Transformers

LATEST SUBMISSION GRADE

82.5%

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

Convolutional Neural Network style of processing.

Correct

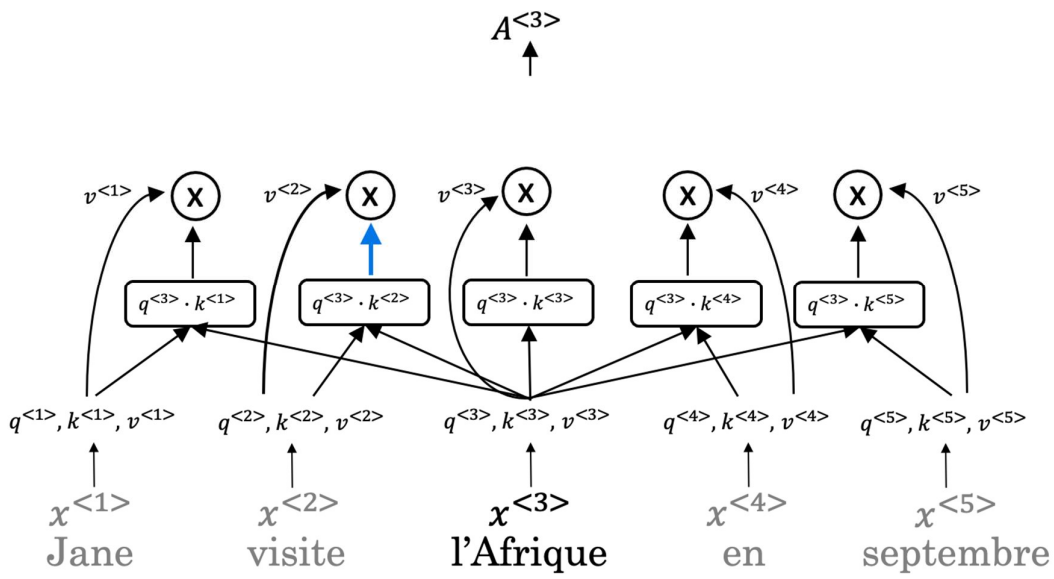
Convolutional Neural Network style of architecture.

None of these.

Attention mechanism.

Correct

3.
Question 3
The concept of *Self-Attention* is that:



0 / 1 point

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.

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.

Incorrect

To revise the concept watch the lecture *Self-Attention*.

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$Attention(Q,K,V)=min(dkQKT)V$

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

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

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

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

$$\boldsymbol{Attention(W_i^Q Q, W_i^K K, W_i^V V)}$$

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

1 / 1 point

False

True

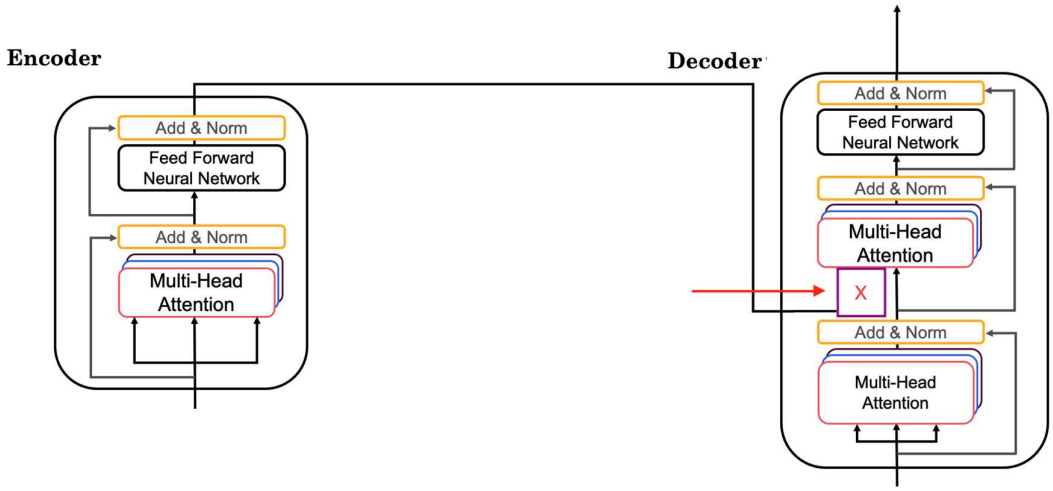
Correct

Correct! ii here represents the computed attention weight matrix associated with the $\text{ith}ith$ "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 XX, pointed by the independent arrow)

(Check all that apply)

1 / 1 point

☐ Q

☑ K

Correct

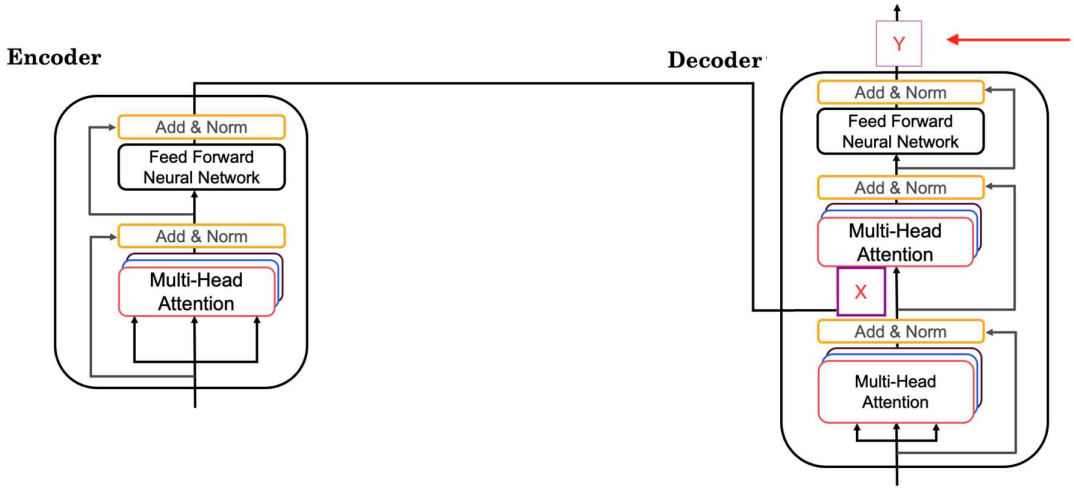
☑ V

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 Y, pointed by the independent arrow)

1 / 1 point

Softmax layer

Linear layer

Linear layer followed by a softmax layer.

Softmax layer followed by a linear layer.

Correct

9.

Question 9

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

0.75 / 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.

You didn't select all the correct answers

10.

Question 10

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

0.5 / 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.

☐

The algorithm should be able to generalize to longer sentences.

☐

None of the these.

You didn't select all the correct answers