



# Doğal Dil İşleme Yöntemleri ve Ölçme

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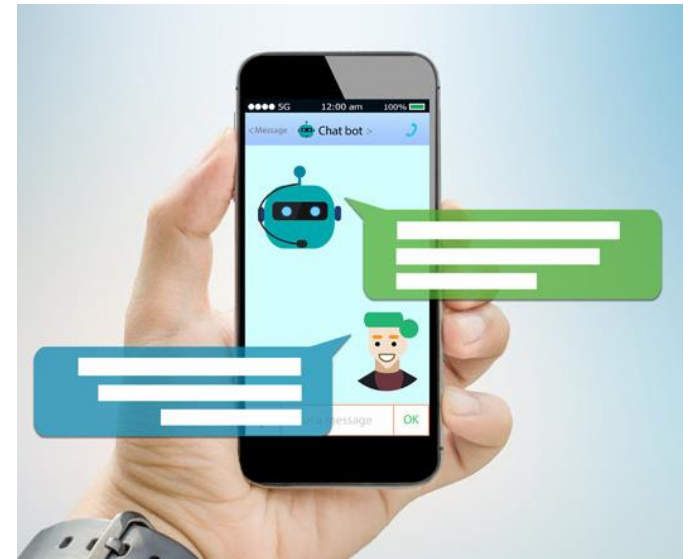
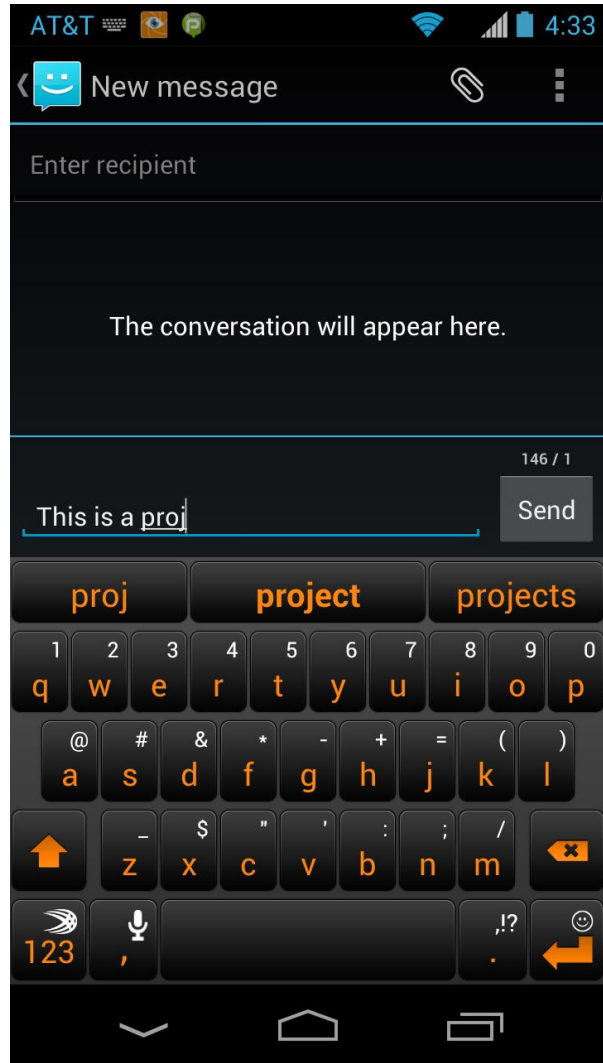
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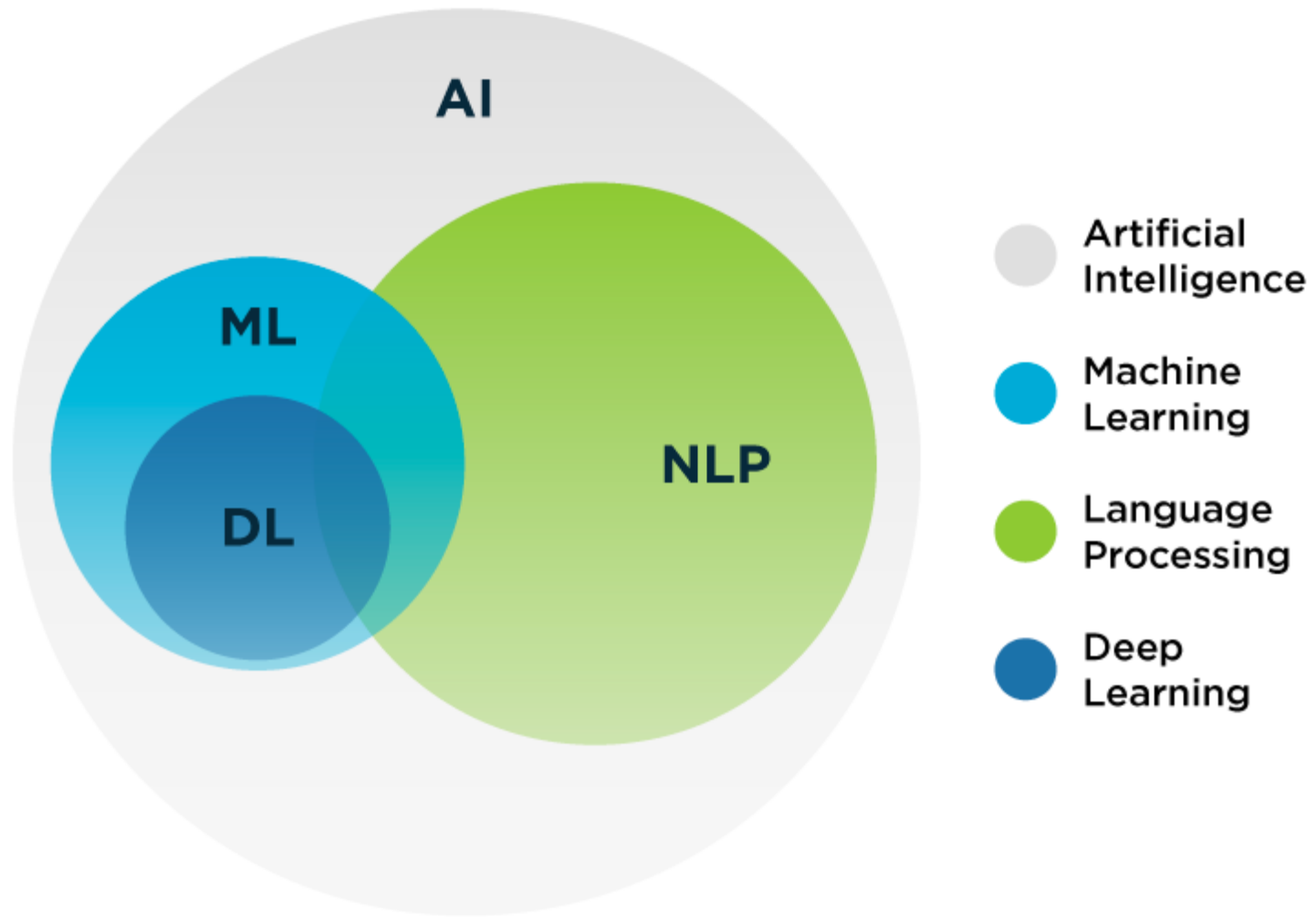


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<https://bit.ly/cmeeep2022>



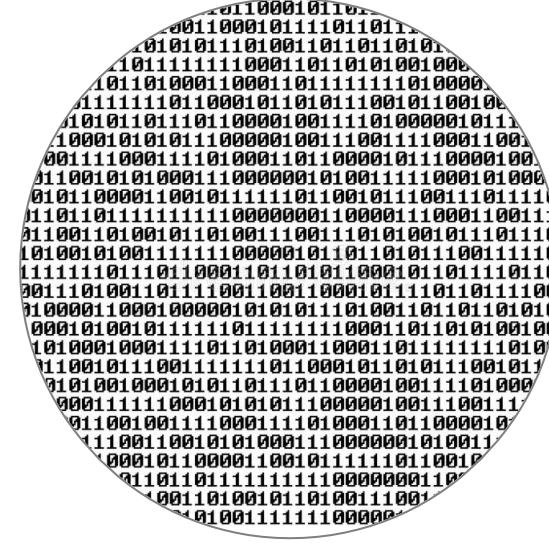
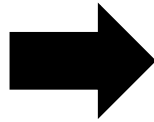


**Source:** Service Express

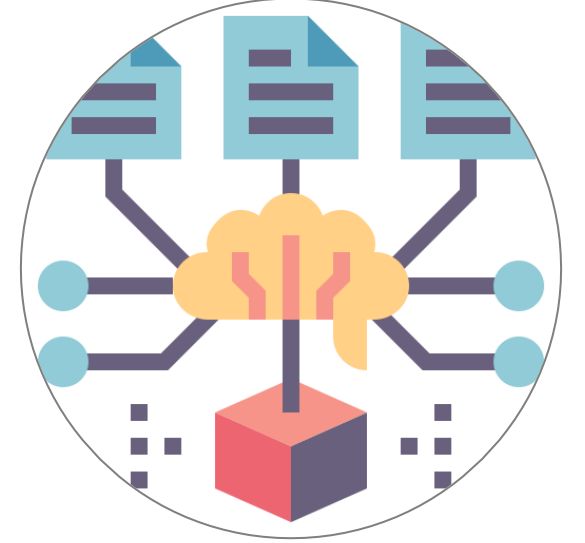
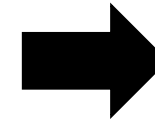
# Doğal Dil İşleme Nasıl Çalışıyor?



Korpus (bütünce)  
belirleme



Kelime, kelime grupları, ya  
da cümleleri vektörel hale  
dönüştürme

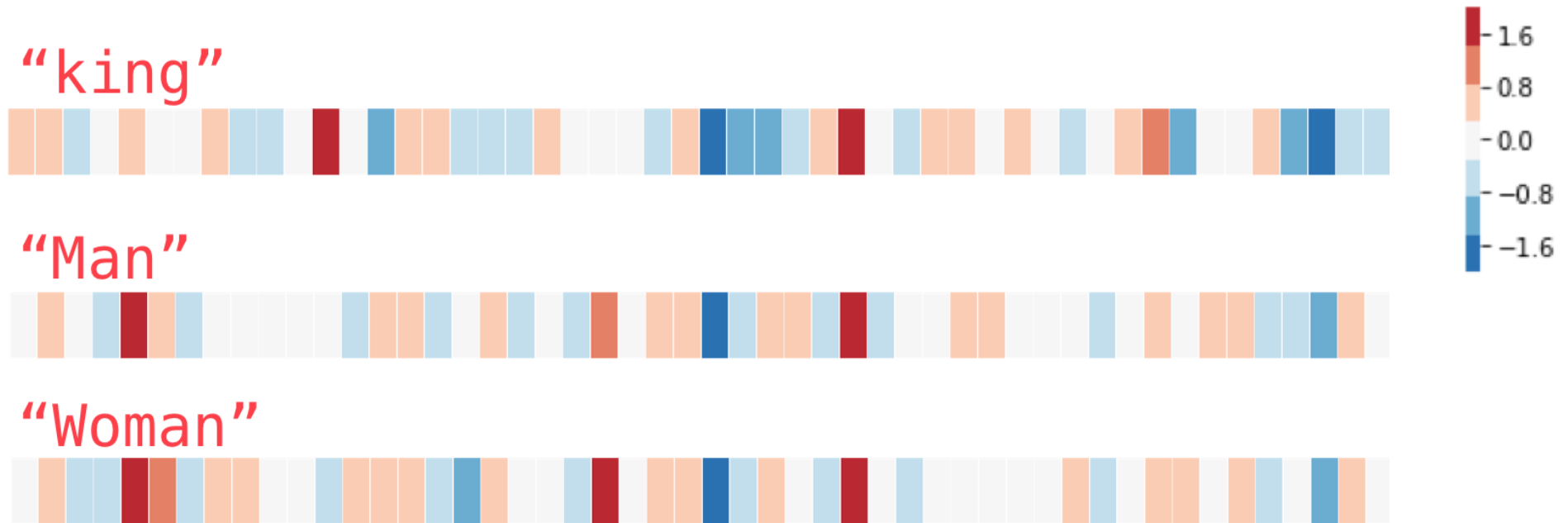


Vektörler arasındaki  
benzerliğe dayalı model  
oluşturma

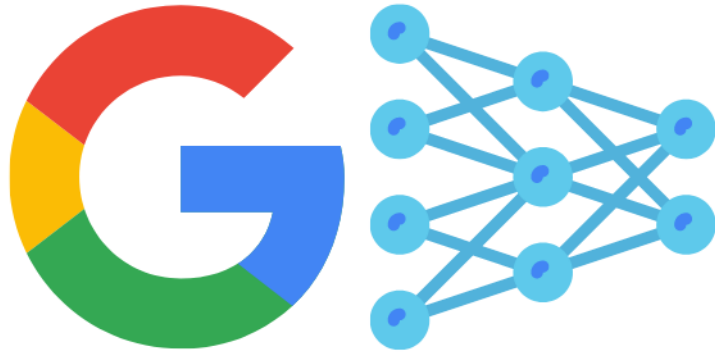
**Korpus:** Wikipedia ile oluşturulmuş [GloVe](#) modeli

**Kelime:** King (kral) → [1 x 50]

```
[ 0.50451 , 0.68607 , -0.59517 , -0.022801, 0.60046 , -0.13498 , -0.08813 , 0.47377 , -0.61798 , -0.31012 , -0.076666,  
1.493 , -0.034189, -0.98173 , 0.68229 , 0.81722 , -0.51874 , -0.31503 , -0.55809 , 0.66421 , 0.1961 , -0.13495 , -0.11476  
, -0.30344 , 0.41177 , -2.223 , -1.0756 , -1.0783 , -0.34354 , 0.33505 , 1.9927 , -0.04234 , -0.64319 , 0.71125 , 0.49159 ,  
0.16754 , 0.34344 , -0.25663 , -0.8523 , 0.1661 , 0.40102 , 1.1685 , -1.0137 , -0.21585 , -0.15155 , 0.78321 , -0.91241 , -  
1.6106 , -0.64426 , -0.51042 ]
```



**Source:** <https://jalammar.github.io/illustrated-word2vec/>

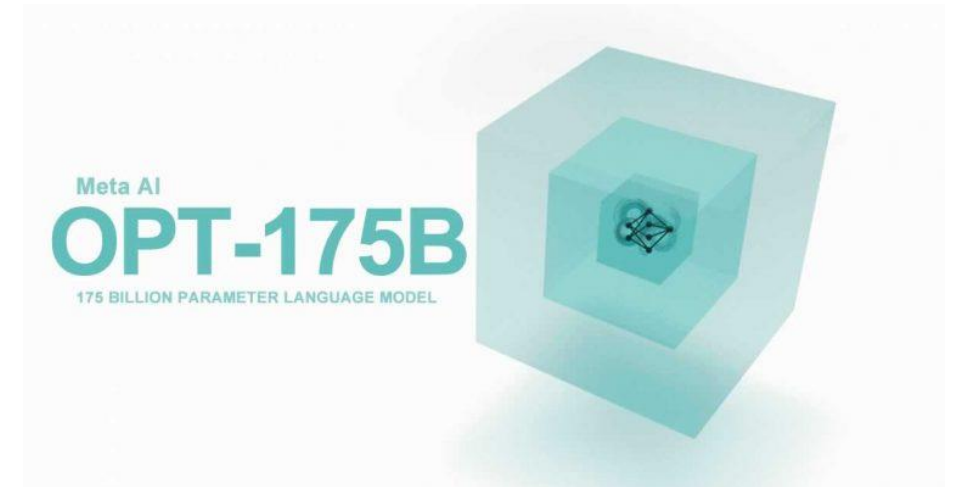


Google BERT Algorithm



OpenAI

GPT-3, an autoregressive language model with 175 billion parameters



Megatron-Turing Natural Language Generation model (MT-NLG)  
with 530 billion parameters



## Google BERT Multilingual Model

<https://huggingface.co/bert-base-multilingual-cased>

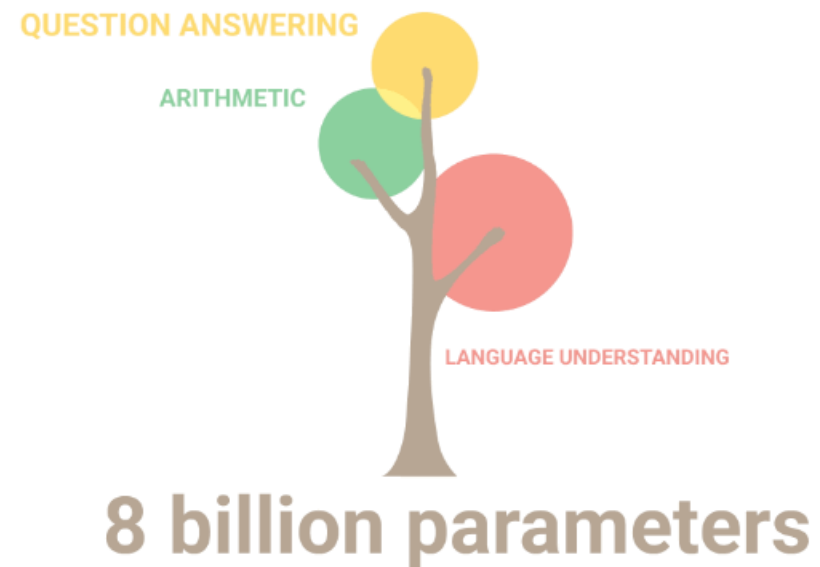


## BERTurk

<https://github.com/stefan-it/turkish-bert>

<https://huggingface.co/dbmdz/bert-base-turkish-cased>





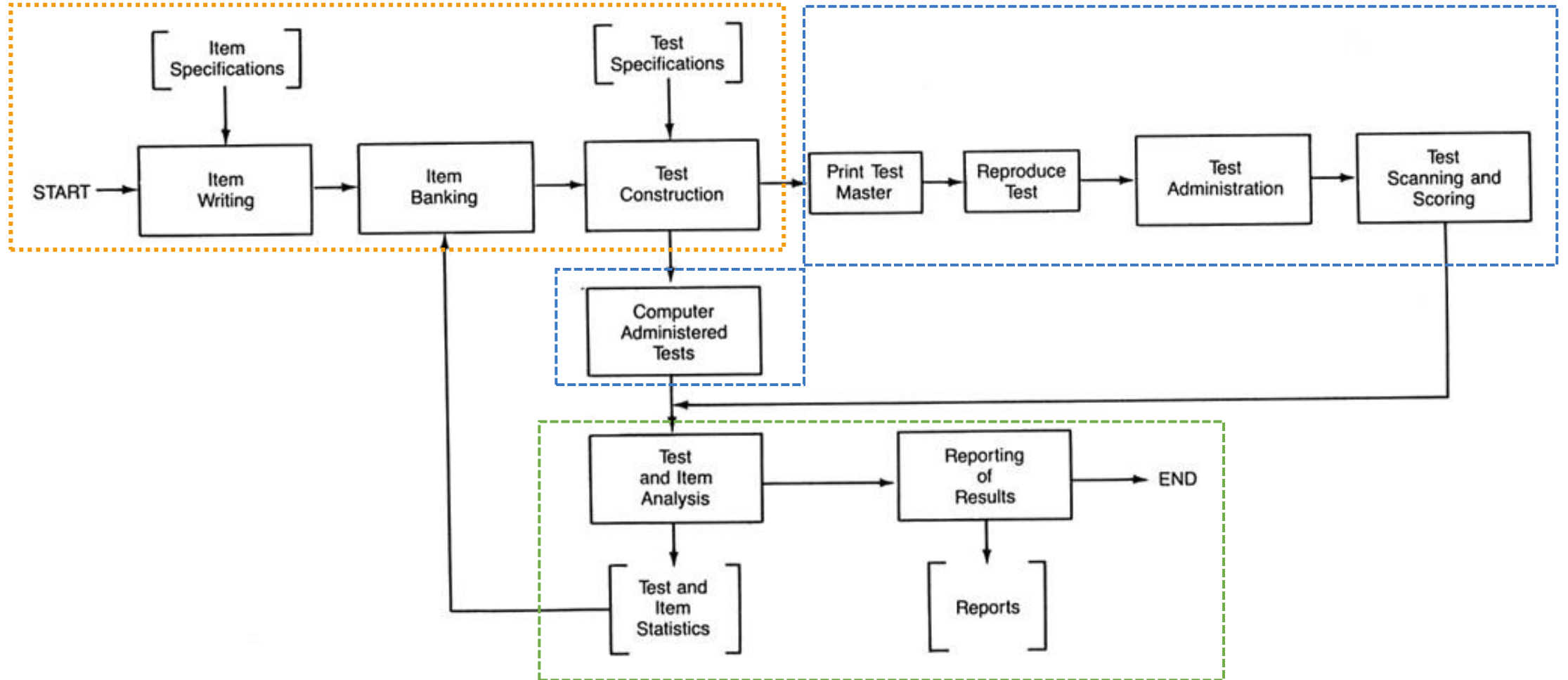
**Source:** <https://ai.googleblog.com/2022/04/pathways-language-model-palm-scaling-to.html>



# NLP ve Ölçme



## Soru ve Test Geliştirme

## Testin Uygulanması



## Puanlama ve Raporlama

# NLP ile Otomatik Soru Geliştirme



**AIG Input**

**AIG Output**

## Model Tuning

Load initial item bank

Browse...

Initial Item Bank Personality.cs

Upload complete

### Sample of Item Bank

Construct	ItemText
Conscientiousness	Tell the truth.
Agreeableness	Have a sharp tongue.
Extraversion	Am always on the go.
Emotional Stability	Adapt easily to new situations.
Openness	Avoid philosophical discussions.
Extraversion	Would describe my experiences as somewhat dull.

Select columns containing:

Construct Labels

Item text:

Construct

ItemText

### Model Tuning Parameters

Speed

Balanced

Quality

Tune Model

Progress (%): 100 / 100

Save AIG Model

## AIG Settings

Load AIG model

Browse...

No file selected

☒ Use Current Model

### Constructs

☒ All

☒ Agreeableness

☒ Conscientiousness

☒ Emotional Stability

☒ Extraversion

☒ Openness

### Item Generation Parameters

Deterministic

Balanced

Diversified

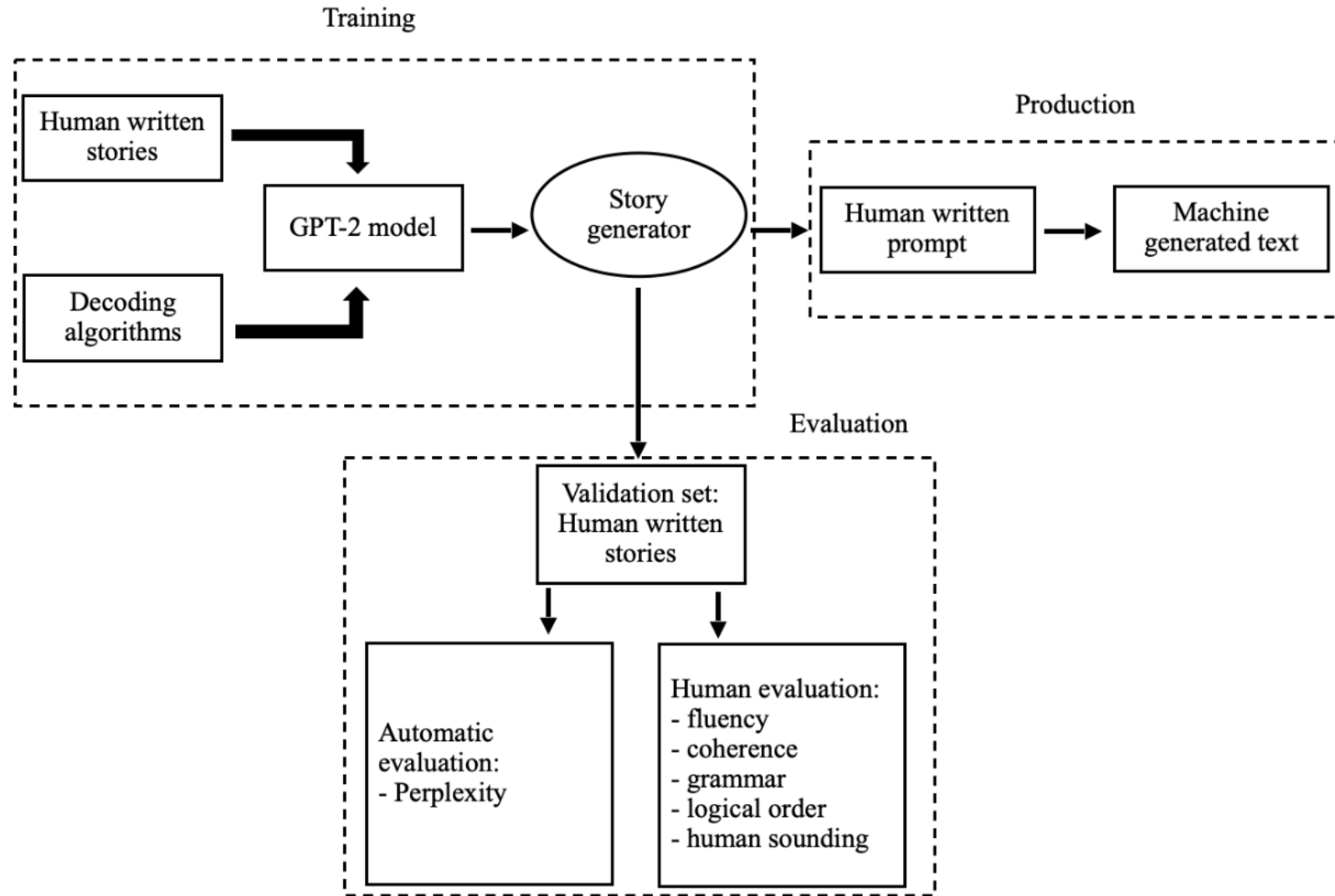
Number of items to generate per construct

5

Generate Items

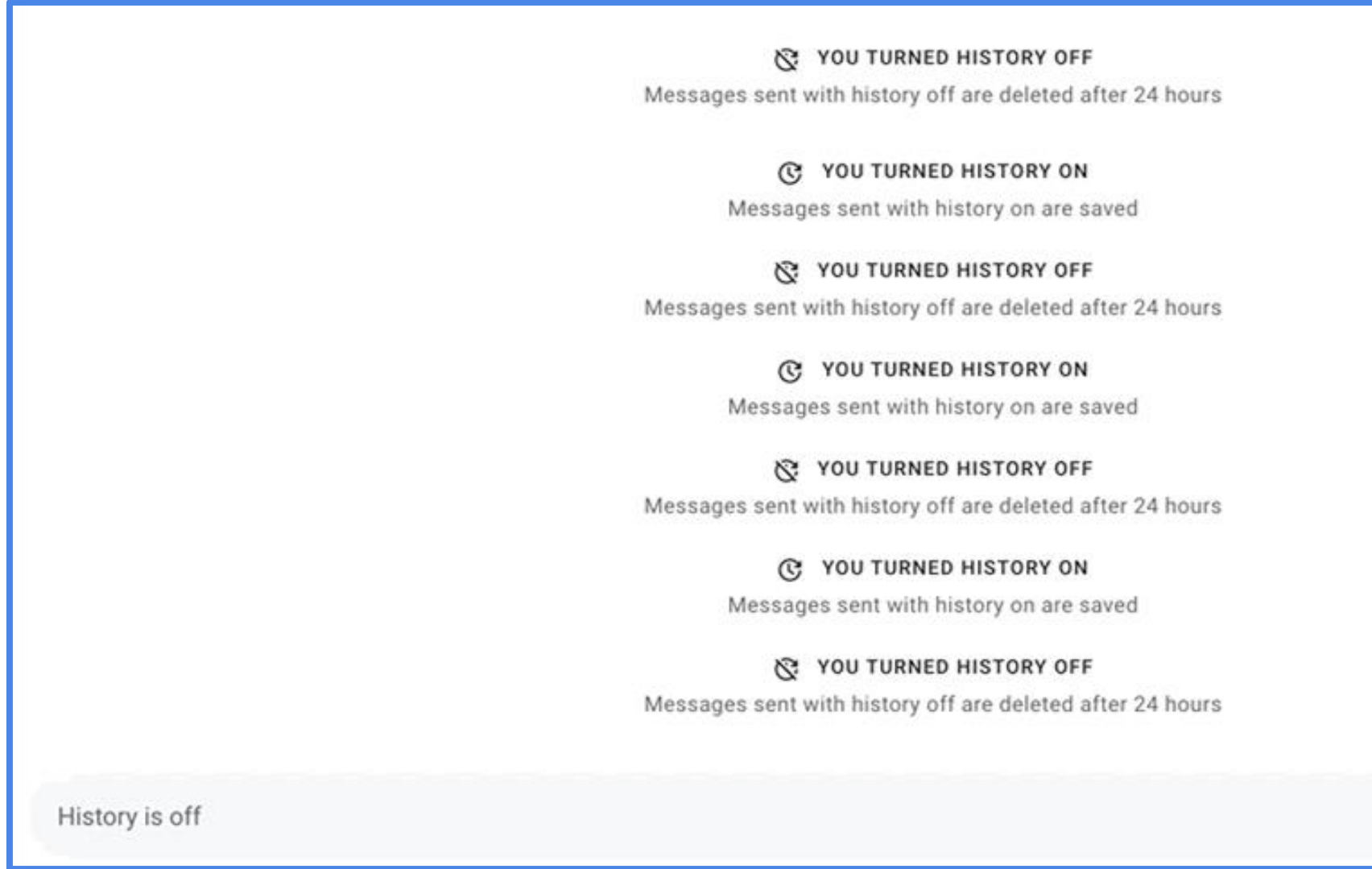
Progress (%): 0 / 100

# NLP ile Otomatik Okuma Parçası Geliştirme

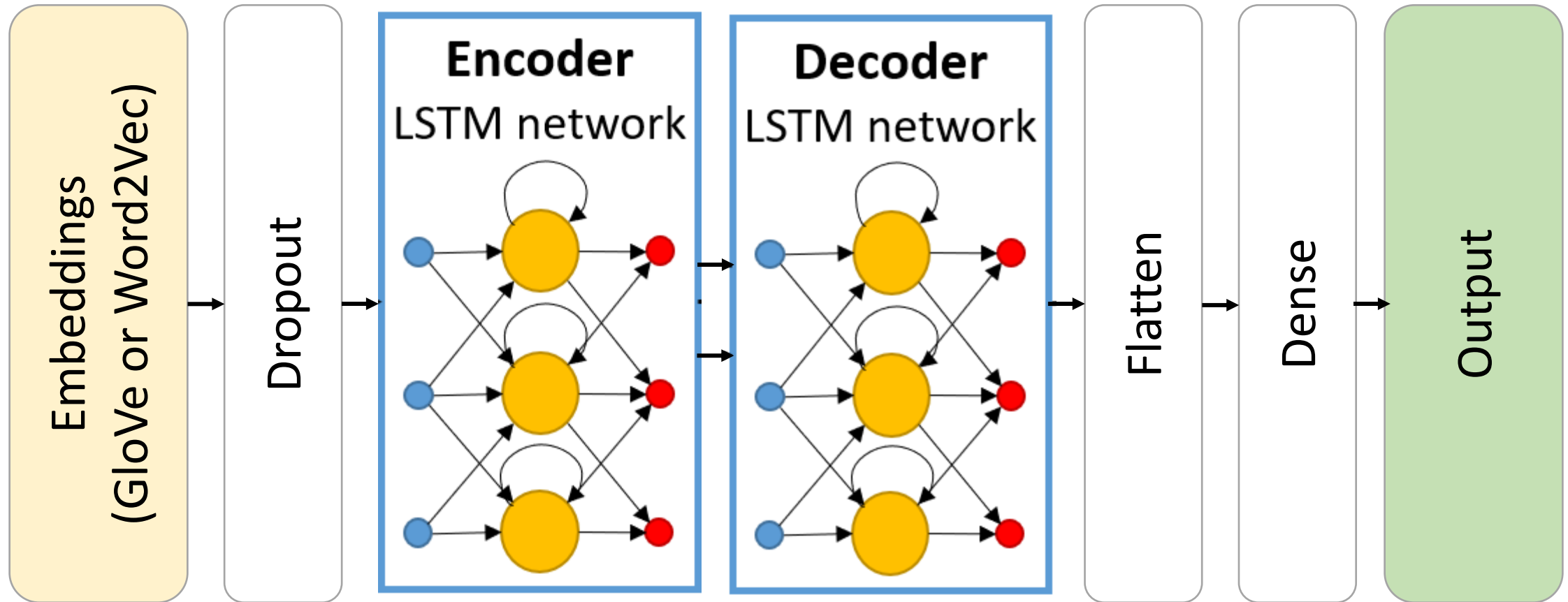


Bulut, O., & Yildirim-Erbasli, S. N. (In press). Automatic story and item generation for reading comprehension assessments with transformers. *International Journal of Assessment Tools in Education*.

# Çevrimiçi Karşılıklı Konuşma ile Değerlendirme



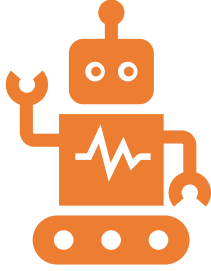
# NLP ile Otomatik Puanlama



Firoozi, T., Bulut, O., Abadi, A. N., Demmans Epp, C., & Barbosa, D. (In press). The effect of word vector representation on the accuracy of automated essay scoring systems using neural networks. *Journal of Applied Testing Technology*.



# Diğer NLP Uygulamaları



## Otomatik geribildirim oluşturma

Bernius et al. (2022). Machine learning based feedback on textual student answers in large courses.

<https://doi.org/10.1016/j.caeai.2022.100081>



## Öğrencilerden gelen geribildirim ve yorumların duygu (sentiment) açısından incelenmesi

Dalipi et al. (2021). Sentiment analysis of students' feedback in MOOCs: A systematic literature review.

<https://doi.org/10.3389/frai.2021.728708>



# Dinlediğiniz için teşekkür ederim.

