

Transfer Learning

Indonesia AI



OBJECTIVE & OUTLINE

Proprietary document of Indonesia AI 2023

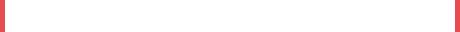


Deep Dive into BERT Model

Objektif: Menerapkan teknik Transfer Learning dan Finetuning untuk mengoptimalkan penggunaan BERT model pada task-task yang ada seperti Text Prediction, Question Answering dan Text Summarization.

Outline:

1. Transfer Learning



— Transfer Learning

Real-life challenges in NLP tasks

- Deep learning methods are data-hungry

Real-life challenges in NLP tasks

- Deep learning methods are data-hungry
- >50K data items needed for training

Real-life challenges in NLP tasks

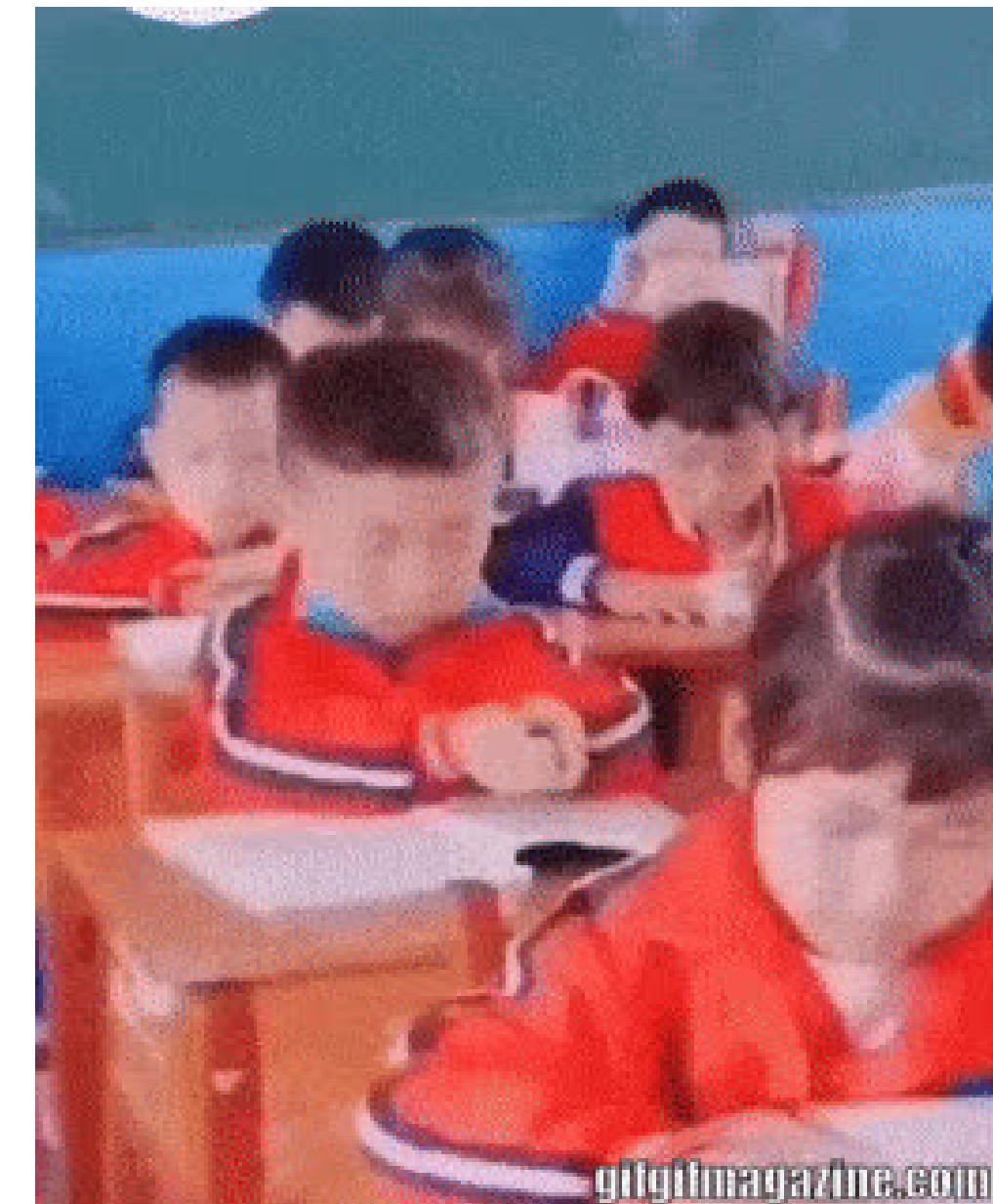
- Deep learning methods are data-hungry
- >50K data items needed for training
- The distributions of the source and target data must be the same

Real-life challenges in NLP tasks

- Deep learning methods are data-hungry
- >50K data items needed for training
- The distributions of the source and target data must be the same
- Labeled data in the target domain may be limited

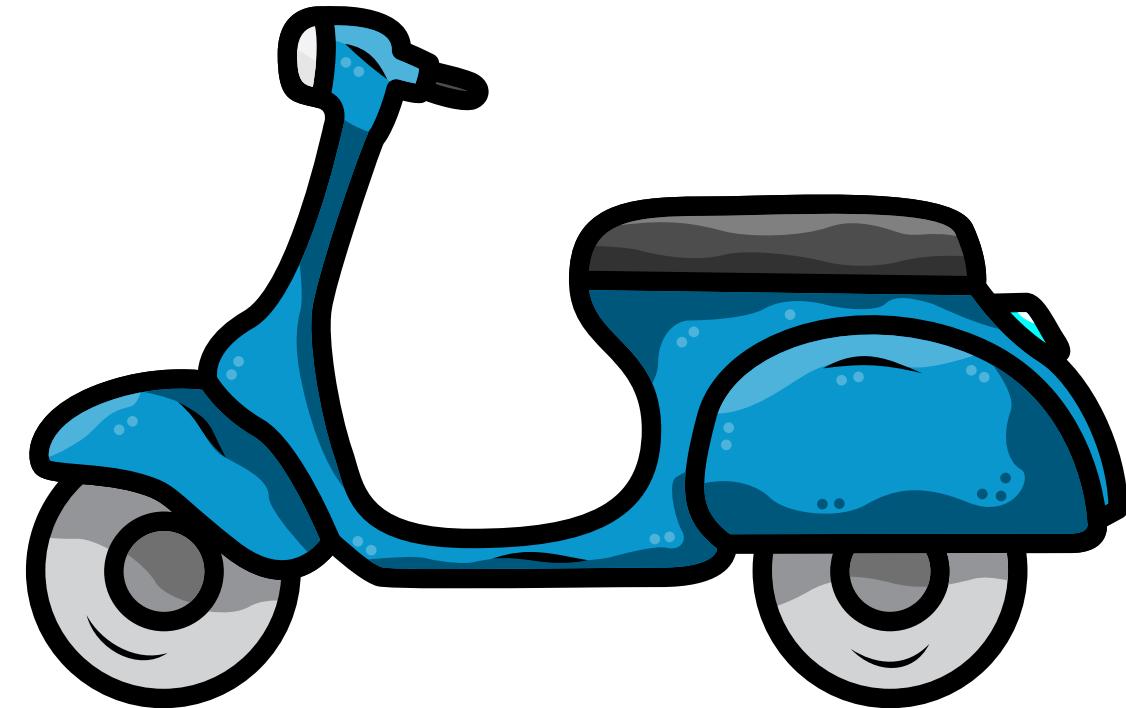
Real-life challenges in NLP tasks

- Deep learning methods are data-hungry
- >50K data items needed for training
- The distributions of the source and target data must be the same
- Labeled data in the target domain may be limited
- This problem is typically addressed with **transfer learning**



Transfer Learning

Bayangkan Anda ingin belajar cara mengendarai sepeda motor, tetapi sebelumnya Anda sudah belajar cara mengendarai sepeda. Dalam hal ini, transfer learning adalah seperti menggunakan pengetahuan dan keterampilan yang sudah Anda miliki dalam mengendarai sepeda sebagai titik awal untuk belajar mengendarai sepeda motor.



Why transfer learning?

kenapa tidak collect data & build
new model aja sendiri?



Why transfer learning?

kenapa tidak collect data & build
new model aja sendiri?

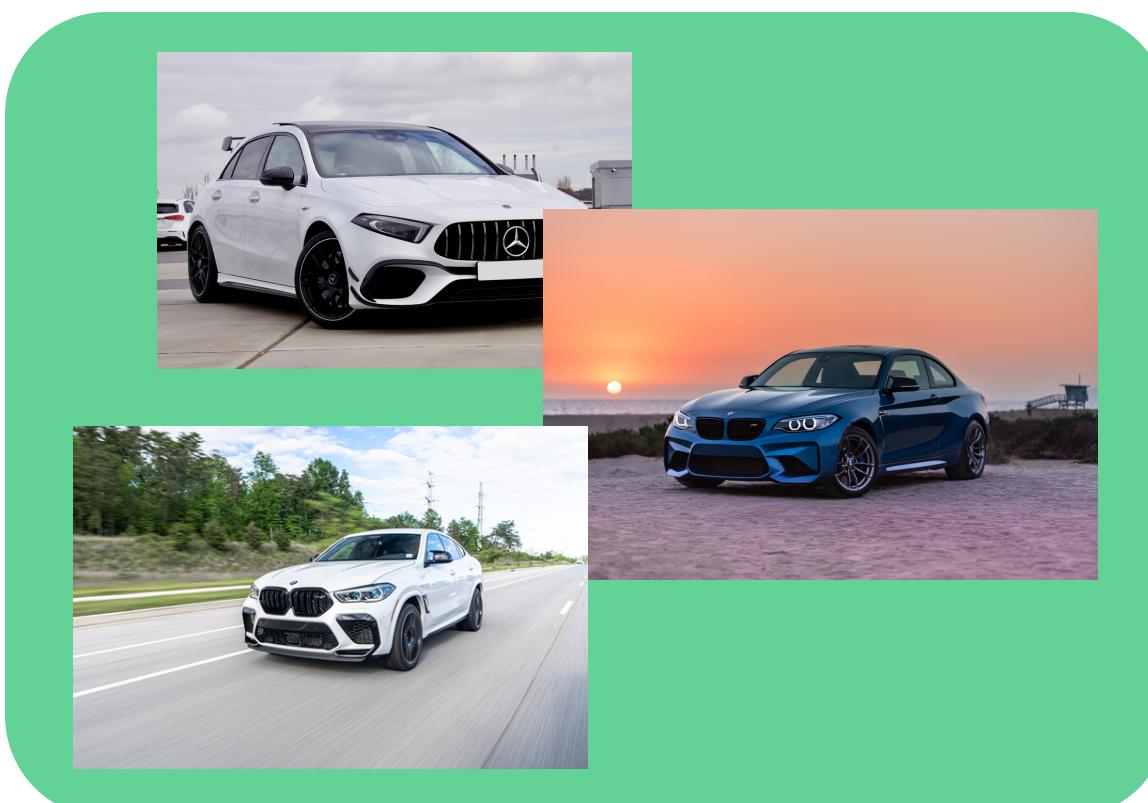


Why transfer learning?

kenapa tidak collect data & build
new model aja sendiri?



Reuse and adapt already learning
model



Feature Task 1

MODEL 1



Feature Task 2



Reuse

Feature Task 1

MODEL 2

Terimakasih!

Finetuning BERT Model

Indonesia AI



OBJECTIVE & OUTLINE

Proprietary document of Indonesia AI 2023



Deep Dive into BERT Model

Objektif: Menerapkan teknik Transfer Learning dan Finetuning untuk mengoptimalkan penggunaan BERT model pada task-task yang ada seperti Text Prediction, Question Answering dan Text Summarization.

Outline:

1. Pre-training NLP
2. BERT
3. Let's Code!

BERT For Text Classification

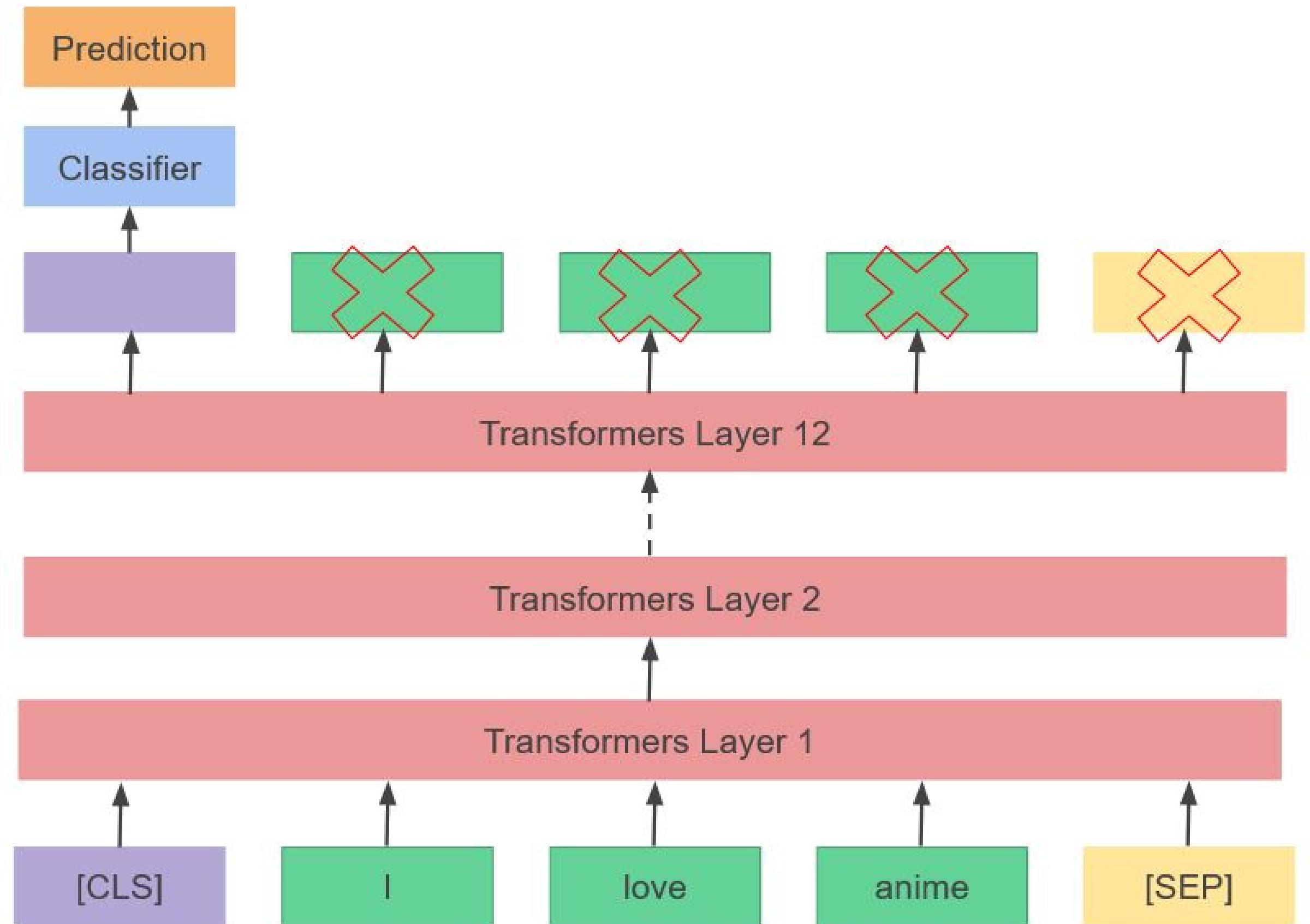
BERT

Class:

BertForSequenceClassification()

Can be used for:

- 1.Text classification
- 2.Sentiment analysis
- 3.etc



BERT

Class:

BertForSequenceClassification()

Can be used for:

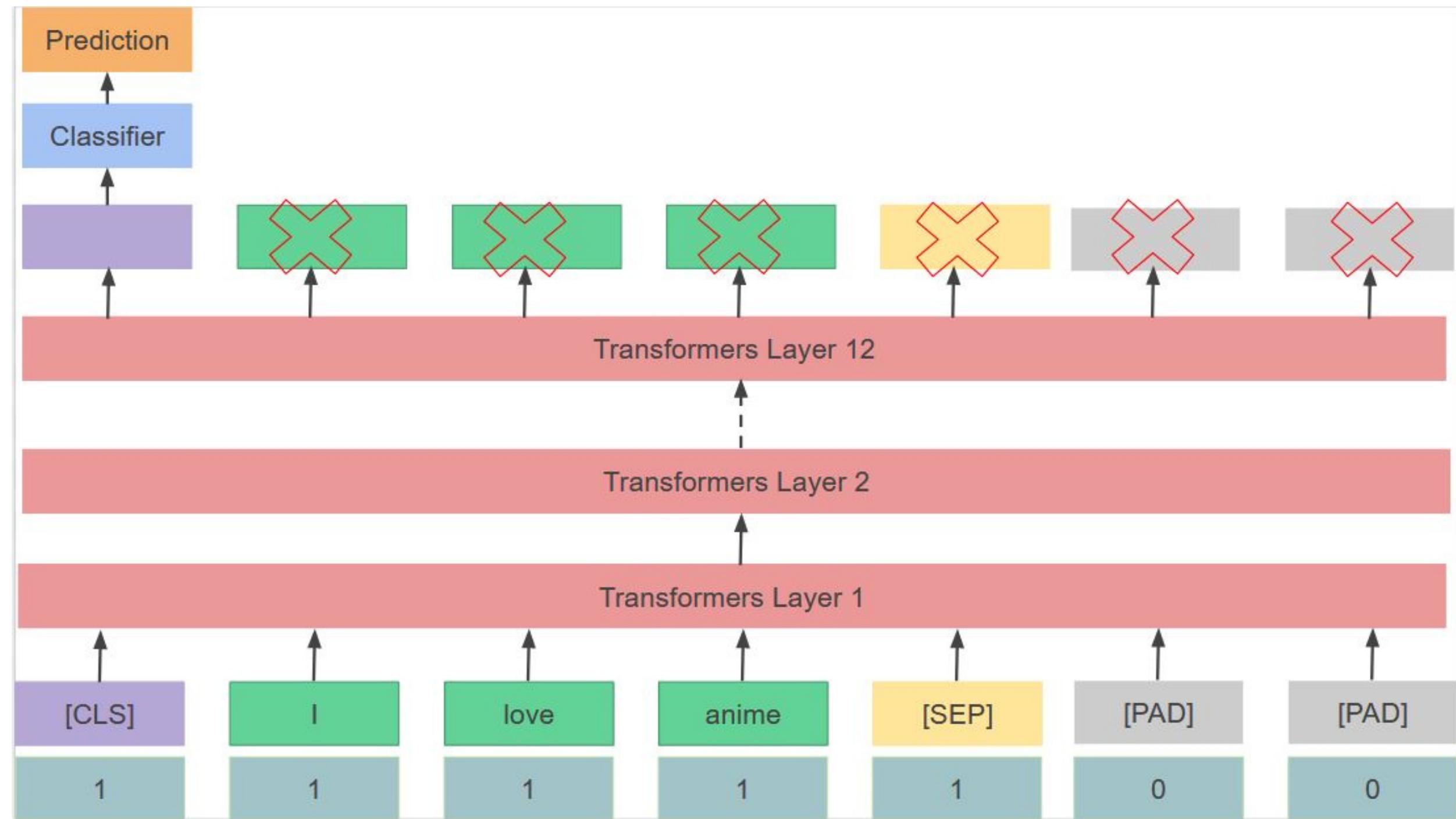
1. Text classification
2. Sentiment analysis
3. etc

Padding added after
[SEP]

Attention Masked is
optional

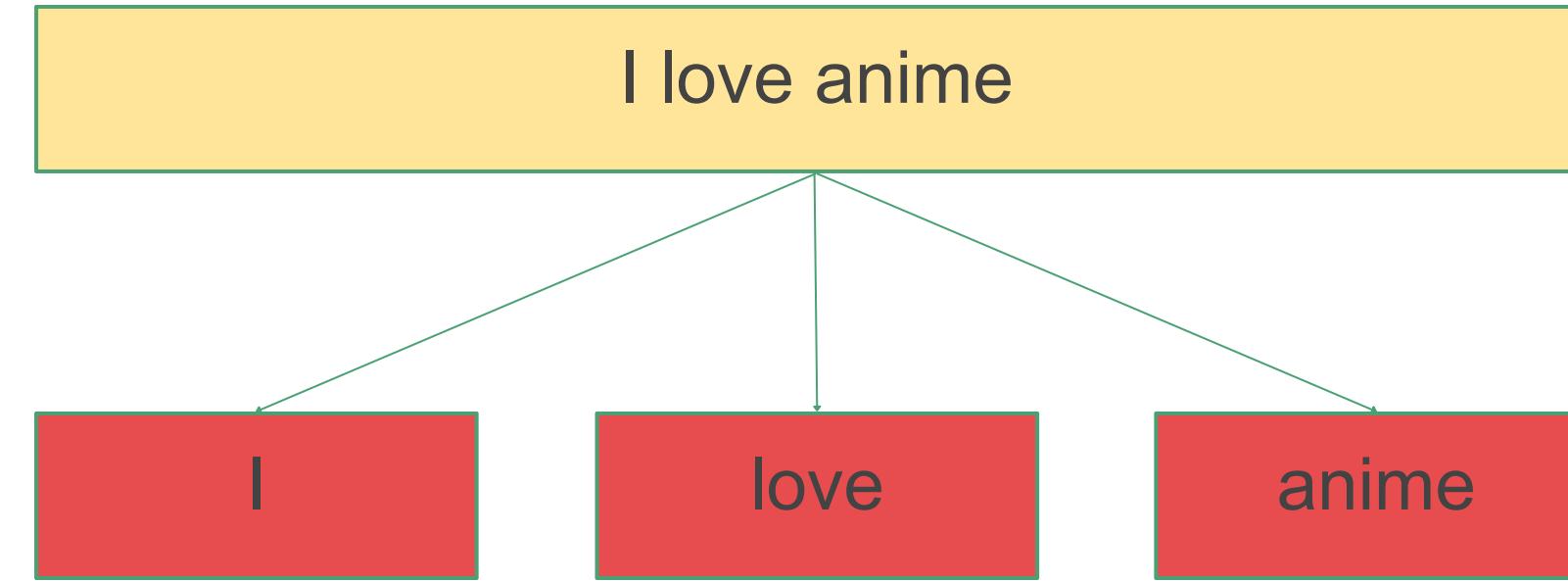
Now, there are 22 pre-trained BERT
available. Check:

https://huggingface.co/transformers/pretrained_models.html



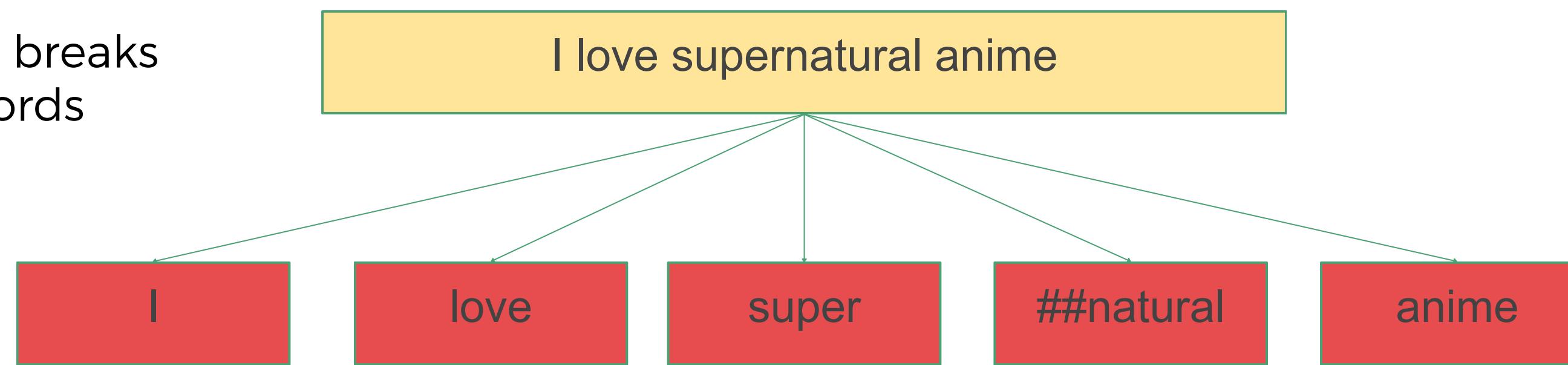
BERT: Tokenizer

Example:



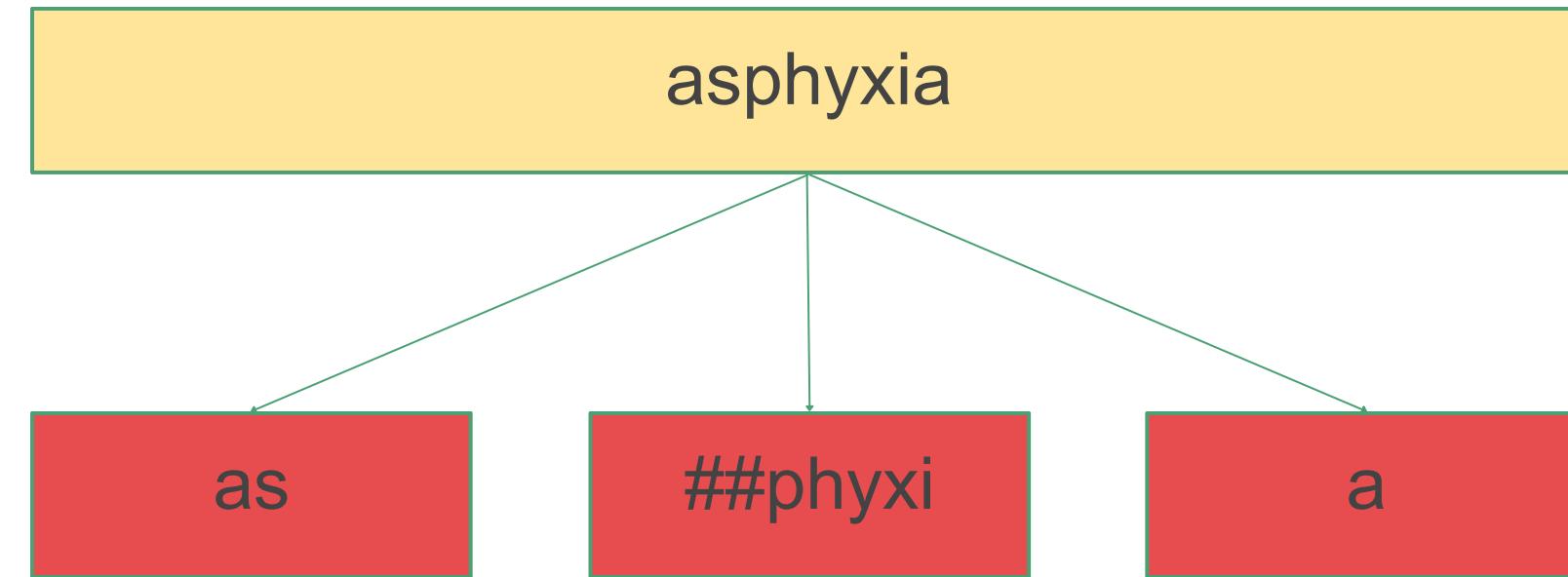
Example:

OOV word breaks
into subwords

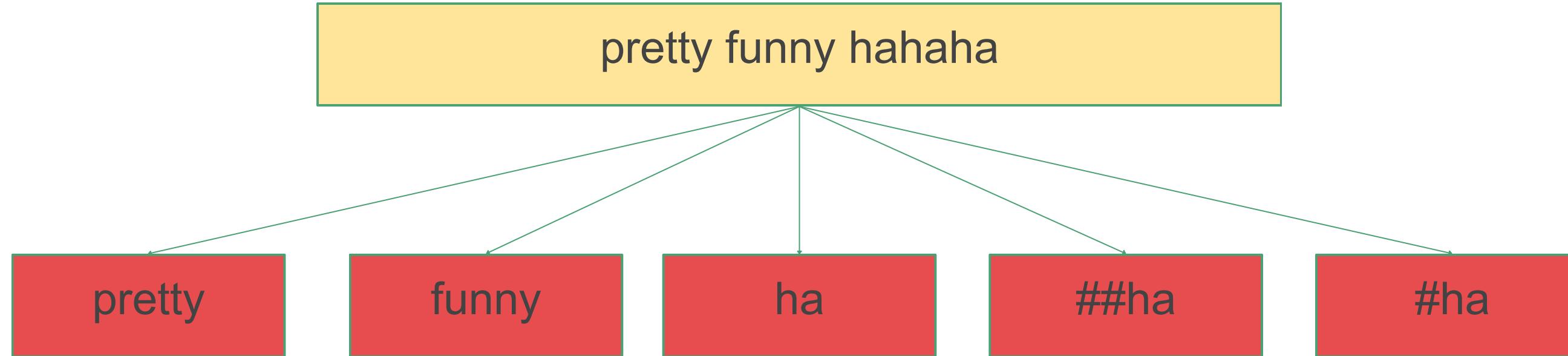


BERT: Tokenizer

Example:
Subword exists for
any characters



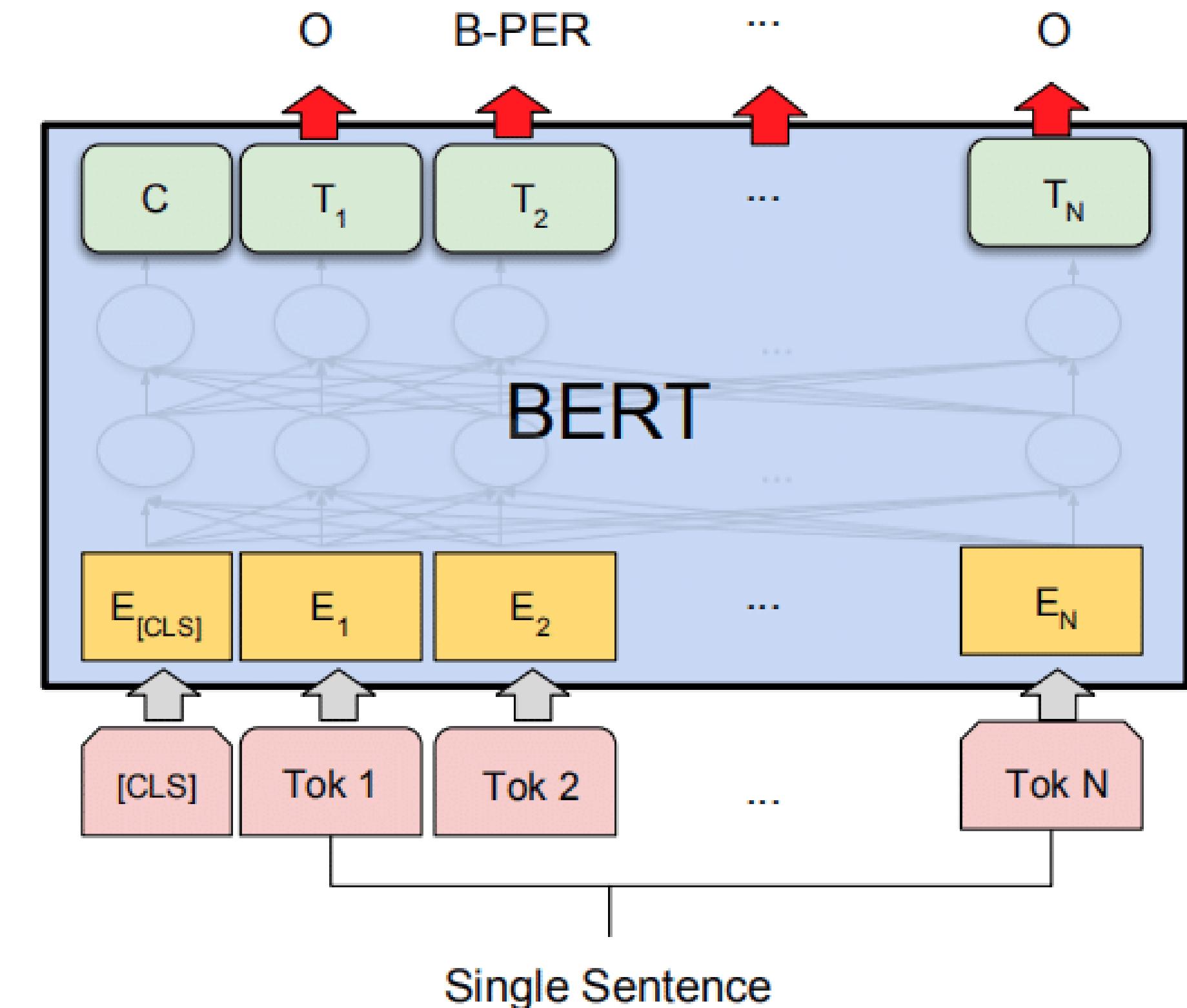
Example:



BERT For Token Classification

BERT

Class:
`AutoModelForTokenClassification()`



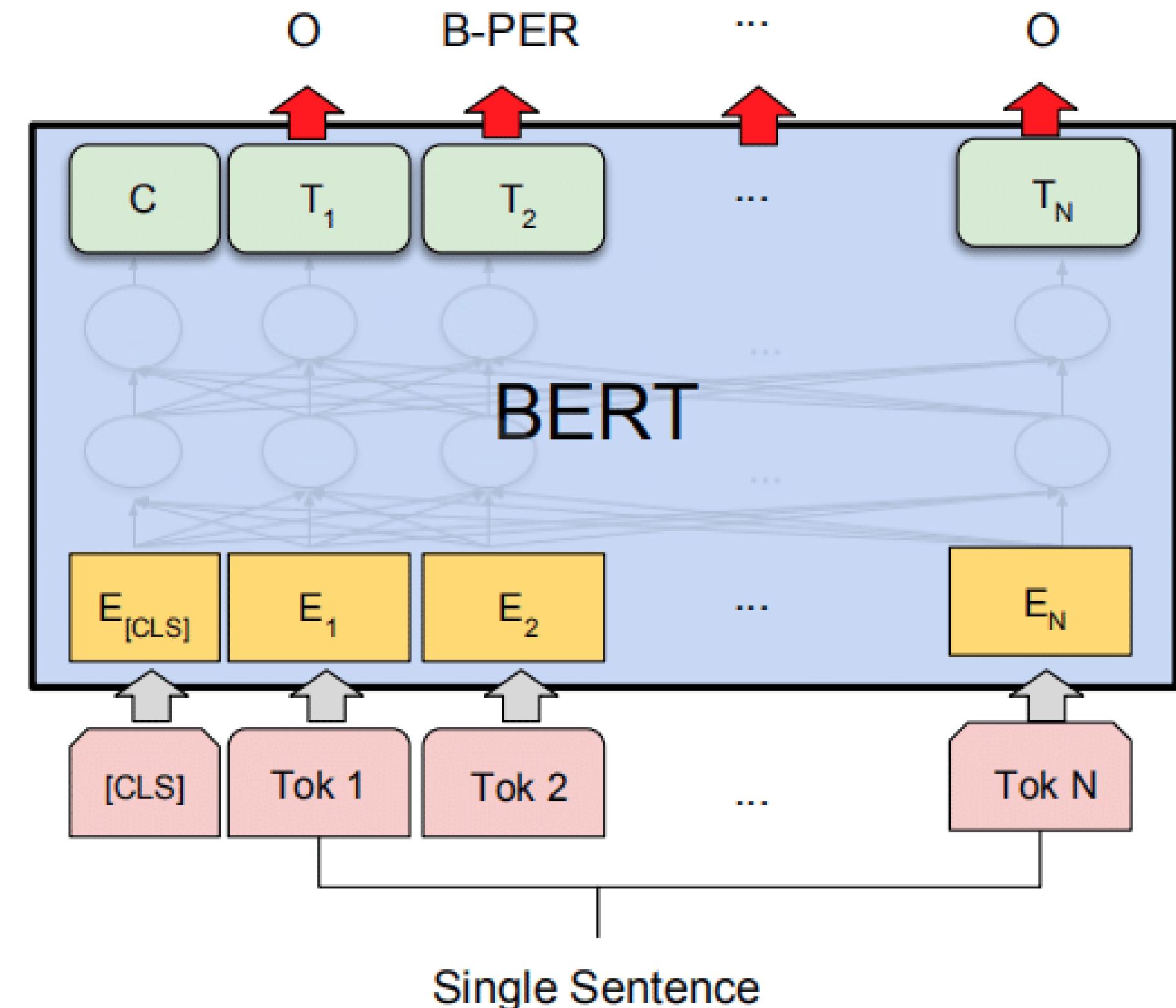
BERT

Class:

AutoModelForTokenClassification()

Can be used for:

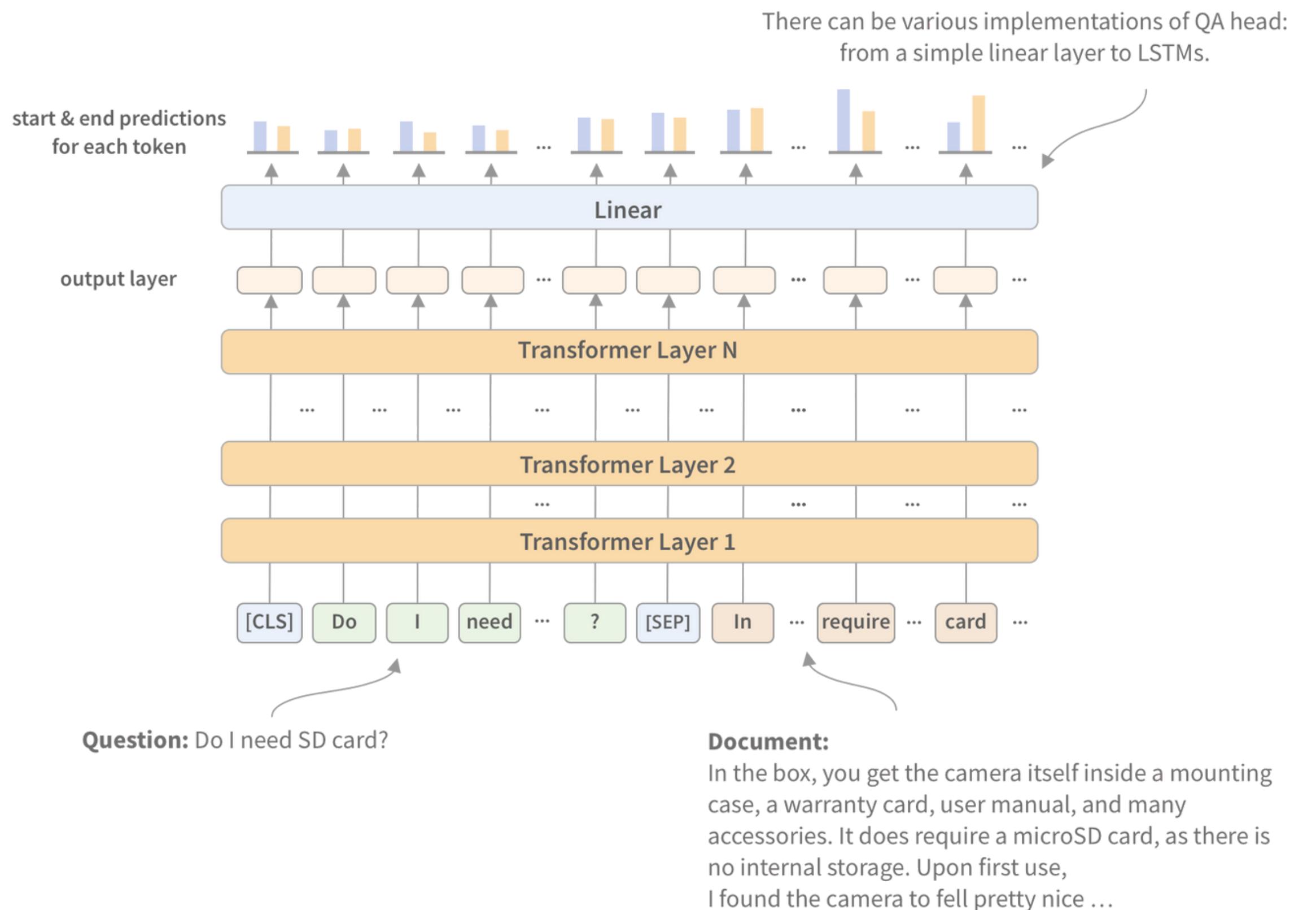
- *Named Entity Recognition*
- *POS Tagging*



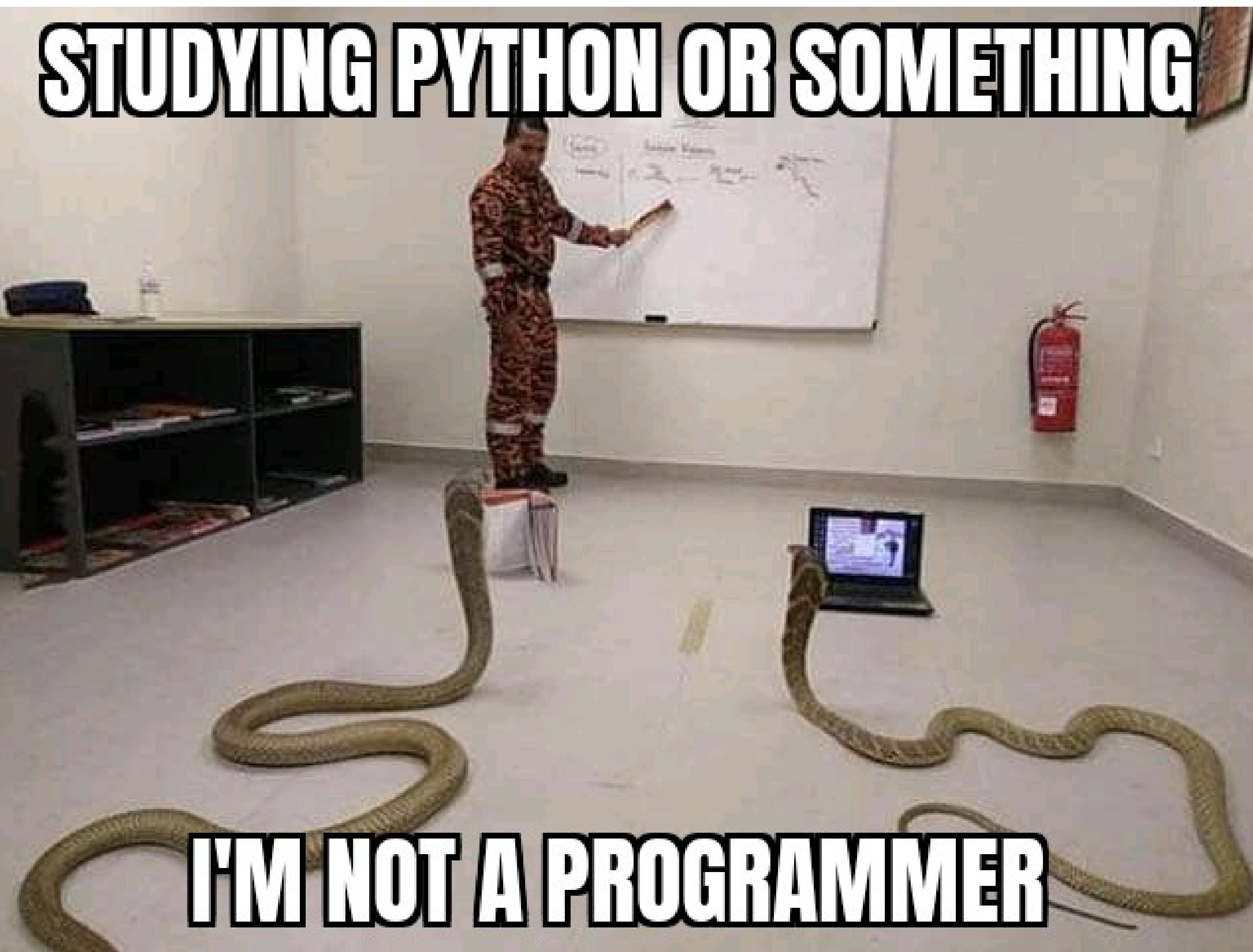
BERT For Question Answering

BERT

Class:
AutoModelForQuestionAnswering()



STUDYING PYTHON OR SOMETHING



I'M NOT A PROGRAMMER



Lets Code

Terimakasih!