

RMIT International University Vietnam

Assignment Cover Page

Subject Code:	EEET2582
Subject Name:	Software Engineering: Architecture and Design
Location & Campus where to study:	Saigon South Campus
Title of Assignment:	Build a web application using modern architecture
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Number of pages including this one:	3
Word count:	907

We declare that in submitting all work for this assessment we have read, understood and agree to the content and expectations of the Assessment declaration

1. SYSTEM DESCRIPTION

Our system is a web application that offers English correction with grammar checking and spell checking for user's word documents. It is designed to enhance the clarity, correctness, and overall quality of the written content. These are the implemented features of our system:

- **Login/Signup:**

While accessing the website, the application requires users to have an account to login to the main screen. Users can navigate to Signup web page and fulfill all the requirements (i.e. email, username, and password) to register for their own account. After the information has been stored in database, users can login with the account they have registered.

- **Premium Subscription:**

Our system offers two types of account:

- Normal account: this type of account only allows users to upload 1 document per hour.
- Premium account: this account provides unlimited upload enabling them to use our system without time restriction.

When users sign up for an account, they are provided with a normal account type restricting them from using our system multiple times in a short period. If they want to upgrade their account to remove the restriction, they only need to pay 10\$ for infinite use. The transaction can only be conducted via Paypal as this is the only payment method provided by our system.

- **Word Document Processing:**

Our system allows users to upload their word documents onto the website for grammar fixing. After receiving the word document, the content of the document will be divided into paragraphs. As the maximum return of the LLM API is 64 tokens, each paragraph again will also be divided into sentences to be submitted to the LLM API for grammar correction. Paragraphs with no dot character are considered as headings and will not be submitted to the model. After all responses from the model are returned, they will be merged back into the word file, allowing users to download it. Below are some functions that we have or have not completed for word document processing:

No.	Function	Result
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1	Upload/Download word document	Done
2	Keep text style and format	Done
3	Keep images and tables	Done
4	Keep references	Done (keep the reference text but remove the cross-reference of EndNote)
5	Page break	Done
6	Keep inline images (images positioned at the same line of text)	Partially (keep the image but cannot recognize its position in a paragraph)
7	Accept diverse types of word documents	Partially (only accept docx not doc)
8	Suggestion text	N/A (will be removed after grammar correction)

2. SYSTEM DESIGN

Our system follows the layered architecture which classifies the whole application into three primary layers:

- **Presentation layer:**

This top layer implies the front-end of the application. It deals with user interface (UI) and user interaction including web pages, UI, and client-side code responsible for rendering and displaying web content to users. In our system, this layer is created through HTML, CSS, and JavaScript without the use of any framework.

- **Application layer:**

The application layer is a part of the app back-end containing the core business logic and application-specific functionality. The main functions of this layer are to process user requests, handle business rules, and orchestrate data flow and operations. With the manipulation of Flask library using Python programming language, a REST API is built and integrated into our system to facilitate the interaction between client side and server side. The local version of the app was created using python 3.9.13, but the deployed version used python 3.10 as our deployment provider (pythonanywhere) have no access to the python 3.9.13 version.

- **Data access layer:**

The data access layer is also a part of the app back-end with the purpose of interacting with databases. It plays a crucial role by closely interfacing with the application layer, handling data retrieval, storage, and manipulation operations. For this project,

SQLAlchemy library is used to enable the SQLite database manipulation of our system in a high-level and Pythonic manner.

3. INSTRUCTIONS

3.1. *Online Deployment*

Our website can be accessed via this url: <https://namvinh2002.pythonanywhere.com/>

Here is a premium account login information to be used for testing purpose:

s3875336@rmit.edu.vn

Abc1234

After login with premium account, you can upload and download word documents for grammar correction several times. For payment method, Paypal is available in our system and you can test it in local run to conduct a transaction without losing money. Also if you use the account provided there will be no paypal payment function as that one is already a premium account permanently, so if you want to see the paypal please register for another account using sign up

3.2. *Local Run*

- **Setup & Installation:**

Make sure you have the Python version 3.9.13 or later installed. Below is the command to install some required libraries for our system to run:

```
pip install -r requirements.txt
```

- **Running The App:**

```
python main.py
```

- **Viewing The App:**

Go to <http://127.0.0.1:5000>

Here is an account with sandbox mode enabled to conduct a Paypal transaction for free:

sb-dqcmf29281131@personal.example.com

K@74G_mZ

This only works if you use the app locally not the deployed one, as Paypal blocks sandbox usage on deployed websites, so on the deployed version it is the live version and you will have to pay actual money to get a premium account for our app, note that even though it said pay 10\$ in the front end, you will only have to pay 0.01\$ (the minimum Paypal transaction), I have set it like that so you can test sir.