

Natural Language Processing (NLP) ***with Deep NLP*** ***from Zero to Hero***

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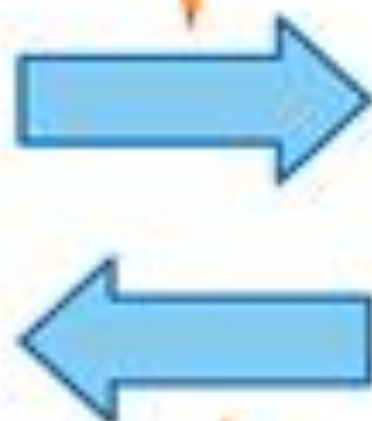
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Prerequisite **for** **Natural language processing**

- ***Python***
- ***Basic Concept of Machine Learning and Deep Learning***

Understanding the
user's speech



Understanding written
material by reading it



(Intellectually) responding to
the user on the basis of the
understood content

Natural language processing

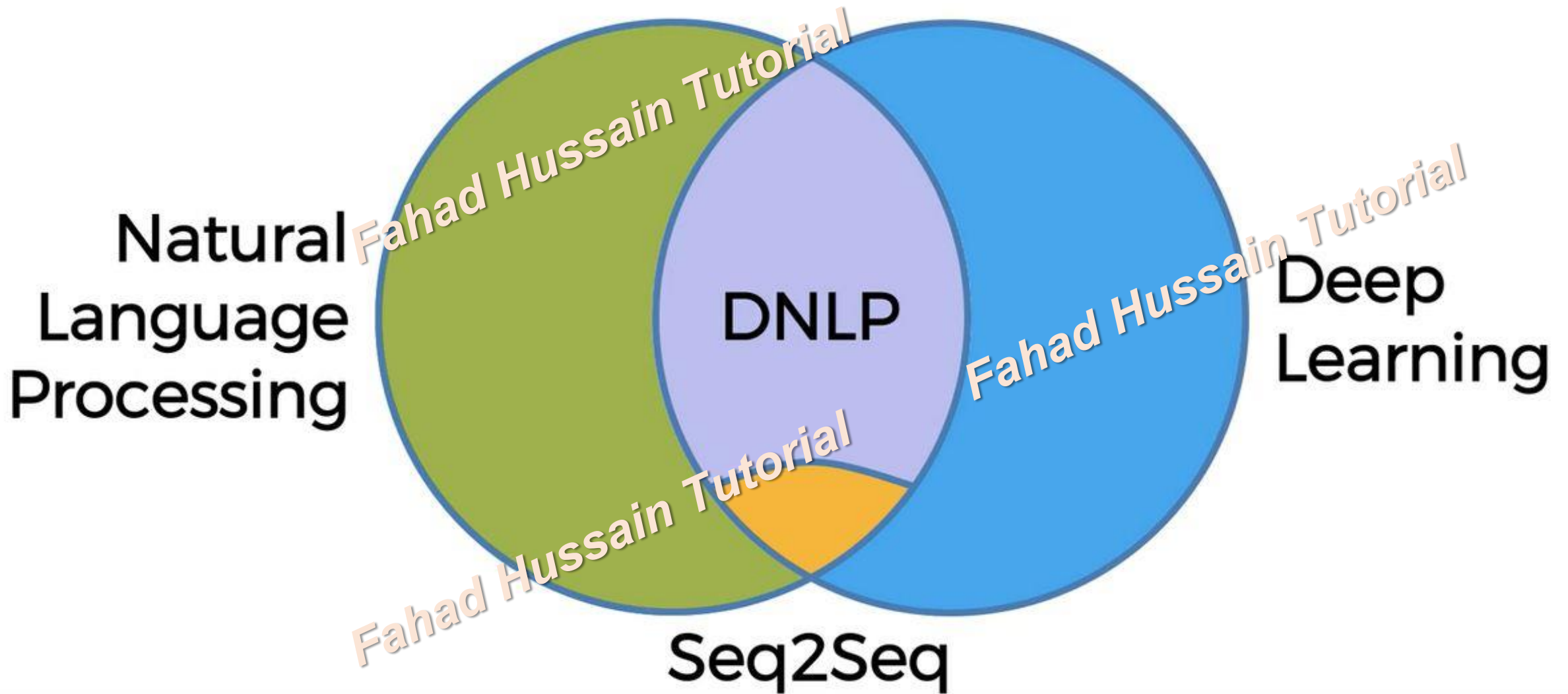
Natural language processing (NLP) is a subfield of linguistics, computer science, information engineering, and artificial intelligence concerned with the interactions between computers and human (natural) languages, in particular how to program computers to process and analyze large amounts of natural language data.

Challenges in natural language processing frequently involve speech recognition, natural language understanding, and natural language generation.

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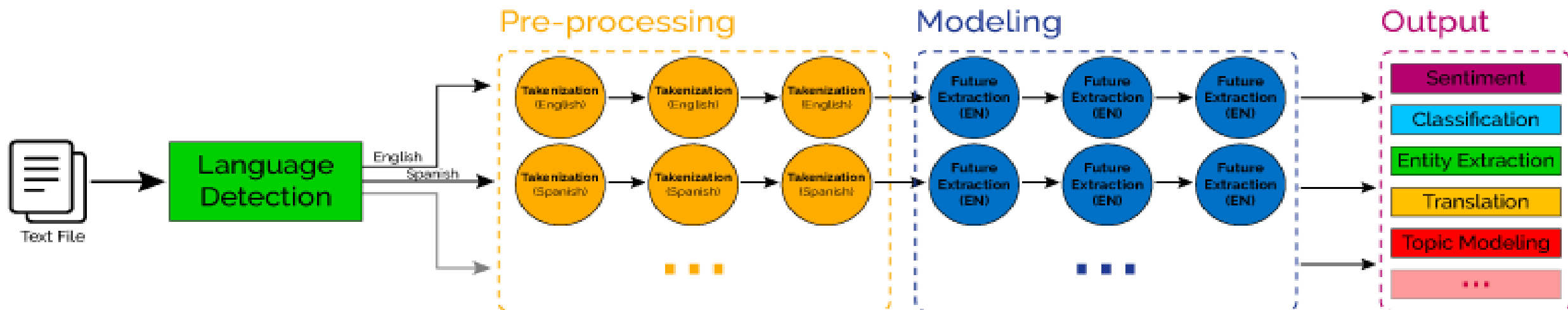
Types of NLP



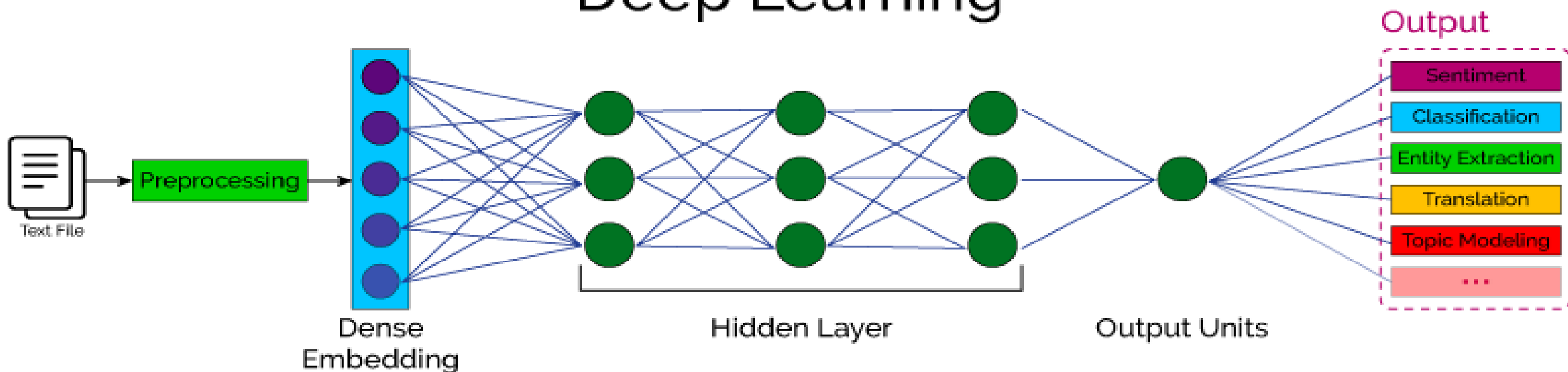
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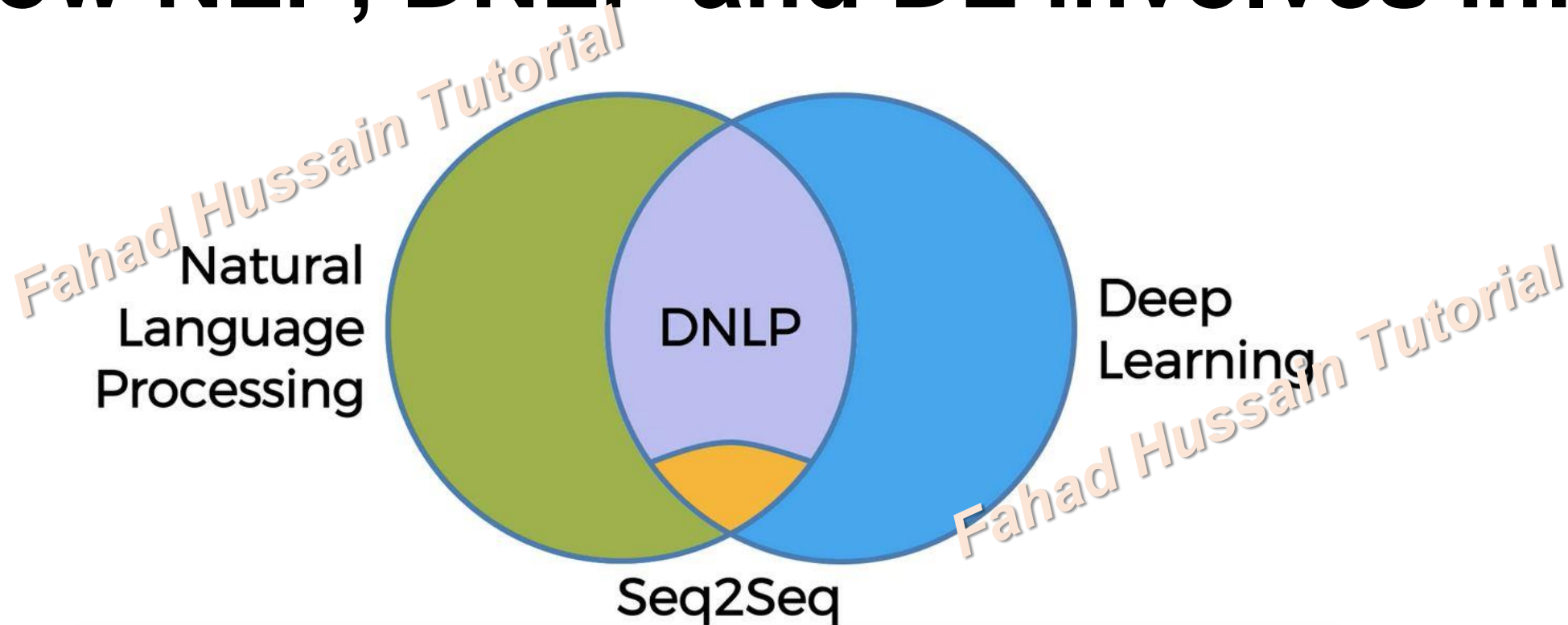
Classical NLP



Deep Learning



How NLP, DNLP and DL involves in!!!

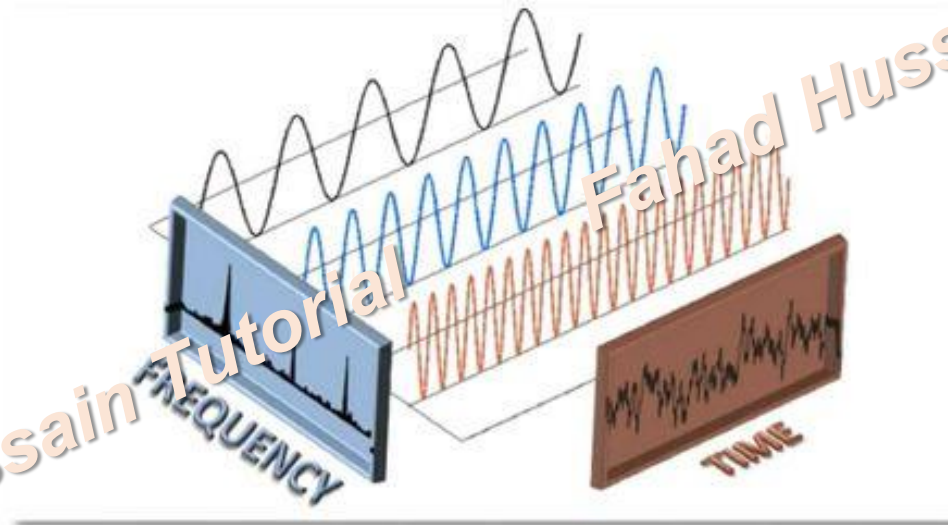
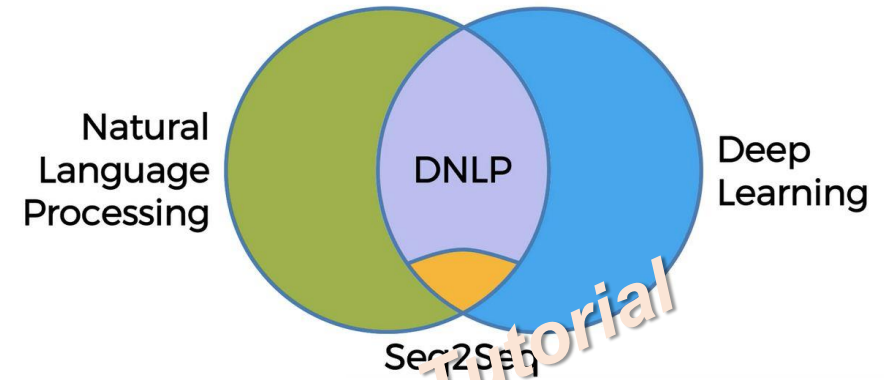


1. If / Else Rules (Chatbot)
2. Audio frequency components analysis (Speech Recognition)
3. Bag-of-words model (Classification)
4. CNN for text Recognition (Classification)
5. Seq2Seq (many applications)

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How NLP, DNLP and DL involves in!!!



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Applications



Speech
Transcription



Neural Machine
Translation (NMT)



Chatbots



Q&A



Text
Summarization



Image
Captioning



Video
Captioning

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Used by



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Thanks

**Do Subscribe, like and share
next we will discuss about**

How NLP work?

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NLP Working

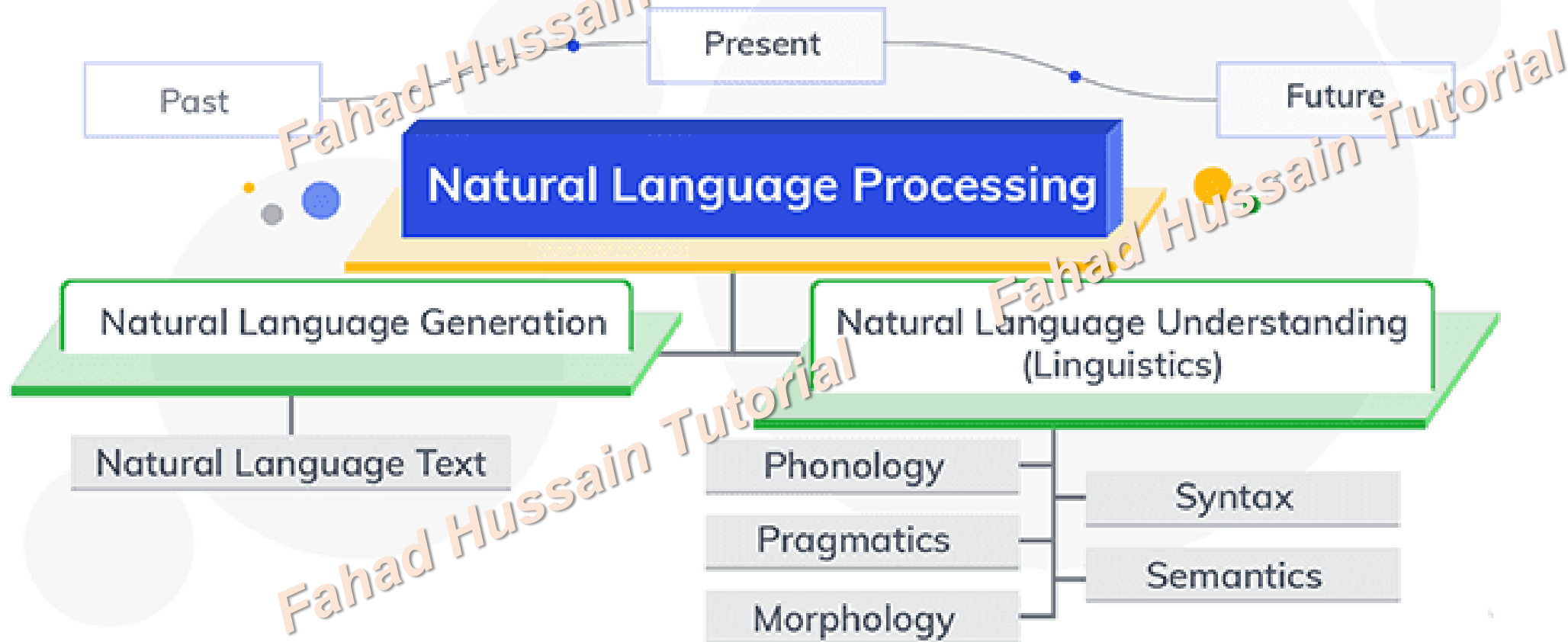


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NLP Working

Evolution of NLP



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Natural Language Understanding

Ambiguity:

Lexical Ambiguity : The Tank is full of water.

Syntactic Ambiguity : ill men and women get to hospital.

Semantic Ambiguity : The Bike hit the pole while it was running.

Pragmatic Ambiguity : The Army is coming.

Phonology – This science helps to deal with patterns present in the sound and speeches related to the sound as a physical entity.

Pragmatics – This science studies the different uses of language.

Morphology – This science deals with the structure of the words and the systematic relations between them.

Syntax – This science deal with the structure of the sentences.

Semantics – This science deals with the literal meaning of the words, phrases as well as sentences.

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Natural Language Generation

Based on NL-Understanding, it will suggest about:

- What should say to user.
- Should be Intelligent and Conversational as like human
- Usage of Structured data.
- With text and Sentence like planning.

$$\text{NLP} = \text{NLU} + \text{NLG}$$

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Thanks

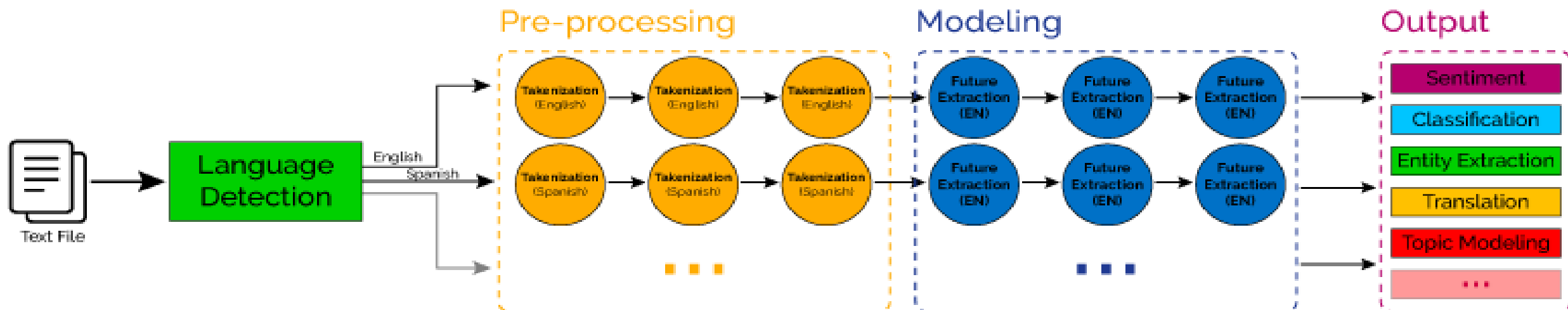
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Data Processes, Tokenization?

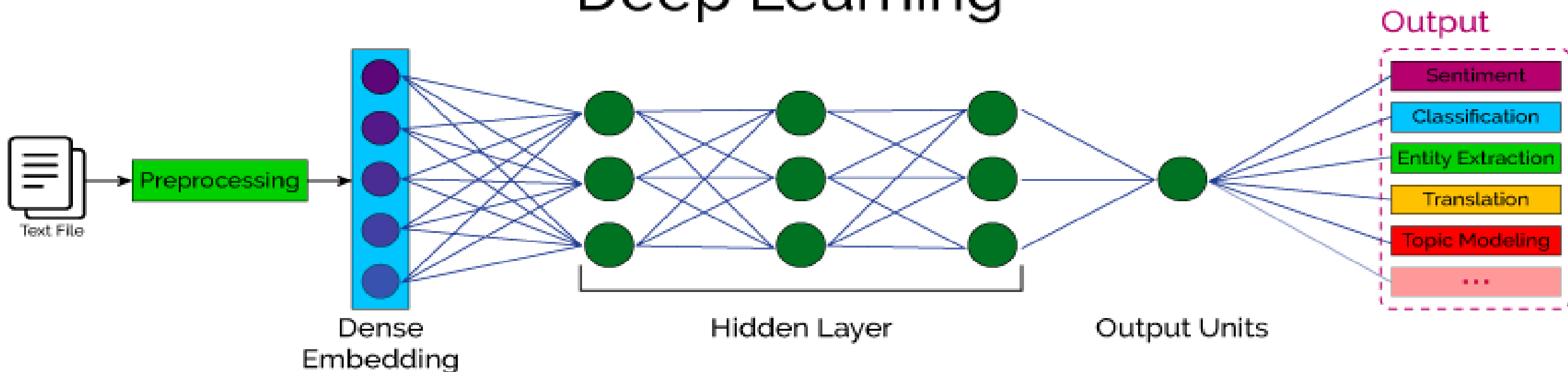
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Classical NLP

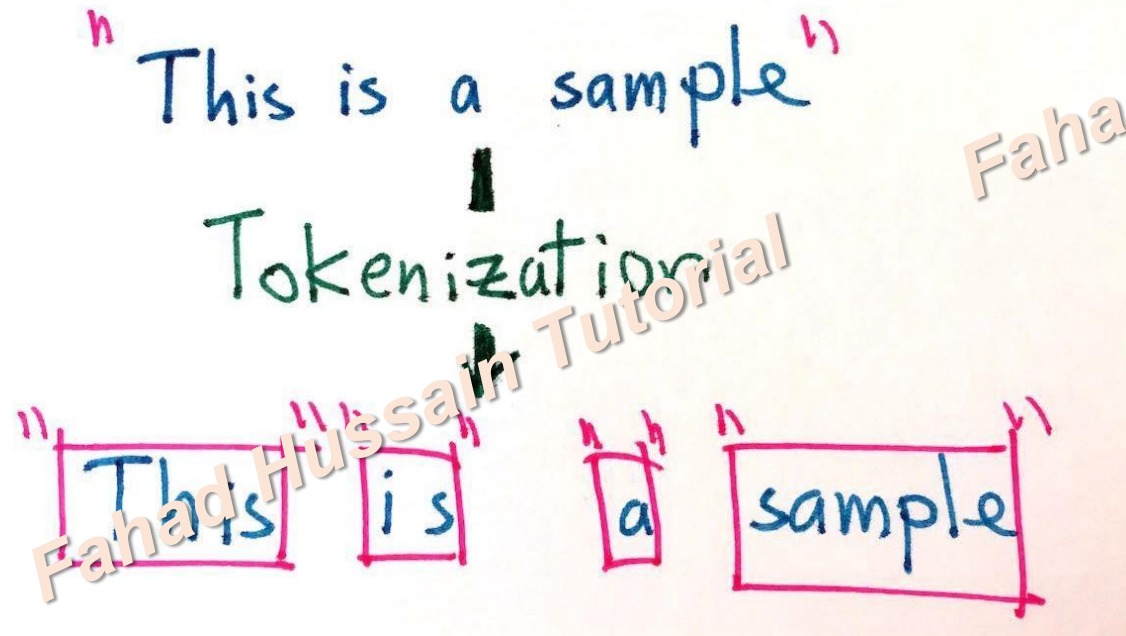


Deep Learning



Tokenization

Tokenization is the process of replacing sensitive data with unique identification symbols that retain all the essential information about the data without compromising its security.



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Tokenization

There are many library / framework for NLP problem solution

1. **Natural Language Toolkit (NLTK)**
2. **TextBlob**
3. **CoreNLP**
4. **Gensim**
5. **spaCy**
6. **polyglot**
7. **scikit-learn**
8. **Pattern**

So lets' move to COLAB for practical work...

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Bag of words

The bag-of-words model is a simplifying representation used in natural language processing and information retrieval (IR). In this, a text (such as a sentence or a document) is represented as the bag (multiset) of its words, disregarding grammar and even word order but keeping multiplicity.

	1 This	2 movie	3 is	4 very	5 scary	6 and	7 long	8 not	9 slow	10 spooky	11 good	Length of the review(in words)
Review 1	1	1	1	1	1	1	1	0	0	0	0	7
Review 2	1	1	2	0	0	1	1	0	1	0	0	8
Review 3	1	1	1	0	0	0	1	0	0	1	1	6

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Bag of words



13 hours ago

Sir awesome teaching style..... I requested you to teach us TIME SERIES ANALYSIS. Its my humble request.

REPLY

0 replies



I will try my best

As soon as possible

Okay sure



14 hours ago

Please make Tutorial series on Time series Analysis using machine learning.

REPLY

0 replies



Noted

Sure I will

We will try



18 hours ago

Bro can you please refer a good book for deep learning which you followed or know. It'd be a great help! Thanks in advance

REPLY

0 replies



Let me check

Will upload soon

Sure I will

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Comments

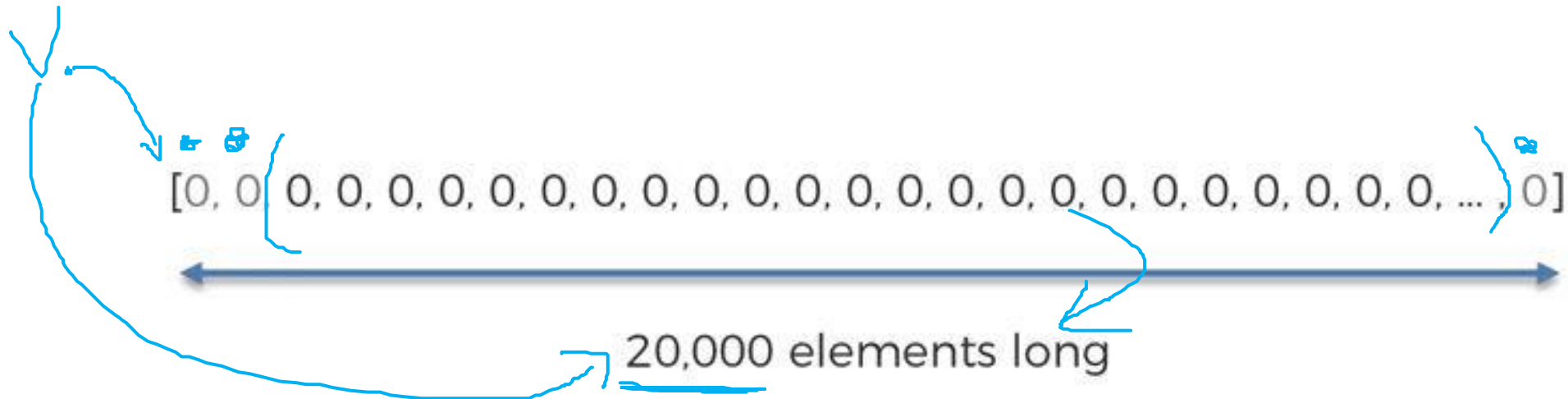
Are you ready, to start this course to?

Yes

No

None

Don't No

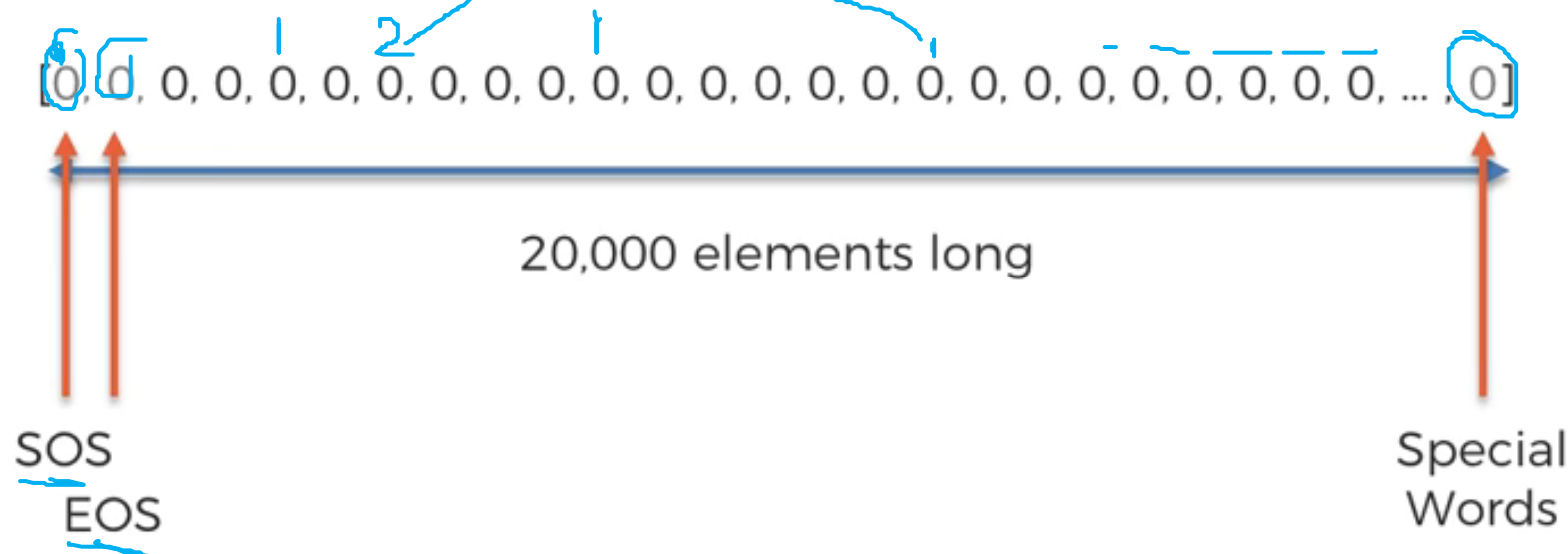


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Comments

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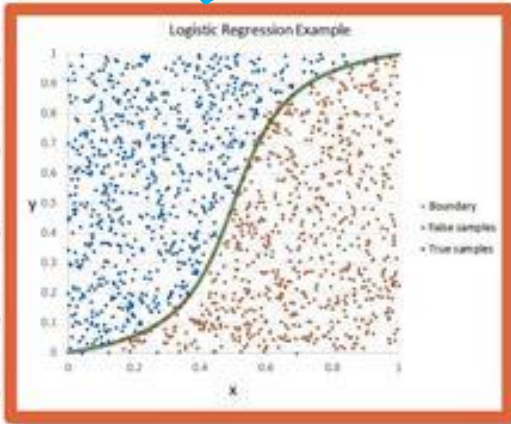
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Training and Testing

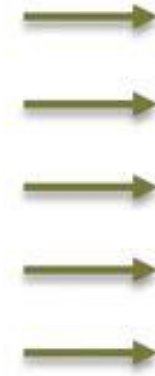
NLP

Training Data:

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[1, 1, 0, 0,
[1, 1, 0, 0,
[1, 1, 0, 0,
[1, 1, 0, 0,

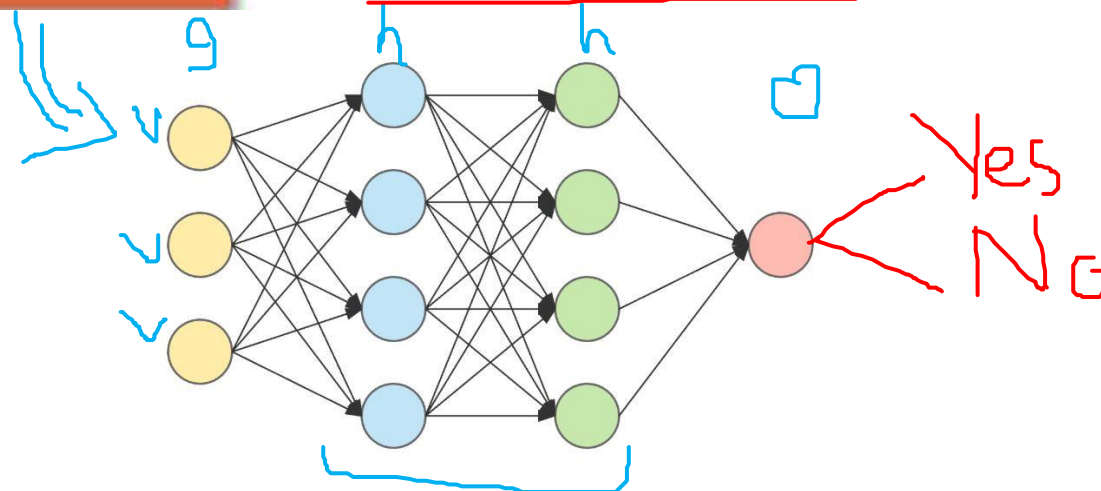


0, 0, 1, 0, 1, 0, 1, 0, 0, 1, 0, 0, ..., 2]
0, 0, 2, 0, 0, 0, 1, 0, 0, 1, 0, 0, ..., 0]
0, 0, 1, 0, 0, 0, 1, 0, 0, 0, 0, 1, ..., 1]
0, 0, 1, 1, 0, 1, 0, 0, 0, 0, 0, 0, ..., 1]
0, 0, 1, 0, 0, 1, 1, 0, 0, 0, 1, 0, ..., 1]



No
Yes
Yes
No
Yes

Deep NLP



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