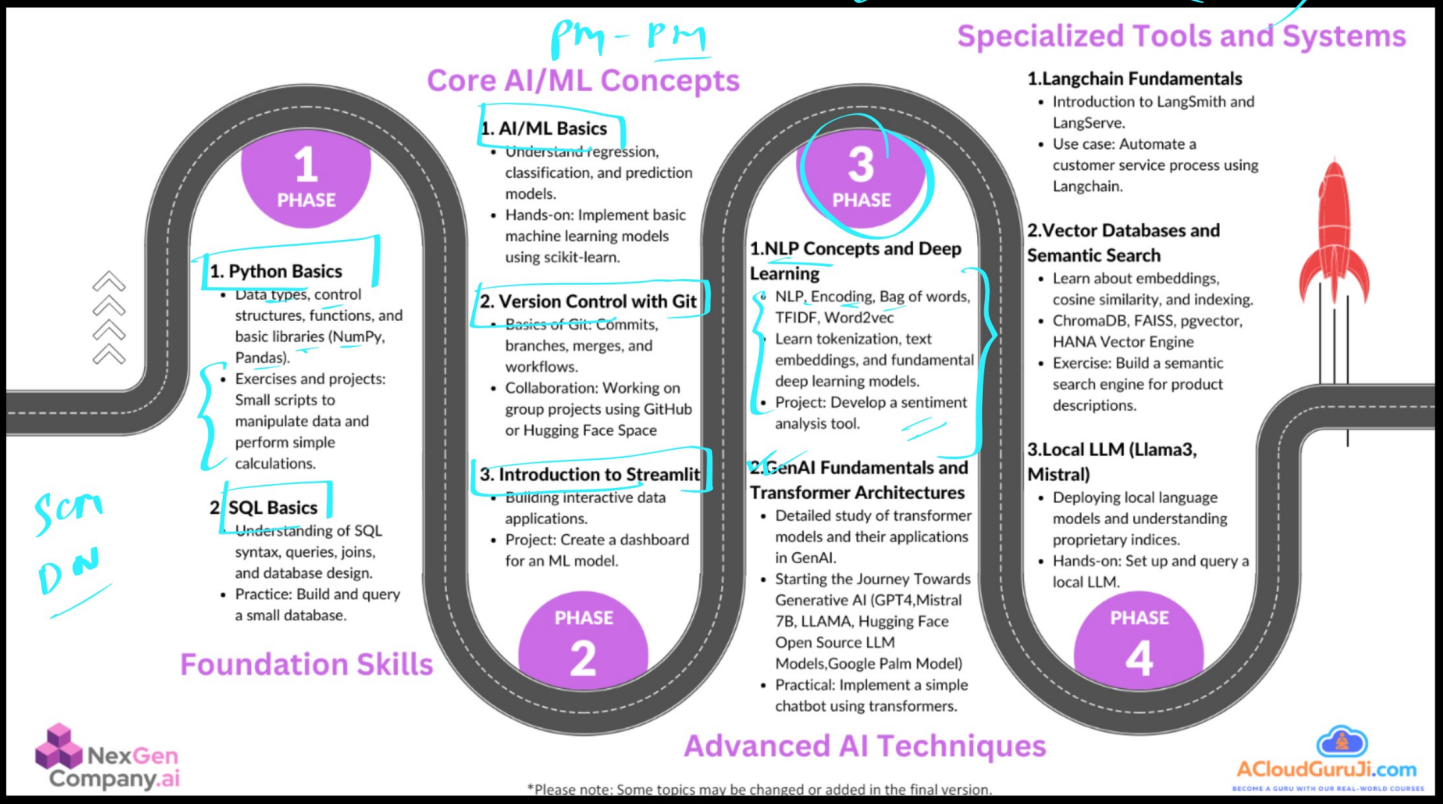
GenAI Business & SAP (W3)



NLP

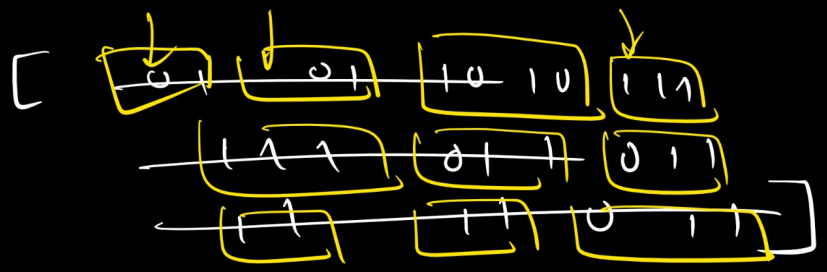
Lecture
- Tokenization
- Lemmatization
- Vectorization
- Similarity search

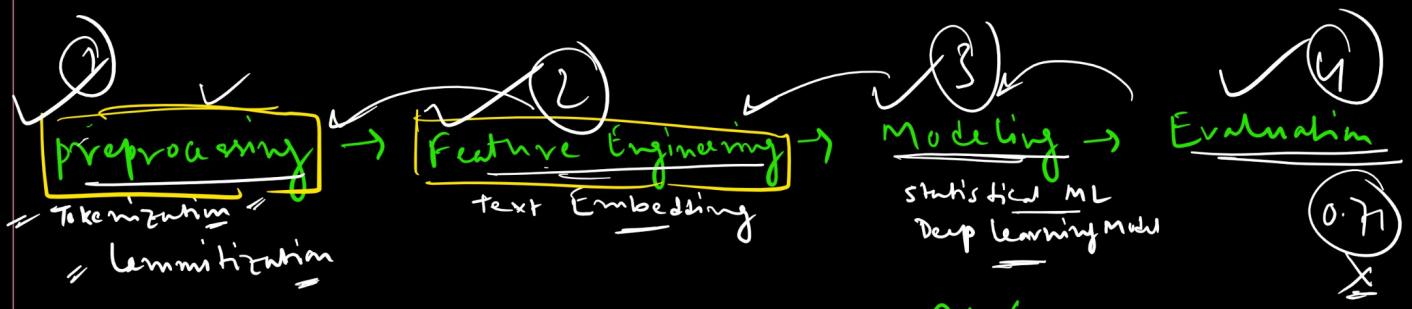
End-to-End App
→ FAQ / KBA Bot (chat)
→ SAP BTP → SAP

How to create Sales order in SAP
How can I generate a customer Invoice in SAP
What is the process to place a purchase order

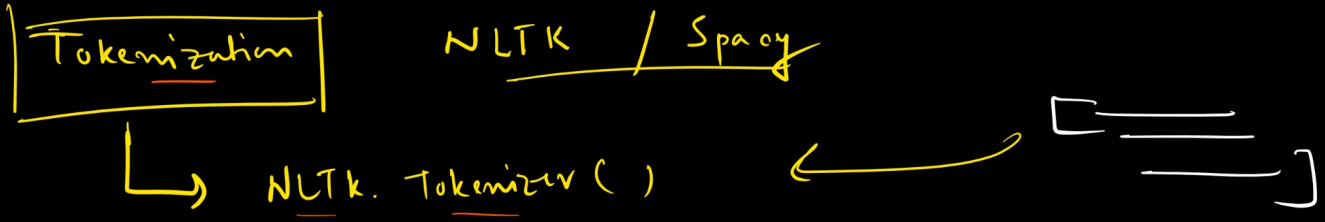
chatgpt

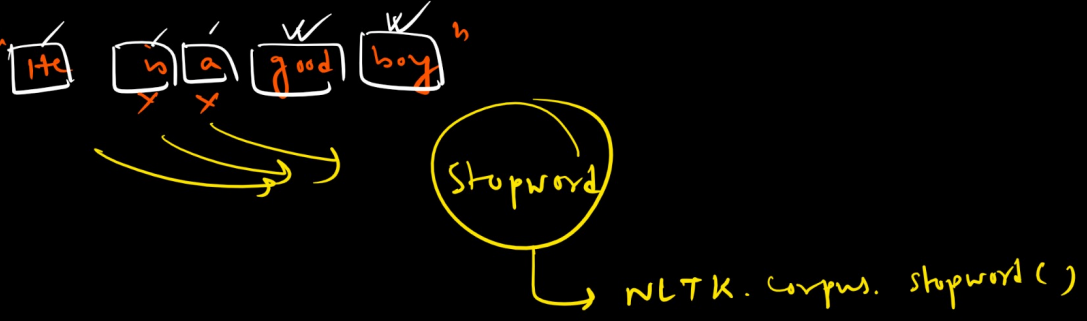
How to Create Sales order in SAP ?





AI / ML





Is too much eating is harmful ?

Lemmatization ✓ — Identify base word

Stemming ✗

ate → eat

talking → talk
walking → walk
adjustable → adjust
(Rule)

nltk.stem.WordNetLemmatizer()

Linguistic Knowledge ✓

Vectorization

- TF-IDF ✓
- Bag of word (BoG)
- word2vec
- Embedding Model ✓

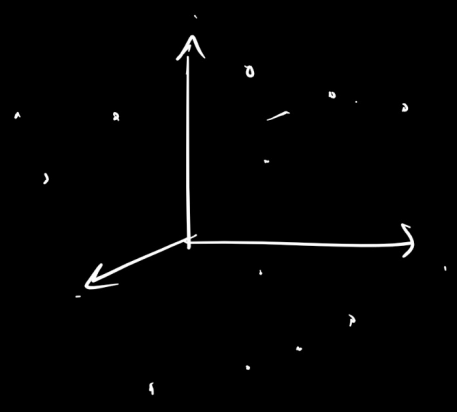
Techniques to do vectorization

{ How to create Sales order in SAP
How can I generate a customer invoice in SAP
What is the process to place a purchase order }

How ✗ to create ✗ a Sales order in ✗ SAP

10 unique words

Dataframe



(S1) Boy is good → boy good

(S2) girl is good → girl good

(S3) Boy and girl are good → boy girl good

boy | girl | good

$$TF = \frac{\text{No. of Representation of words in sentence}}{\text{No. of words in sentence}}$$

$$IDF = \log_e\left(\frac{\text{No. of sentence}}{\text{No. of sentence containing the word}}\right)$$

TF → * ← IDF

	S1	S2	S3
good	1/2	1/2	1/3
boy	1/2	0	1/3
girl	0	1/2	1/3

$\log_e(3/3) = 0$

$\log_e(3/2)$

$\log_e(3/2)$

Final TF-IDF

	good	boy	girl
S1	0	$1/2 \log(3/2)$	0
S2	0	0	$1/2 \log(3/2)$
S3	0	$1/3 \log(3/2)$	$1/3 \log(3/2)$

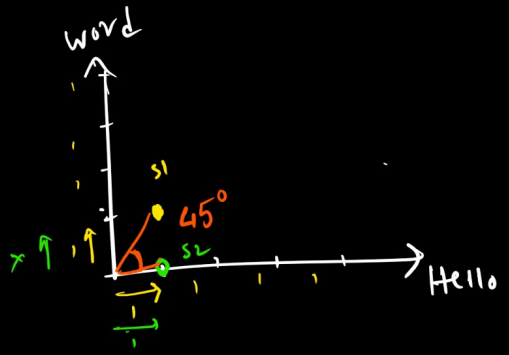
SQ How is the boy

Co-Sign Similarity

(S1) Hello world
(S2) Hello

	Hello	world	
S1	1	1	(1,1)
S2	1	0	(1,0)

matrix

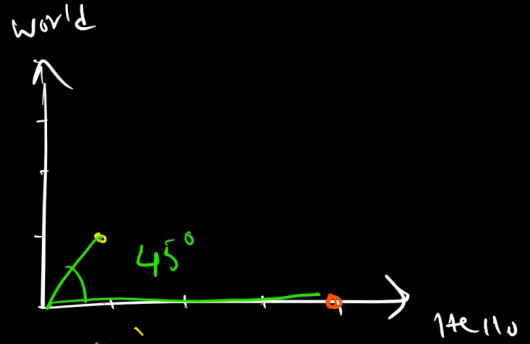


Cosign Similarity

$\cos\theta \Rightarrow \cos 45^\circ$

$\Rightarrow 1/\sqrt{2} = 0.71$

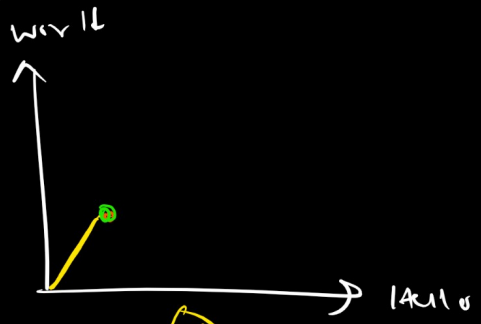
(S1) Hello world
(S2) Hello Hello Hello Hello



Cs $\Rightarrow 1/\sqrt{2} = 0.71$

(S1) Hello world
(S2) Hello world

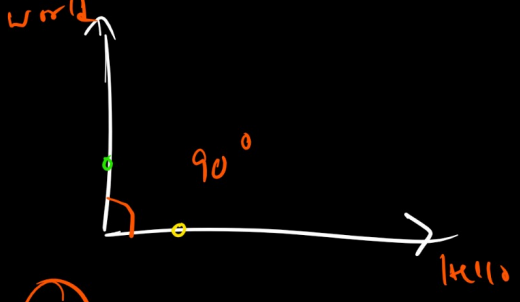
	H	W
S1	1	1
S2	1	1



$\cos 0^\circ \Rightarrow 1$

(S1) Hello
(S2) World

	Hello	World
S1	1	1
S2	0	1



Cos 90 ⇒ 0

0 → 1

Co-sign Similarity Math

$$CS = \frac{\sum_{i=1}^{n} A_i B_i}{\sqrt{\sum_{i=1}^{n} A_i^2} \times \sqrt{\sum_{i=1}^{n} B_i^2}}$$

n ⇒ no of words

(S1) Hello world
(S2) Hello

$\cos\theta = \cos 45^\circ = 0.7$

	H	W
A	1	1
B	1^2	0^2

$$\frac{(1 \times 1) + (1 \times 0)}{\sqrt{1^2 + 1^2} \times \sqrt{1^2 + 0^2}}$$

$$= \frac{1 + 0}{\sqrt{2} \times \sqrt{1^2}} = \frac{1}{\sqrt{2}} = 0.7$$

$$CS = \frac{\sum_{i=1}^{n} A_i B_i}{\sqrt{\sum_{i=1}^{n} A_i^2} \times \sqrt{\sum_{i=1}^{n} B_i^2}}$$

S1 How to create Sales order

S2 How to create purchase order

4 unique words

Create Sales order purchase

	Create	Sales	purchase	order	
S1	1	1	0	1	A
S2	1	0	1	1	B

$$CS = \frac{(1\times1) + (1\times0) + (0\times1) + (1\times1)}{\sqrt{1^2+1^2+0^2+1^2} \times \sqrt{1^2+0^2+1^2+1^2}}$$

$$= \frac{1+0+0+1}{1.73 \times 1.73} = \frac{2}{2.99} = 0.66$$