS-N-17 | PASS-N-18 |
| PASS-N-10 | O |  |  |  |  |  |  |  |  |
| PASS-N-11 |  | O |  |  |  |  |  | O | O |
| PASS-N-12 |  |  | O |  |  |  |  | O | O |
| PASS-N-13 |  |  |  | O |  |  |  |  | O |
| PASS-N-14 |  |  |  |  | O |  |  |  | O |
| PASS-N-15 |  |  |  |  |  | O |  |  | O |
| PASS-N-16 |  |  |  |  |  |  | O |  |  |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | PASS-N-19 | PASS-N-20 | PASS-N-21 | PASS-N-22 | PASS-N-23 | PASS-N-24 | PASS-N-25 | PASS-N-26 | PASS-N-27 |
| PASS-N-10 | O | O | O | O | O | O | O | O | O |
| PASS-N-11 |  |  | O | O | O | O | O | O | O |
| PASS-N-12 |  |  | O |  | O | O | O | O | O |
| PASS-N-13 |  |  | O |  | O | O | O |  |  |
| PASS-N-14 |  |  | O |  | O | O | O |  |  |
| PASS-N-15 |  |  | O |  | O | O | O |  |  |
| PASS-N-16 |  |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | PASS-N-28 | PASS-N-29 | PASS-N-30 | PASS-N-31 | PASS-N-32 | PASS-N-33 |
| PASS-N-10 |  | O | O | O | O | O |
| PASS-N-11 | O | O | O | O | O | O |
| PASS-N-12 | O | O | O | O | O | O |
| PASS-N-13 | O | O | O | O | O | O |
| PASS-N-14 | O | O | O | O | O | O |
| PASS-N-15 | O | O | O | O | O | O |
| PASS-N-16 |  | O |  |  |  |  |

內部介面

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | PASS-N-01 | PASS-N-02 | PASS-N-03 | PASS-N-04 | PASS-N-05 | PASS-N-06 | PASS-N-07 | PASS-N-08 | PASS-N-09 |
| PASS-N-17 |  | O |  |  |  |  |  |  |  |
| PASS-N-18 |  | O |  |  |  |  |  |  |  |
| PASS-N-19 | O | O |  |  |  | O |  |  |  |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | PASS-N-10 | PASS-N-11 | PASS-N-12 | PASS-N-13 | PASS-N-14 | PASS-N-15 | PASS-N-16 | PASS-N-17 | PASS-N-18 |
| PASS-N-17 |  | O | O |  |  |  |  | O |  |
| PASS-N-18 |  | O | O | O | O | O |  |  | O |
| PASS-N-19 | O |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | PASS-N-19 | PASS-N-20 | PASS-N-21 | PASS-N-22 | PASS-N-23 | PASS-N-24 | PASS-N-25 | PASS-N-26 | PASS-N-27 |
| PASS-N-17 |  |  | O |  | O | O | O |  | O |
| PASS-N-18 |  |  | O |  | O | O | O |  | O |
| PASS-N-19 | O | O | O |  | O | O | O | O | O |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | PASS-N-28 | PASS-N-29 | PASS-N-30 | PASS-N-31 | PASS-N-32 | PASS-N-33 |
| PASS-N-17 |  | O | O | O | O | O |
| PASS-N-18 | O | O | O | O | O | O |
| PASS-N-19 |  | O | O | O | O | O |

# **Glossary**

# **References**

# **Appendix**