# Image-To-Text Converter that detects language And Provides A Translated Summary

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## Introduction

Our project enhances language translation and text extraction by offering customizable text summarization. Users can input text or upload images, select translation and summary preferences, and experience a seamless, user-friendly website powered by Flask technology. With our comprehensive solution, language barriers and information overload are eliminated, making translation and summarization accessible to all.

## Motivation

We aim to overcome language barriers and information overload in the digital age by providing a user-friendly platform with language translation, text extraction, and summarization capabilities. Leveraging NLP techniques and OCR technology, our comprehensive solution caters to diverse language needs, making communication efficient and accessible to all.

## SCOPE of the Project

Our objective is to create a comprehensive language processing system with translation and summarization functionalities. Users can input text or upload images, processed with OCR technology for text extraction. Our user-friendly website offers language detection, translation, and multilingual summarization using NLP models. Our goal is to provide a comprehensive solution that caters to diverse language needs, making translation and summarization accessible across languages and text formats.

## Methodology

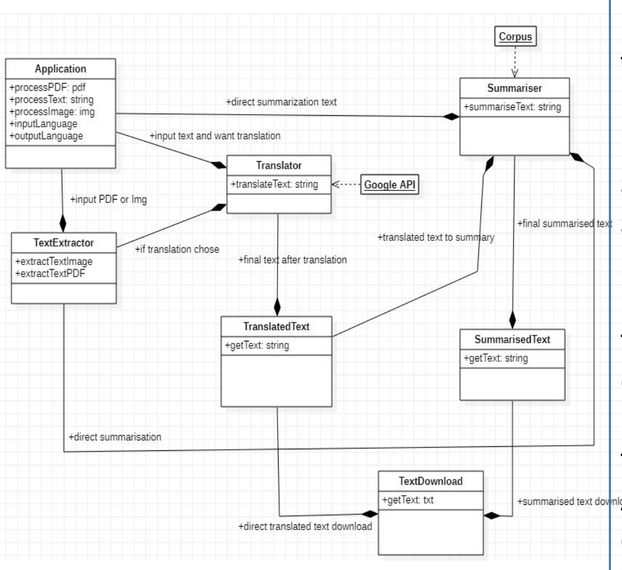
Our code is designed to handle three different types of inputs: PDF files, text input, and images (in PNG or JPEG format). It performs three main tasks: text extraction, translation, and summarization.

For text extraction, we utilise easyOCR, a Python library that supports the reading of 35 to 40 languages. We have incorporated languages like Tamil, Hindi, French, Spanish, Chinese, and Arabic. Based on the input language, the OCR model selects the appropriate reader and extracts the text from the provided PDF or image.

The translation task employs the Google API to translate the extracted text into a different language or the user's preferred language. Initially, the API had a character limit of 500, but we have made adjustments to remove this limitation to accommodate PDF files with thousands of words. The translation model preserves names and proper nouns while translating only the sentences as required.

The final and crucial part is text summarization. The code takes the English input file and applies natural language processing techniques such as tokenization and lemmatization. Using an English corpus from our NLP model dataset, the code summarises the text. Additionally, we offer the flexibility for the user to select the desired number of summary lines, allowing for customization.

In the final stages, the code converts the output into a text file and saves it to the desired location on the system. We are also developing a website where all these functionalities will be hosted. Along with the aforementioned features, users will have access to a dashboard upon logging in. They can save the summarised/translated files on the website by simply checking a checkbox.




First the user has to give an input. The input can either be a text, image with text or a pdf file. Once given, the user has to select the input language (specifically for the OCR model) and select if they want to translate and summarise the text with the help of radio buttons on the web-page. If the person wishes to translate, on clicking the check box, the option for language opens up where the user can select the language they want out of 7 languages that we offer (English, Spanish, French, Arabic, Chinese, Tamil, Hindi). On clicking Go!, the file is downloaded on the user's device.

## Results

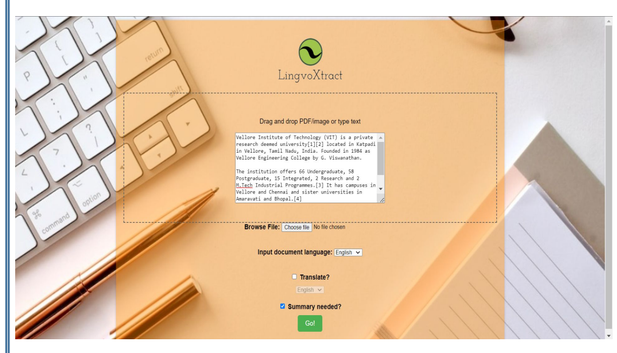
The proposed system architecture and design of LingvoXtract address the challenges of recognizing text from images and PDFs while achieving accurate translation and summarization of the extracted text. It offers a comprehensive solution to meet the growing demand for language translation, text extraction from images, and text summarization.

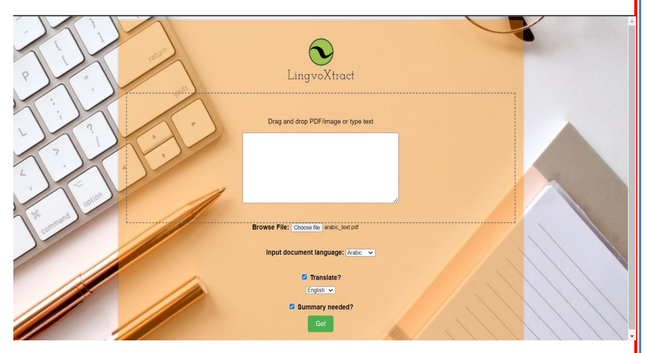
LingvoXtract incorporates cutting-edge NLP techniques and corpora to enable users to overcome language barriers and information overload. It provides a user-friendly interface that allows users to input text or upload images containing text. They can select their desired target language for translation and request a summary of the content.

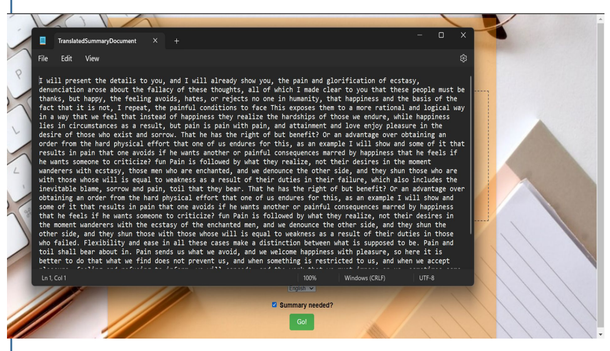
The system leverages Flask technology to ensure a seamless and efficient user experience. It offers a step-by-step approach, allowing users to choose which functionalities they want to utilize. The architecture accommodates diverse language needs and provides a sleek UI on a proper website.

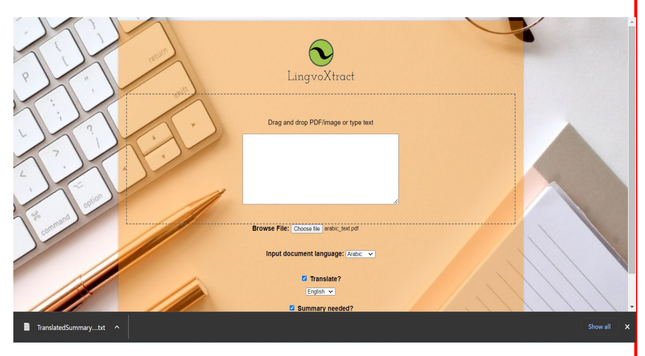
The core functionalities of language translation, text extraction from images, and text summarization are seamlessly integrated into the system. Users can translate text between different languages, extract text from images for accessibility and editing purposes, and generate concise summaries of lengthy content. These functionalities are powered by state-of-the-art NLP algorithms and corpora.

Overall, LingvoXtract offers an inclusive solution that simplifies language translation, text extraction from images, and text summarization. It empowers users to easily overcome language barriers and efficiently manage information overload, enhancing their productivity and accessibility to multilingual content.




## Conclusion

The proposed system architecture and design effectively meet the demand for language translation, text extraction from images and PDFs, and text summarization. It accurately recognizes text from images and PDFs, provides reliable translation, and generates concise summaries. The system's advanced computer vision techniques and OCR technology enable efficient text extraction, while state-of-the-art NLP algorithms ensure accurate translation. The user-friendly interface and intuitive design enhance the user experience. Overall, the system revolutionizes language-related tasks, empowering users to access and utilize multilingual content with ease.

## References

1. (2021), Translate and Summarise: An Efficient Method for Neural Cross-Lingual Summarization.
2. (2022), Abstractive Arabic Text Summarization Based on Deep Learning.
3. (2021), Neural Abstractive Text Summarization with Sequence-to-Sequence Models.
4. (2017), STN-OCR: A single Neural Network for Text Detection and Text Recognition.
5. (2017), High Performance Text Recognition Using a Hybrid Convolutional-LSTM Implementation.
6. (2017), Deep Learning based Isolated Arabic Scene Character Recognition.
7. (2019), Efficient, Lexicon-Free OCR using Deep Learning
8. (2019), Reward Learning for Efficient Reinforcement Learning in Extractive Document Summarisation