OCR Project

Colab link:
https://colab.research.google.com/drive/1U8xDagqXCl8qluS5j5TpxAKZqWANHgqH#scrollTo=-i4ntjQwlvwd

Github link:
https://github.com/fagrahmed12/OCR_AI_Team/tree/master

Discussion:

I use ArabicOcr Package to convert any Arabic image text to text by OCR techniques

1-https://github.com/fagrahmed12/OCR_AI_Team/tree/master/pic1:
This was the result of the analysis of the first image in terms of a text file containing the names and prices of the products in the image and output image in which the words that appeared in the OCR are identified with a green frame.

2- https://github.com/fagrahmed12/OCR_AI_Team/tree/master/pic2
This is the same as the result of the second picture.

I noticed that the quality of the picture affects the final result of reading the words When using pic1 and pic2 there were some words that did not appear with the required accuracy and some letters were missing or wrong

When I used another high-resolution image, the result was very good in terms of reading all the words correctly and the error rate was very few.

This was the result of my photo:
https://github.com/fagrahmed12/OCR_AI_Team/tree/master/arabic

How to Calculate OCR Accuracy

1. The Quality of Original Source Images
2. The Quality of OCR Engine

These factors lead to improving the quality of reading and making the words appear as correctly as possible:

- **Good Quality of Source Images**

  Before using OCR, make sure you can read the images with your own eyes. If you, with your own eyes, can't see the image clearly, make sure the original source images are not damaged AND wrinkle-free. So, use the cleanest and most original files for better results.

- **Right Size of Images**

  OCR engine needs to read source images not only the ones with the best quality but also the right resolution. Make sure the image is resized to the correct size, which is usually about 1 / 10 of the original size (1.5 mm x 1 mm) or less. This way, the result will be more accurate.

- **Remove Noise / Denoise**

  Human eyes can't even read documents that have many noises, so does the OCR engine. Noises make the engine difficult to read original sources and it can decrease the OCR accuracy. If the image has background or foreground noise, remove it to get a higher quality data extraction.

- **Increase Image Contrast**

  How do you see white papers with light grey ink? You -and the OCR engine must be uncomfortable reading such papers. Thus, try to increase the contrast between text and background brings more clarity to the output. The best contrast will help the OCR engine to read images accurately.

- **De-skew Original Source**

  No one wants to read papers upside down. Thus, make sure you get the image in the right format and shape (text should appear horizontal and not inclined). The image can be rotated by tilting it to one side, turning it clockwise or counter-clockwise, and turning it back to the other side.

I have also used easyocr to convert any language in the image to text using OCR techniques
This was their output
https://github.com/fagrahmed12/OCR_AI_Team/tree/master/english
https://github.com/fagrahmed12/OCR_AI_Team/tree/master/french

In the case of Arabic, it was the same result as Arabic that appeared in arabicocr previously
Here was the knowledge that the quality of the image affects the quality of OCR
Changing the package does not affect the quality of the reading