PROIII - 08

Project III, data analysis
Degree in Data Science

Describing **INDITEX**

Automating informative product descriptions - using generative AI

SCAN ME!

INDITEX sells more than a billion products each year worldwide, among all their different brands. This is why putting each and every one of their products into words is becoming a harder task over the years, with a rocketing time cost. What could the company do to reduce it?

We propose a solution to this problem: generating **semi-automatic descriptions** of the products, using their images and some basic features. See an example below:

ORIGINAL

"Worn effect bomber jacket with a round neckline and long cuffed sleeves, front welt pockets, front fastening with metal zip"

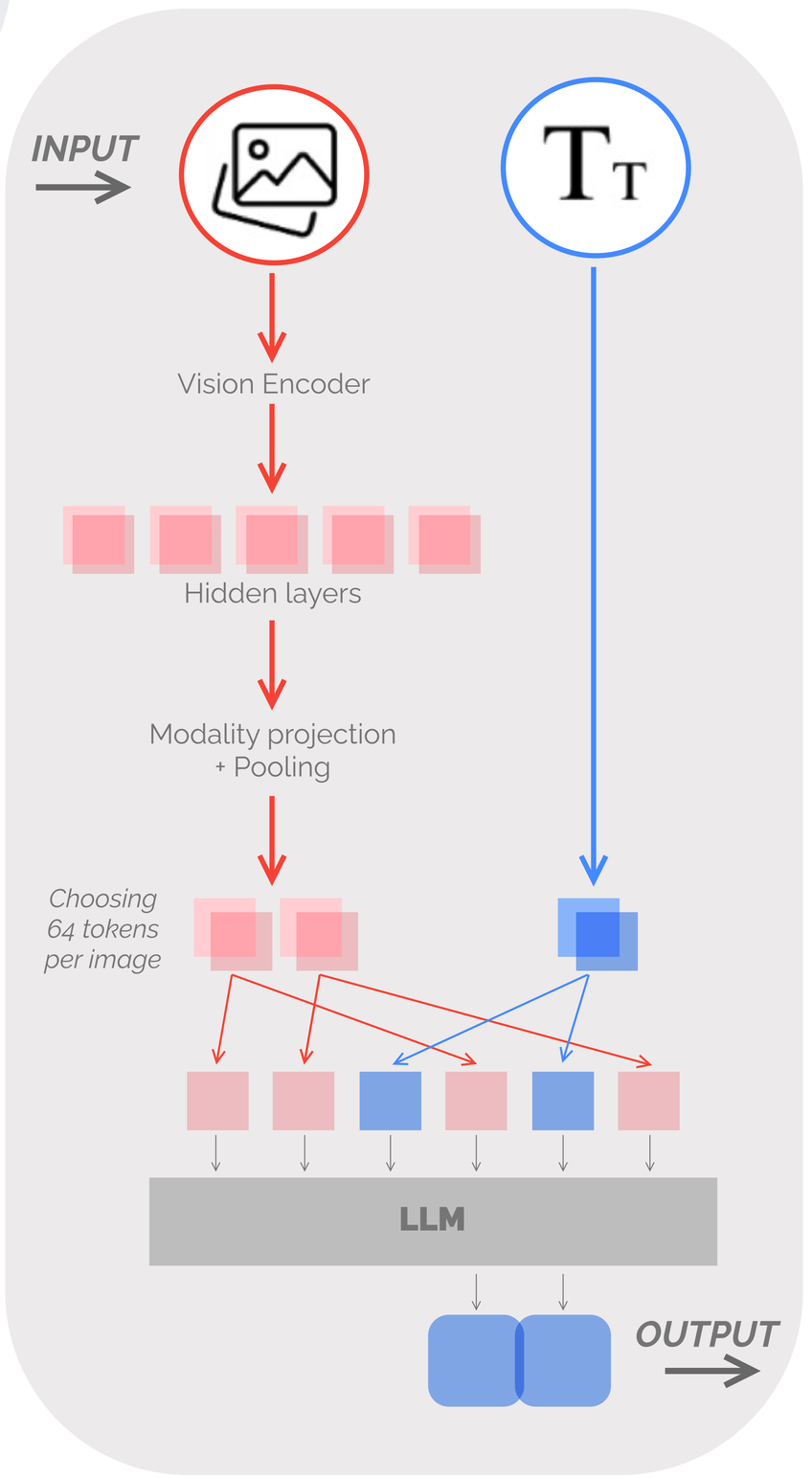
GENERATED

"Bomber jacket with a round neck and long sleeves, front welt pockets, elasticated hem, front fastening with metal zip"

We used the **Idefics2** model from Hugging Face, an open multimodal Large Language Model (**LLM**) that accepts arbitrary sequences of image and text inputs and produces text outputs.

We **fine-tuned** the model by using QLora (Quantized Low-Rank Adaptation), incorporating low-rank matrices that compress the model without substantial loss, as well as increasing memory efficiency. This is essential as we deal with large quantities of data and memory capacity becomes a problem. Also, adding new products or creating new databases would not be an issue due to the scalability of our model.

Using a **RoBERTa** embedding-based text representation, and using the euclidean distance as our evaluation metric, we could say results were quite acceptable as we obtained a value of **0.79**.



pandas PyTorch

Hugging Face TensorFlow

This is a project in collaboration with INDITEX,. Everything expressed here is work and opinion of the students

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