

## **Task 1**

For this task, I chose to implement the Sentence Transformer using BERT due to its proficiency in understanding context within sentences. BERT's ability to analyze words in relation to all other words in a sentence makes it superior to earlier models like Word2Vec, which only generate static word embeddings without context.

Using PyTorch and the Transformers library, I utilized BERT to encode input sentences into fixed-length embeddings. An attention mask was employed during tokenization to manage varying sentence lengths effectively. This mask plays a critical role in focusing the model's attention on meaningful content and ignoring padded areas, ensuring that the embeddings are not influenced by irrelevant tokens. During tokenization in BERT, a CLS token is added at the beginning, that is a kind of aggregation of the entire sentence. I extracted the embeddings of the CLS token after passing through the model to get fixed length embeddings.