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**Assignment #3**

**Course:**

Software Quality Engineering

**Topic:**

**LAYP   
(UNIT Testing)**

**Submitted by:**

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# Introduction

**LAYP-Real Editor** is a lightweight, scalable, and feature-rich text editor framework built to simplify document editing for end-users. It provides advanced text formatting options, file management capabilities, and an intuitive user interface suitable for developers and non-technical users alike.

# Project Overview

LAYP-RealEditor was developed as part of the LAYP framework initiative. It is designed for extensibility and adheres to best practices in software engineering. The primary focus is to provide a seamless experience for document creation and editing, with support for integrations and modular enhancements.

## Objective

The primary goal of LAYP-RealEditor is to:

* Enhance productivity through simplified editing workflows.
* Provide a flexible architecture for future extensions.
* Support multiple document formats (e.g., .txt, .md, .docx).

# Features

* **Rich Text Editing:** Apply bold, italic, underline, and other styles effortlessly.
* **File Management:** Save, open, and export files in multiple formats.
* **Customizable Themes:** Choose between light, dark, or custom themes.
* **Keyboard Shortcuts:** Enhanced accessibility with configurable shortcuts.
* **Version Control:** Built-in version tracking for editing history.
* **Plugin Support:** Extend functionality with custom plugins.

# Setup and Installation

**Prerequisites**

* Node.js (version 16 or later)
* Git
* A modern browser (Chrome, Firefox, Edge)

## Installation Steps

1. Clone the repository:

* git clone https://github.com/whis-19/LAYP-RealEditor.git

cd LAYP-RealEditor

**Usage Instructions**

1. **Create a Document**
   * Click File > New to create a new document.
2. **Read/Open a Document**
   * Click File > Open to upload and view an existing document.
3. **Update/Edit a Document**
   * Use the text editor to modify the document's content.
   * Apply formatting as needed using the toolbar.
4. **Delete a Document**
   * Remove unwanted documents directly from your file system or use File > Delete (if supported by your configuration).

# Testing Strategy

The testing strategy follows a modular approach:

1. **Unit Testing:** Each function and component is tested in isolation using Jest.
2. **Integration Testing:** Interactions between major modules are tested using Playwright.
3. **End-to-End Testing:** Simulate real-world user interactions with CodeceptJS and Allure for reporting.

## Test Designs

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Test ID** | **Test Description** | **Category** | **Inputs** | **Expected Result** | **Actual Result** |
|  | Return non-empty list when files exist | ECP | Files exist in DB | Returns non-empty list | Pass |
|  | Create file with special characters in filename | ECP | Filename: File@123, Content: Sample | File created successfully | Pass |
|  | Create file with empty content | BVA | Filename: TestFile, Content: `` | File created successfully | Pass |
|  | Fail to create file with null content | ECP | Filename: TestFile, Content: null | File creation fails | Pass |
|  | Update file with valid input | ECP | File ID: 1, Name: UpdatedFile, Content: Updated | Update succeeds | Pass |
|  | Fail to update non-existent file ID | ECP | File ID: -1, Name: UpdatedFile | Update fails | Pass |
|  | Update with empty filename | BVA | File ID: 1, Name: , Content: Update | Update succeeds | Pass |
|  | Fail to update with zero page number | BVA | Page Number: 0 | Update fails | Pass |
|  | Update with empty content | BVA | Content: | Update succeeds | Pass |
|  | Update with null content | ECP | Content: null | Update succeeds | Pass |
|  | Delete file with valid ID | ECP | File ID: 1 | Delete succeeds | Pass |
|  | Fail transliteration for non-existent page ID | ECP | Page ID: -1, Text: مرحبا | Returns null | Pass |
|  | Fail transliteration for empty Arabic text | BVA | Page ID: 1, Text: `` | Returns null | Pass |
|  | Transliterate very long Arabic text | BVA | Text: مرحبا repeated 1024 times | Transliteration succeeds | Pass |
|  | Create file with very long filename | BVA | Filename: A repeated 255 times | File created successfully | Pass |
|  | Delete file after creation | ECP | Create TestFileToDelete, then delete | File successfully deleted | Pass |
|  | Retrieve files after creation | ECP | Create FileForGetTest, retrieve | File successfully retrieved | Pass |
|  | Change file content in database | ECP | File ID: 1, Update content | File content updated successfully | Pass |
|  | Fail to update file with non-existent ID | ECP | File ID: 9999 | Update fails | Pass |
|  | Fail to delete with non-existent ID | ECP | File ID: -1 | Delete fails | Pass |
|  | Create file with very large content | BVA | Content: A repeated 1 MB | File created successfully | Pass |
|  | Create file with valid input | ECP | Filename, Content from Excel | Matches expected Excel result | Pass |
|  | Create file with empty filename | BVA | Filename: , Content from Excel | Matches expected Excel result | Pass |
|  | Transliterate file content correctly | ECP | File ID, Arabic text from Excel | Matches expected Excel result | Pass |
|  | Create file with normal input | ECP | Filename: TestFile, Content: Sample | File created successfully | Pass |
|  | Create file with empty content | BVA | Filename: EmptyContentFile, Content: `` | File created successfully | Pass |
|  | Create file with special characters in name | ECP | Filename: Special@File#, Content: Sample | File created successfully | Pass |
|  | Create file with large content | BVA | Content: 10,000 repetitions of large\_content | File created successfully | Pass |
|  | Update file with normal input | ECP | File ID, Updated name and content | File updated successfully | Pass |
|  | Fail to update file with nonexistent page number | ECP | Page Number: 999 | Update fails | Pass |
|  | Update file with empty content | BVA | Content: `` | File updated successfully | Pass |
|  | Fail to update with nonexistent file ID | ECP | File ID: 9999 | Update fails | Pass |
|  | Delete existing file | ECP | File ID exists | File deleted successfully | Pass |
|  | Fail to delete nonexistent file | ECP | File ID: 9999 | Delete fails | Pass |
|  | Import text file with supported extension | ECP | .txt file | Import succeeds | Pass |
|  | Fail to import file with unsupported extension | ECP | .pdf file | Import fails | Pass |
|  | Get existing file | ECP | File ID exists | File retrieved successfully | Pass |
|  | Fail to get nonexistent file | ECP | File ID: 9999 | File retrieval fails | Pass |
|  | Get file extension with extension | ECP | Filename: file.txt | Returns txt | Pass |
|  | Get file extension with no extension | ECP | Filename: file | Returns empty string | Pass |
|  | Get file extension with .md5 | ECP | Filename: check.md5 | Returns md5 | Pass |
|  | Get all files when no files exist | ECP | No files in DB | Returns empty list | Pass |
|  | Get all files when multiple files exist | ECP | Two files in DB | Returns list with 2 files | Pass |
|  | Transliterate normal Arabic text | ECP | Text: مرحبا | Returns transliterated text | Pass |
|  | Transliterate empty Arabic text | BVA | Text: `` | Returns empty string | Pass |
|  | Fail transliteration for nonexistent page ID | ECP | Page ID: 9999 | Returns null | Pass |

## Running Tests

Run all tests using either Junit or XML file (Test NG):

# Technology Stack

* **Frontend:** Swing
* **Backend:** Java
* **Database:** MariaDB
* **Testing Frameworks:** Junit, TestNG