Transformers

LATEST SUBMISSION GRADE

100%

1.
Question 1
A Transformer Network, like its predecessors RNNs, GRUs and LSTMs, can process information one word at a time. (Sequential architecture).

1 / 1 point

True

False

Correct

Correct! A Transformer Network can ingest entire sentences all at the same time.

2.
Question 2
Transformer Network methodology is taken from: (Check all that apply)

1 / 1 point

Attention mechanism.

Correct

Convolutional Neural Network style of processing.

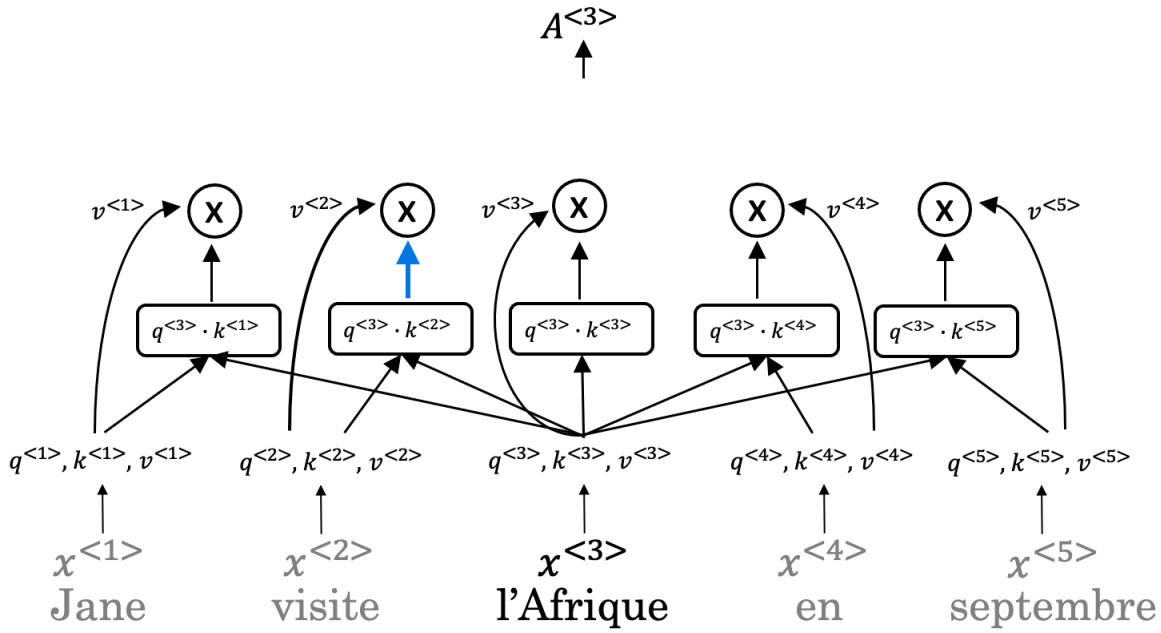
Correct

None of these.

Convolutional Neural Network style of architecture.

3.
Question 3

The concept of *Self-Attention* is that:



1 / 1 point

Given a word, its neighbouring words are used to compute its context by selecting the lowest of those word values to map the Attention related to that given word.

Given a word, its neighbouring words are used to compute its context by taking the average of those word values to map the Attention related to that given word.

Given a word, its neighbouring words are used to compute its context by selecting the highest of those word values to map the Attention related to that given word.

Given a word, its neighbouring words are used to compute its context by summing up the word values to map the Attention related to that given word.

Correct

4.

Question 4

Which of the following correctly represents *Attention ?*

1 / 1 point

Attention(Q, K, V) = min(\frac{QK^T}{\sqrt{d_k}})V $Attention(Q,K,V)=min(\frac{QK^T}{\sqrt{d_k}})V$

Attention(Q, K, V) = softmax(\frac{QK^T}{\sqrt{d_k}})V $Attention(Q,K,V)=softmax(\frac{QK^T}{\sqrt{d_k}})V$

Attention(Q, K, V) = min(\frac{QV^T}{\sqrt{d_k}})K $Attention(Q,K,V)=min(\frac{QV^T}{\sqrt{d_k}})K$

Attention(Q, K, V) = softmax(\frac{QV^T}{\sqrt{d_k}})K $Attention(Q,K,V)=softmax(\frac{QV^T}{\sqrt{d_k}})K$

Correct

5.

Question 5

Are the following statements true regarding Query (Q), Key (K) and Value (V) ?

Q = interesting questions about the words in a sentence

K = specific representations of words given a Q

V = qualities of words given a Q

1 / 1 point

False

True

Correct

Correct! Q = interesting questions about the words in a sentence, K = qualities of words given a Q, V = specific representations of words given a Q

6.

Question 6

$$Attention(W_i^Q Q, W_i^K K, W_i^V V)$$

i here represents the computed attention weight matrix associated with the ith "word" in a sentence.

1 / 1 point

False

True

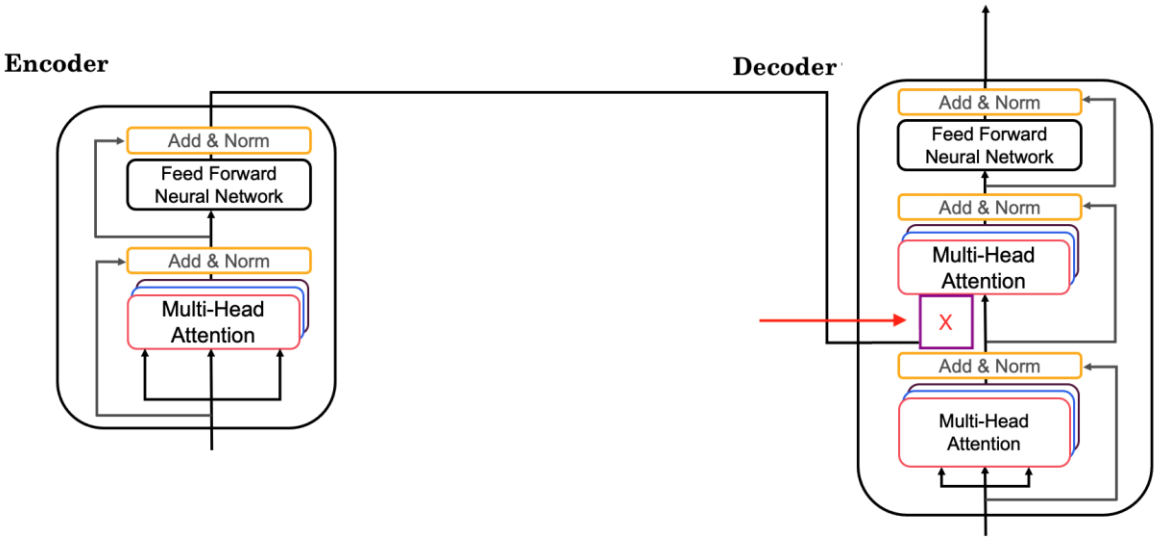
Correct

Correct! i here represents the computed attention weight matrix associated with the ith "head" (sequence).

7.

Question 7

Following is the architecture within a Transformer Network. ***(without displaying positional encoding and output layers(s))***



What information does the *Decoder*take from the *Encoder* for its second block of *Multi-Head Attention* ? (Marked X, pointed by the independent arrow)

(Check all that apply)

1 / 1 point

Q

☑

K

Correct

☑

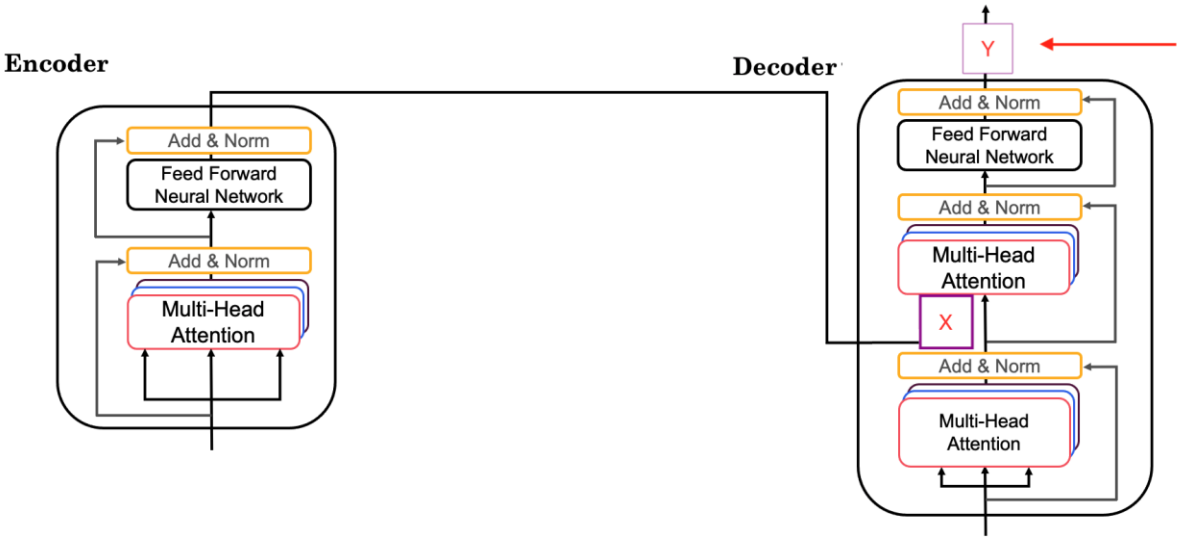
V

Correct

8.

Question 8

Following is the architecture within a Transformer Network. ***(without displaying positional encoding and output layers(s))***



What is the output layer(s) of the *Decoder* ? (Marked $\mathrm{Y}Y$, pointed by the independent arrow)

1 / 1 point

◉

Linear layer followed by a softmax layer.

○

Softmax layer

○

Softmax layer followed by a linear layer.

○

Linear layer

Correct

9.
Question 9
Why is positional encoding important in the translation process? (Check all that apply)

1 / 1 point

☑ Position and word order are essential in sentence construction of any language.

Correct

☐ It helps to locate every word within a sentence.

☐ It is used in CNN and works well there.

☑ Providing extra information to our model.

Correct

10.
Question 10
Which of these is a good criteria for a good positionial encoding algorithm?

1 / 1 point

☑ It should output a unique encoding for each time-step (word's position in a sentence).

Correct

☑ Distance between any two time-steps should be consistent for all sentence lengths.

Correct

☑ The algorithm should be able to generalize to longer sentences.

Correct

☐ None of the these.