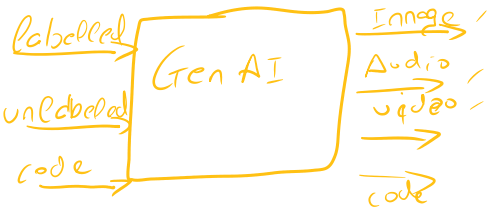
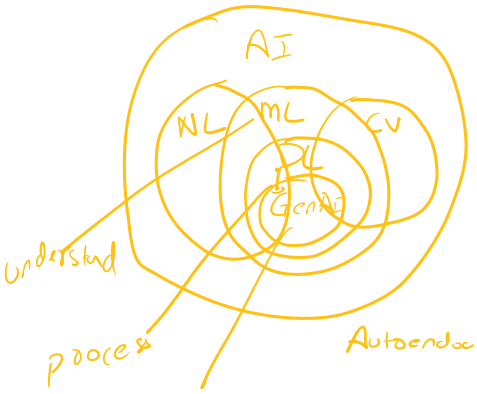
Monday, April 15, 2024 8:06 PM

Generative AI



Attention Model

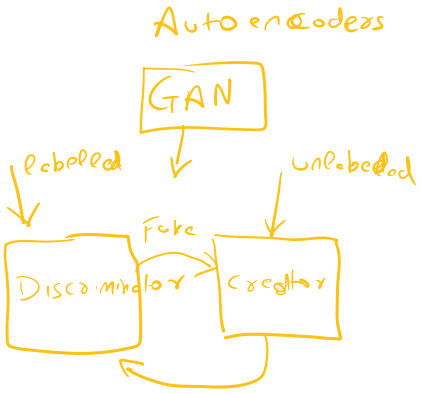


LLMs – Large Language Models

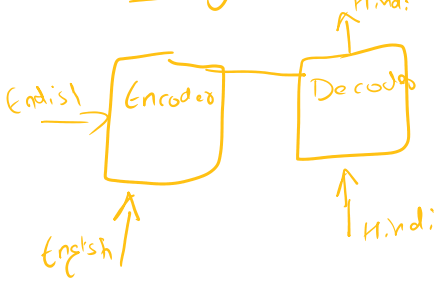
Attention Model

Diffusion model

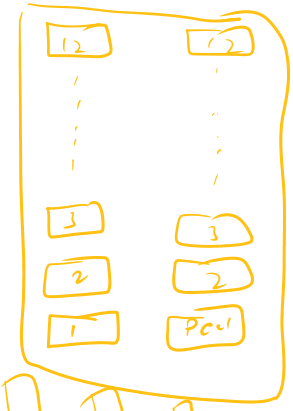
transformer



transformer :- Language translation



ChatGPT-2 small



Hi How are you.

Hi
How
are
you

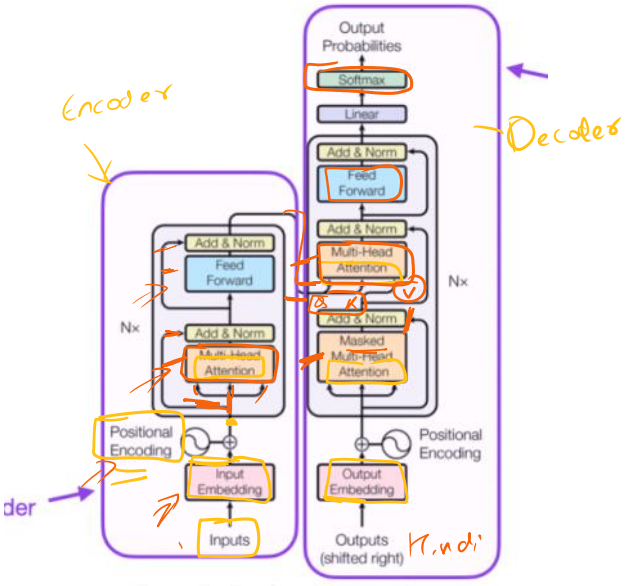
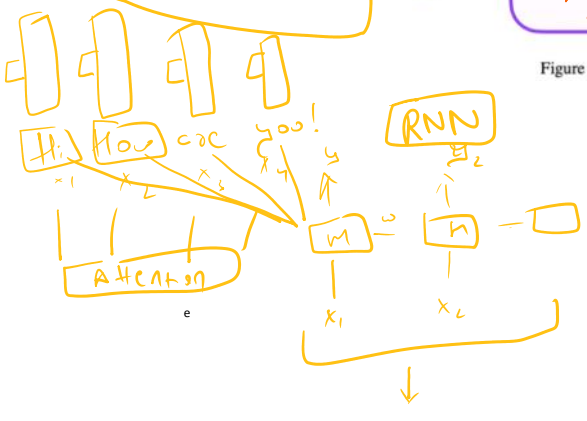
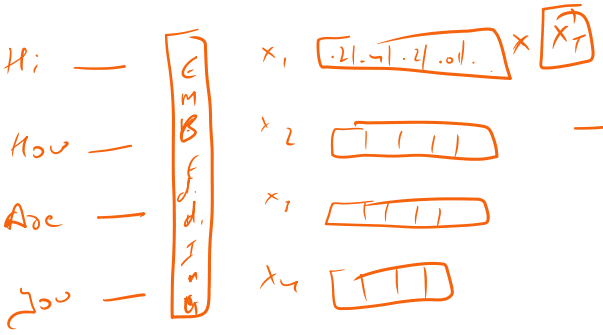
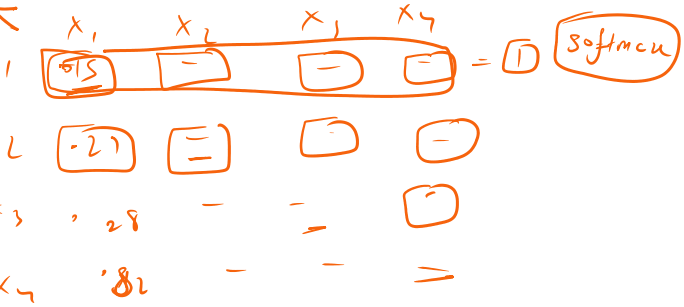


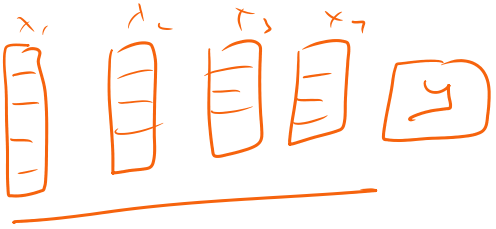
Figure 1: The Transformer - model architecture.



- Self Attention model

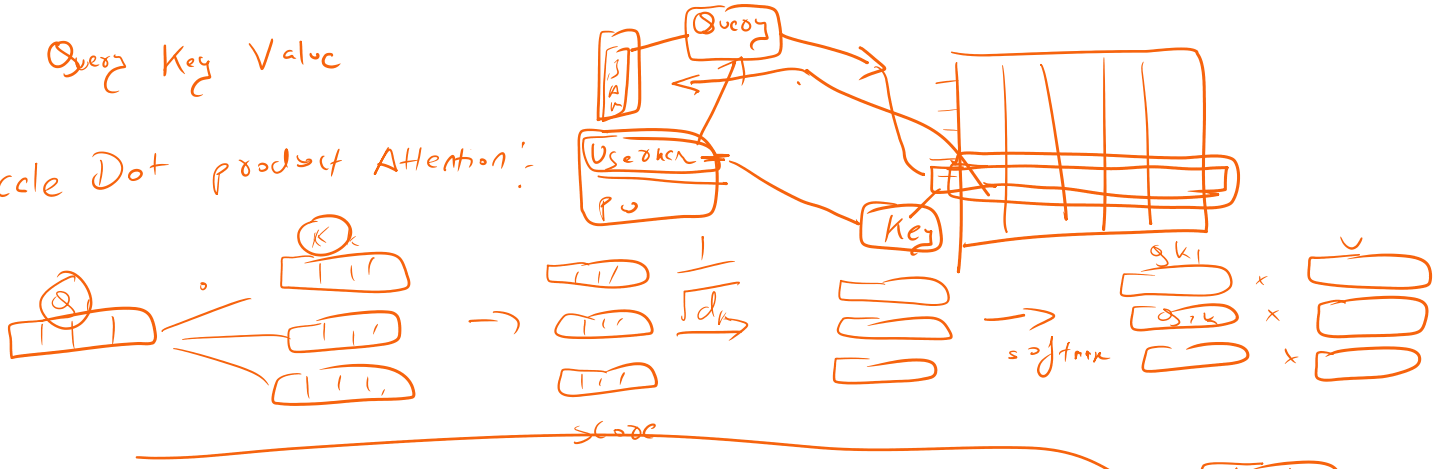






Query Key Value

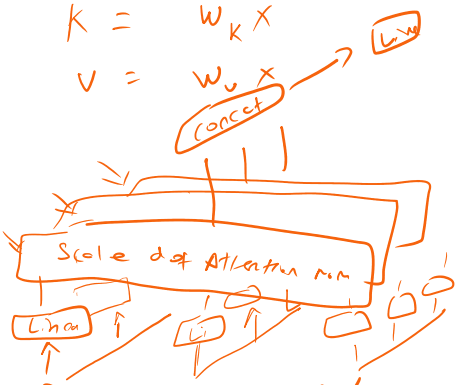
Scale Dot product Attention:

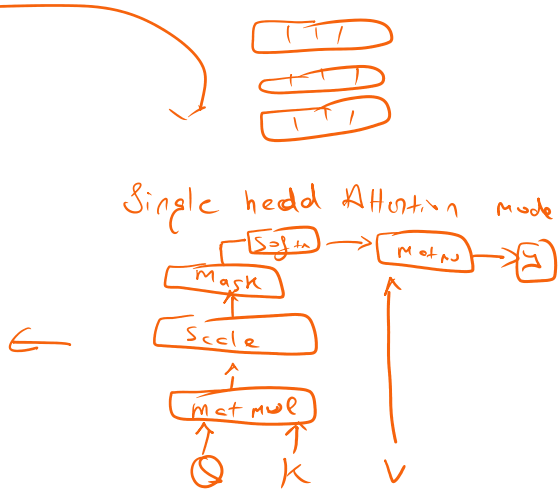


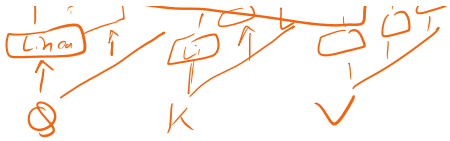
$Q = W_q X$

$K = W_k X$

$V = W_v X$






Lhan
K
V


K
V

PCA - Principle Component Analysis

- covariance matrix
- Eigen vectors

no of >= PCs

Carbohydrates fats → Energy

Protein Amino Acid → body building

Vitamin mineral → replenish

PC1 PC2 PC3

Business UN →

Pipeline

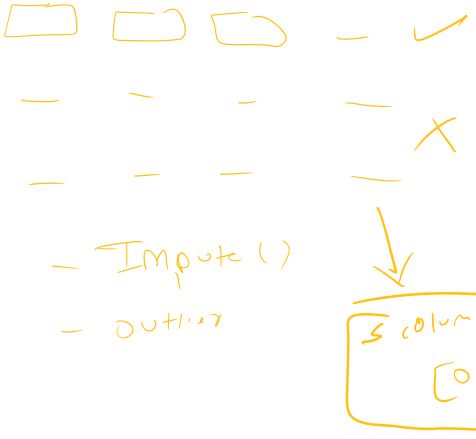
Data understanding → EDA, Hypothesis

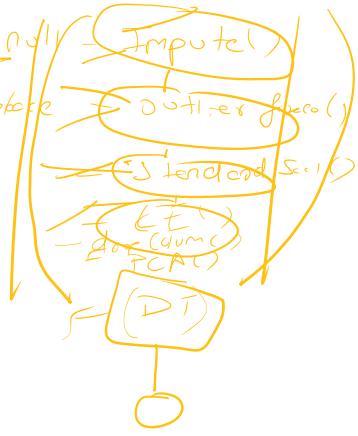
Data processing → Cleaning (if null → Impute(), Outliers → replace → Outlier floor(), Scaling → StandardScaler())

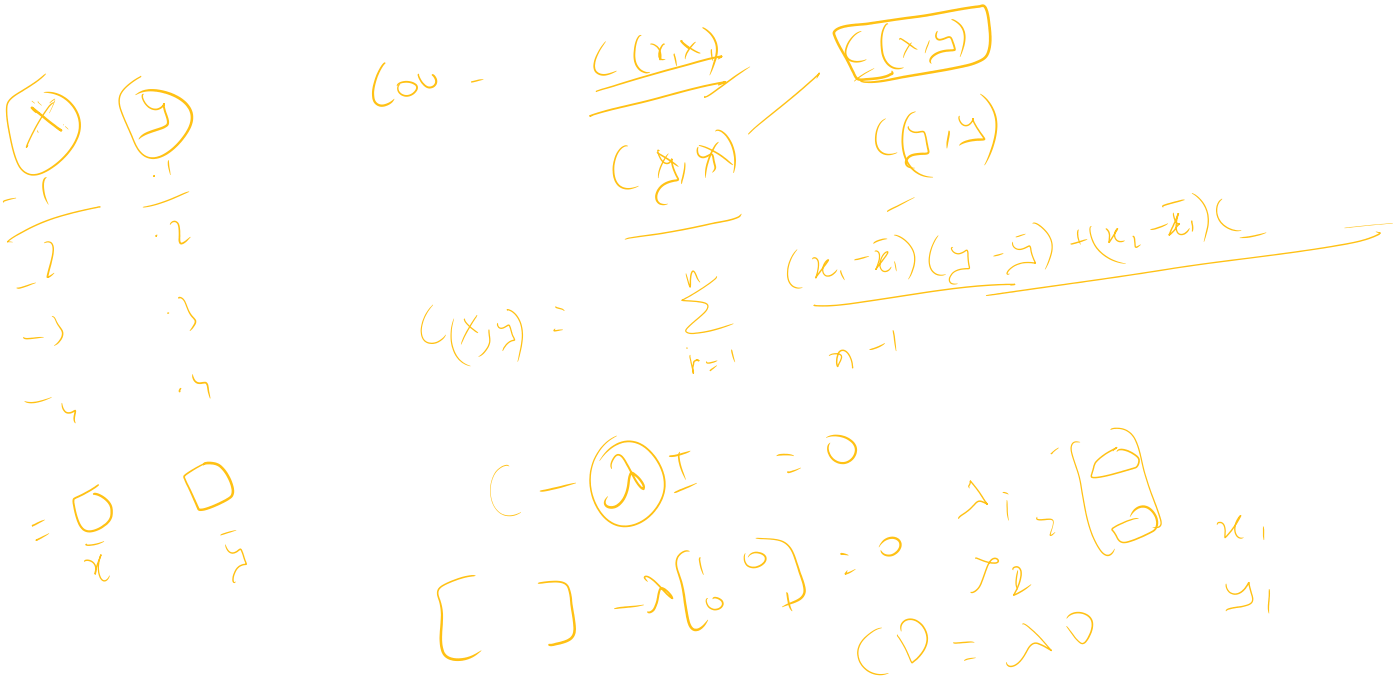
Data modeling → Encoding → PCA → DT

Evaluation

Deployment

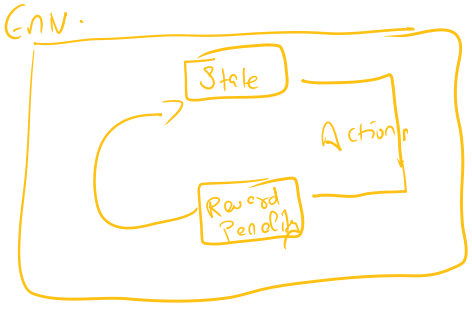






Reinforcement learning

- Environment
- State
- Action
- Reward/Penalty
- Policy



- Goal based learning

Interaction based learning

- Model based

Model free

Q-learning

DQN

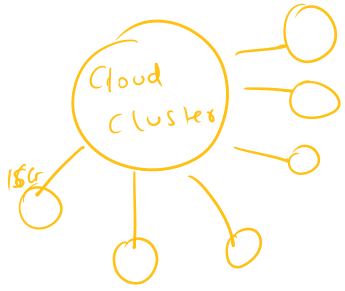
Big Data - 5 V's

- Volume
- Velocity
- Value
- Variety
- Veracity

① Python — Sparks (R, SQL) — Scala

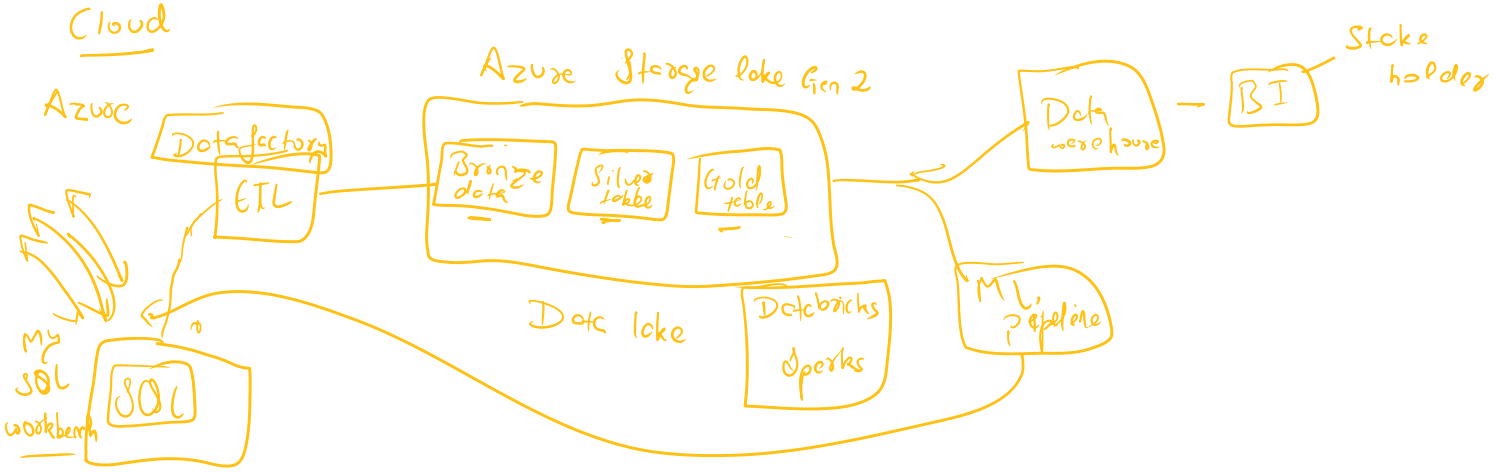
- Memory
- Bandwith
- Processor
- GPUs

Python ②



Data Architecture

Cloud



Analytics

Data Processing

Python

EDA — Analytics

Exploration / Visualization

Data Processing

Cleaning / fixing

Feature Eng.

SQL DBI DS

DA ML NLP

Deep Learning → AI Engineers.

ML Engineer

Machine learning

NLP Deep learning CV

GenAI

Git —

Devops —

Cloud ~~based~~ — Azure, AWS, GCP

MA = 3