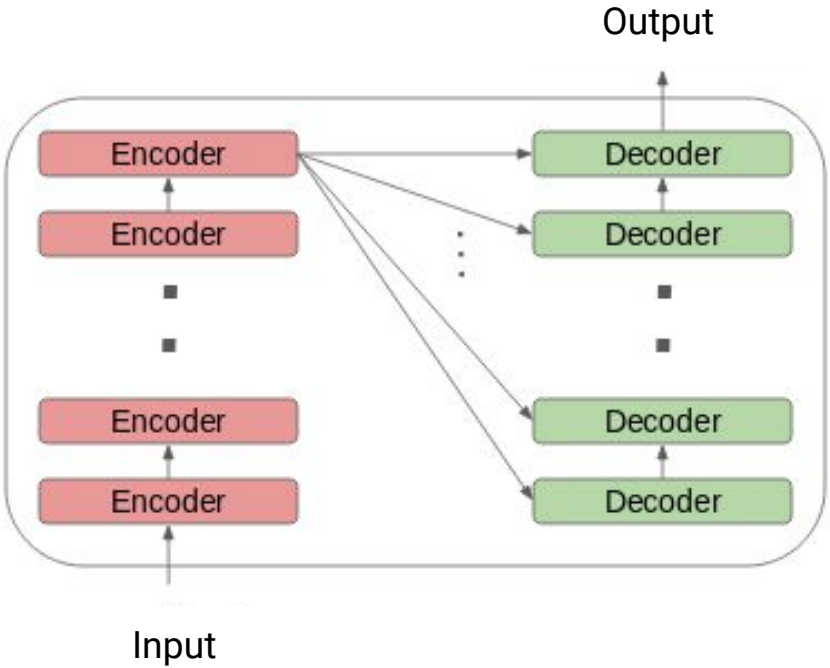
Architecture of BERT

Transformer



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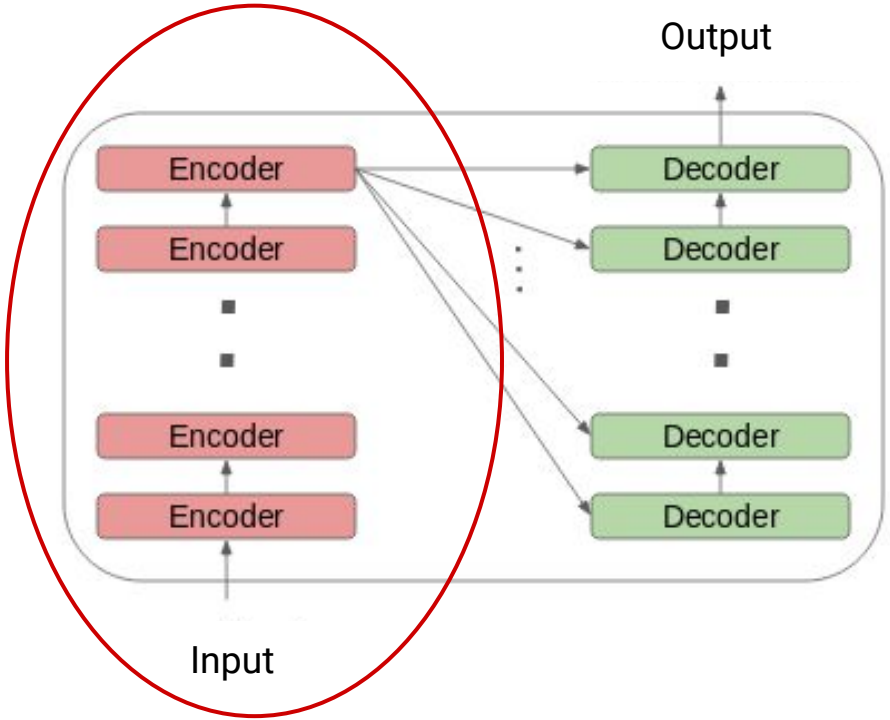
Transformer



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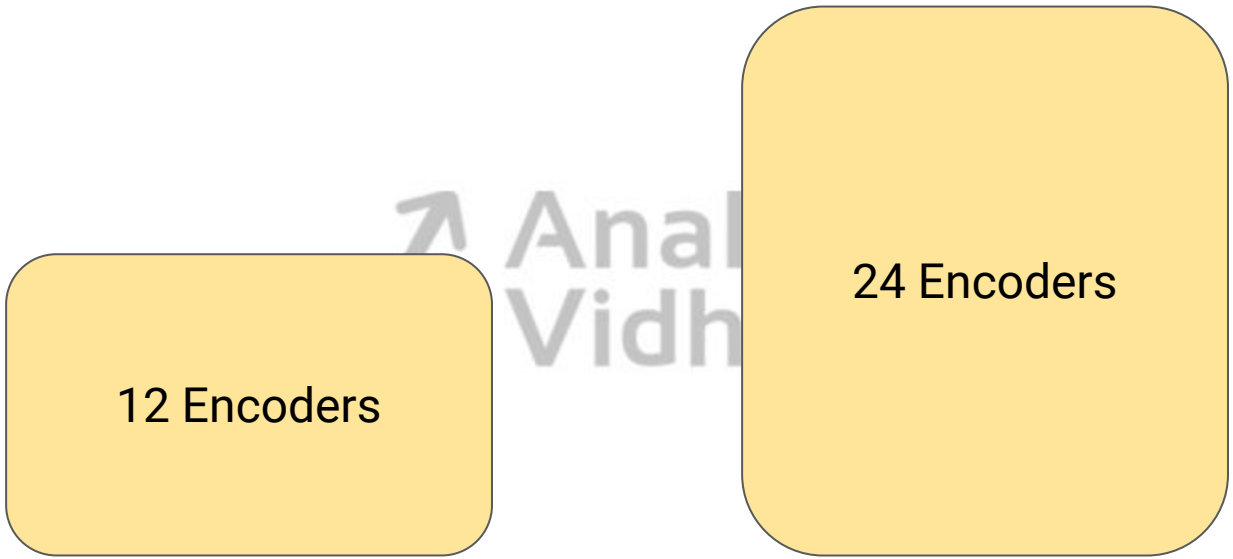
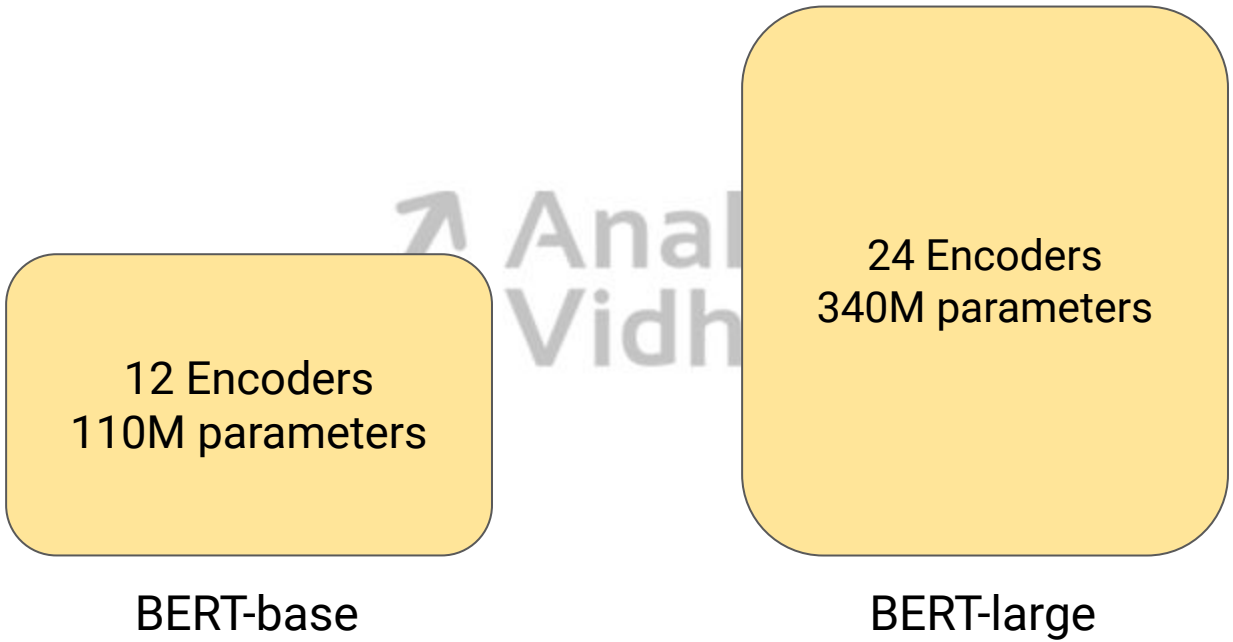
Variants of BERT



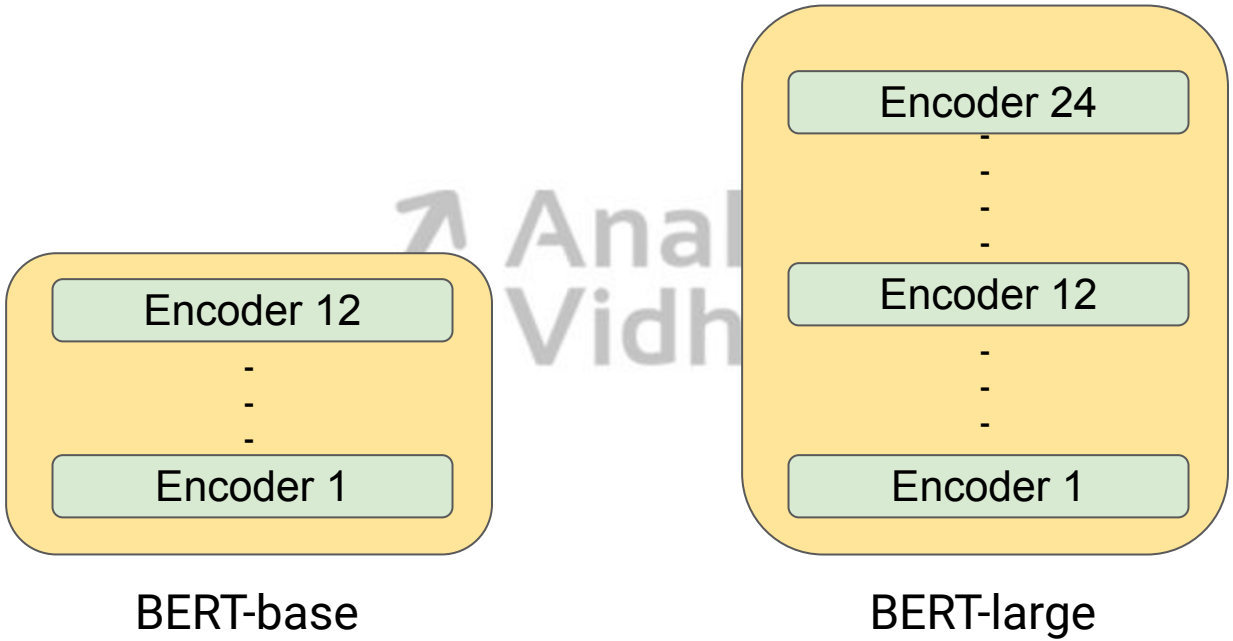
BERT-base

BERT-large

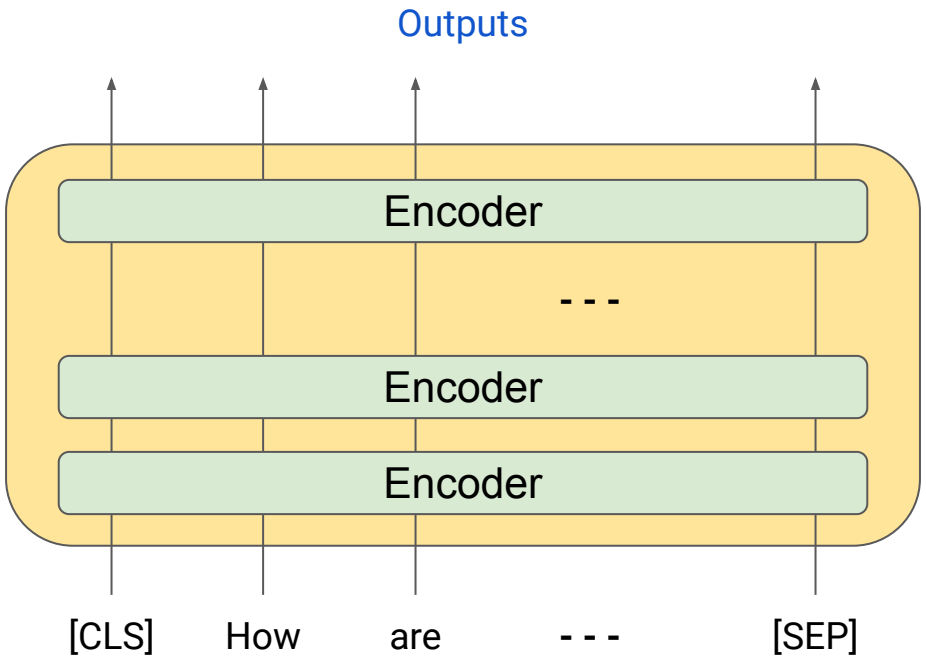
Variants of BERT



Variants of BERT



Architecture of BERT



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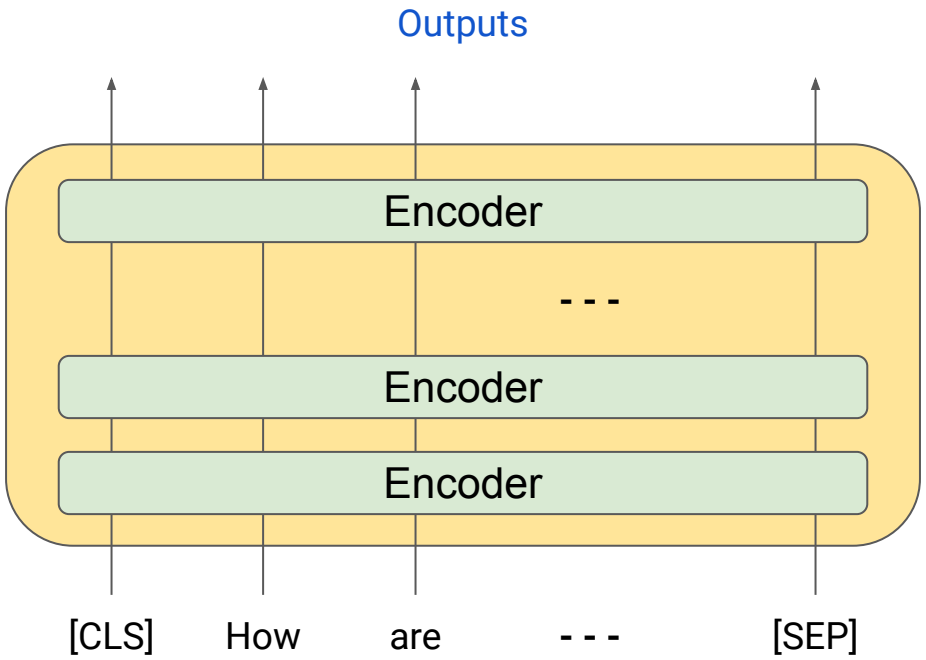
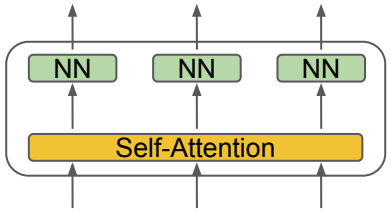
Architecture of BERT





Encoder

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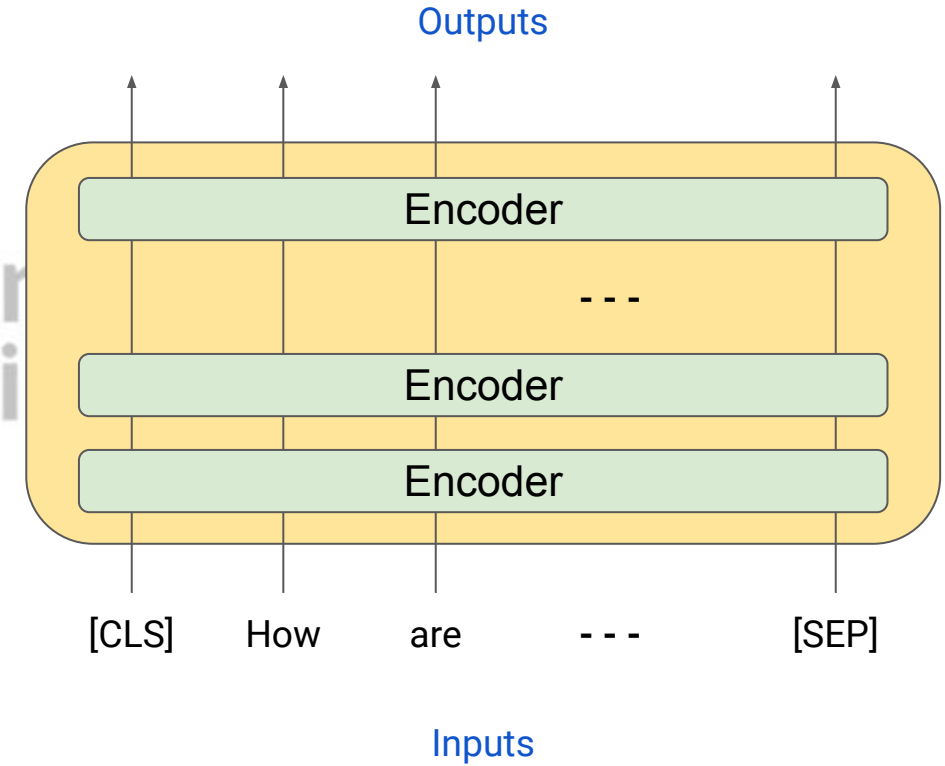
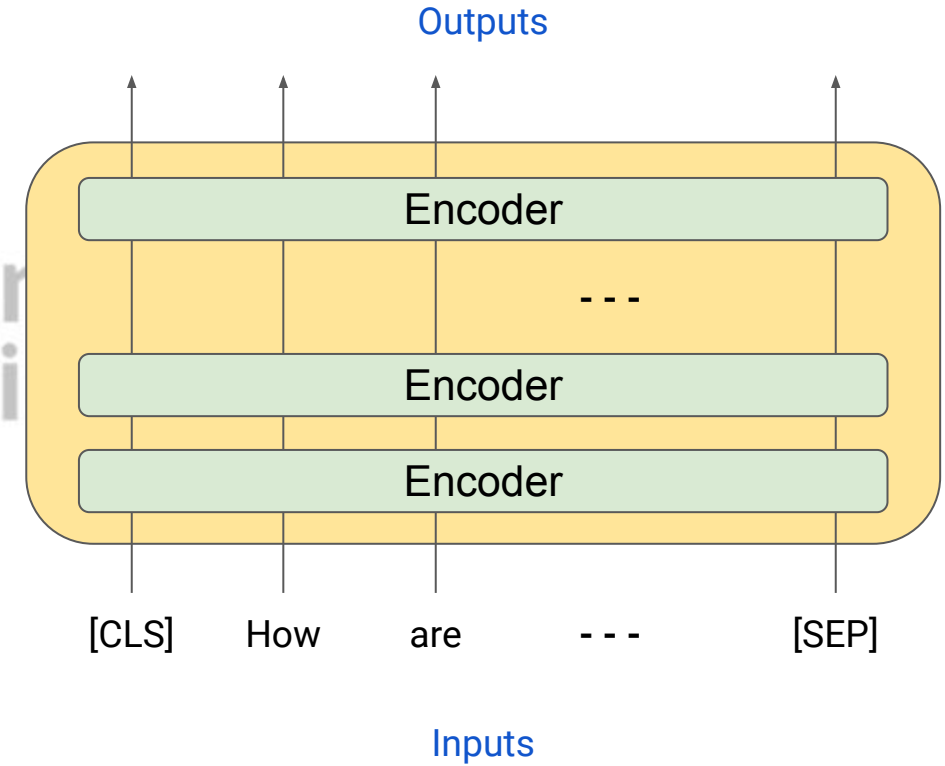
Architecture of BERT

- [CLS] and [SEP] tokens are special tokens.
- [CLS] token is prepended at start and [SEP] token is appended at the end of the sequence



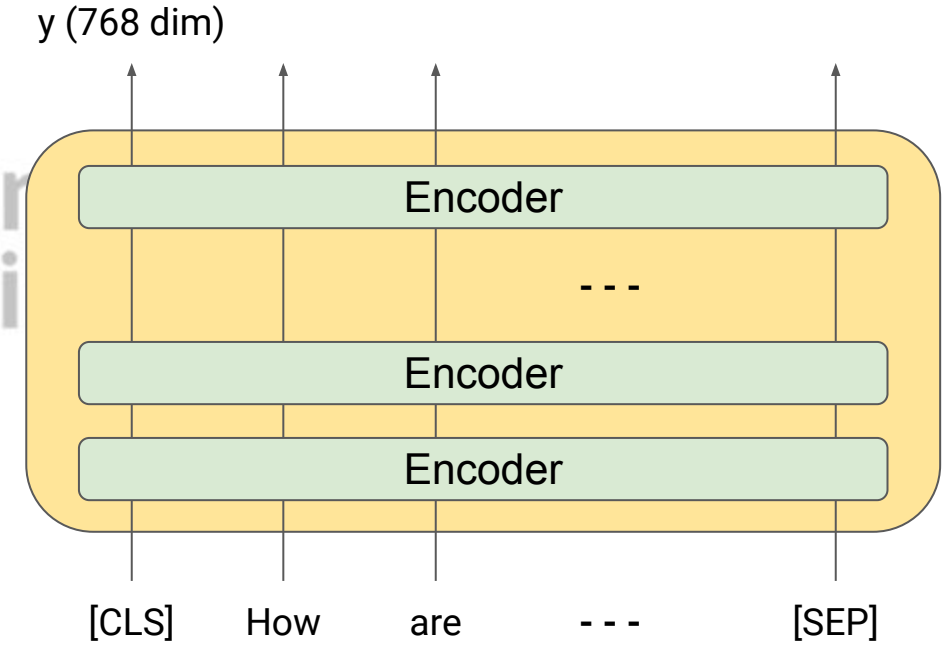
Architecture of BERT

- [CLS] and [SEP] tokens are special tokens.
- [CLS] token is prepended at start and [SEP] token is appended at the end of the sequence
- [CLS] represents the entire sequence

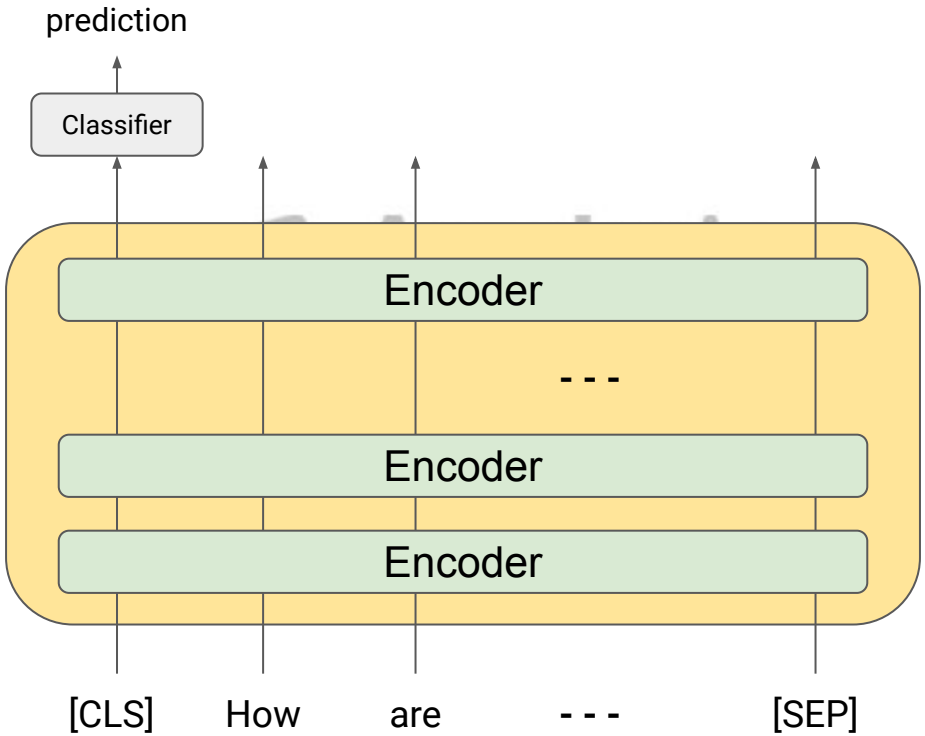


How to Use BERT?

- Feature Extraction
  - Convert input text to vector representation
- Pass the output to an extra linear layer and apply softmax



BERT for Text Classification



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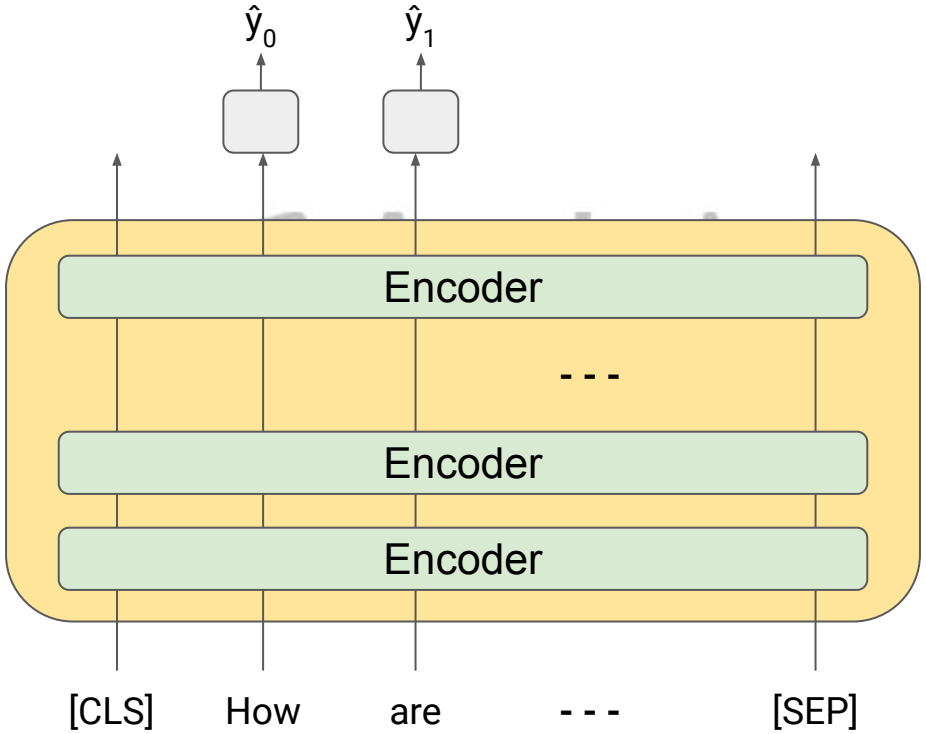
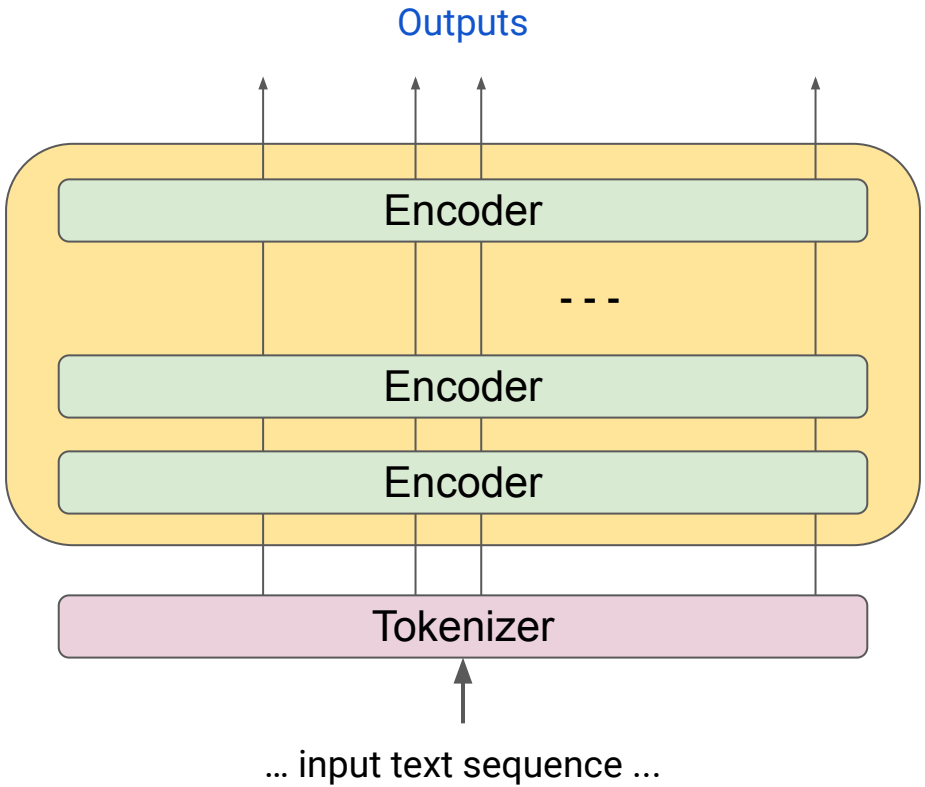
BERT for Sequence Prediction



BERT Tokenizer



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BERT Tokenizer

- Tokenizes the text
- Performs contextual encoding and positional encoding
- Performs padding
- Add Special tokens [CLS], [SEP], and [PAD]
- Convert tokenized sequences to integer sequences

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How to Use BERT?

- Train the model from scratch

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How to Use BERT?

- Train the model from scratch
  - Requires huge amount of text data
  - Resource intensive model training
- Fine-tune a pre-trained model
  - Works well on smaller datasets
  - Can be trained on modest systems such as Google Colab

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Thank You

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Vidhya