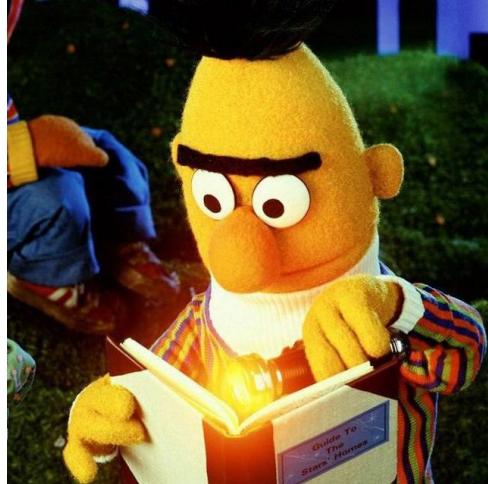


# Similar products model and its' applications

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# About me



- Bachelor's degree in applied mathematics and computer science
- Cloud storage → eCommerce
- Search @ Joom

# International group

## of e-commerce and fintech companies

### Joom Marketplace

platform for shopping  
from all over the world

### Onfy

pharmaceutical marketplace  
in Germany



### Joompay

fintech service for daily financial  
transactions in Europe

### Joom Logistics

business that provides logistics,  
technology and infrastructure services  
for crossborder eCommerce

### JoomPro

platform for crossborder wholesale trade

# Joom Search Team



- ML engineers;
- Software engineers;
- Analytics

# Similar Products Model



## Men Colorblock Lace-up Front Sneakers

SKU: sx2109154781296444 ★★★★★ (1851 Reviews)

**20,25€**

Color: White



Size

EUR39 EUR40 EUR41 EUR42 EUR43  
EUR44 EUR45 EUR46

Tips: One Size Smaller

[Size Guide](#)

Qty:  **1**

**ADD TO BAG**



Earn 21 SHEIN Points

**Free Shipping** ⓘ  
FREE STANDARD SHIPPING  
Estimated to be delivered on 27/06/2022 - 30/06/2022.

**Return Policy** ⓘ  
[Learn More](#)

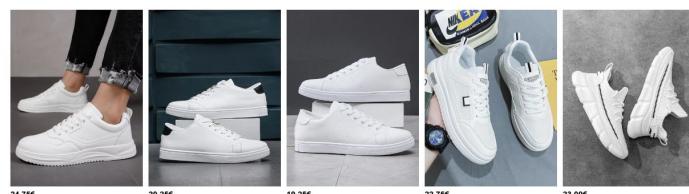
**Description**

+

**Size & Fit**

+

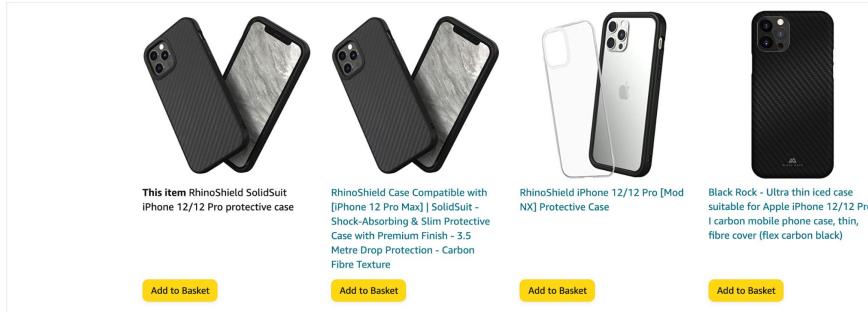
## Customers Also Viewed



# Similar Products Model

## Amazon

### Compare with similar items

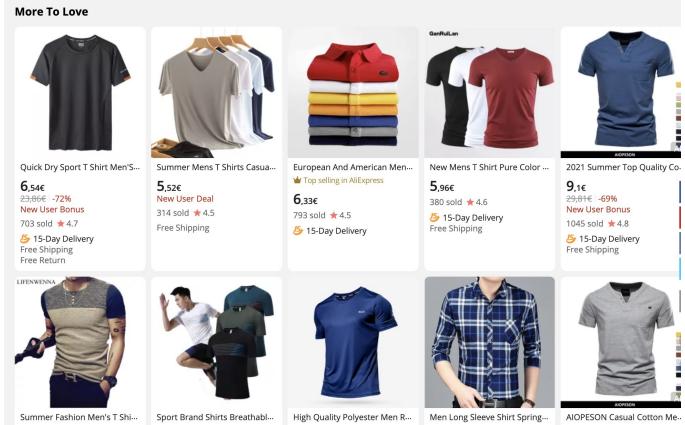


## SHEIN

### Customers Also Viewed



## Aliexpress



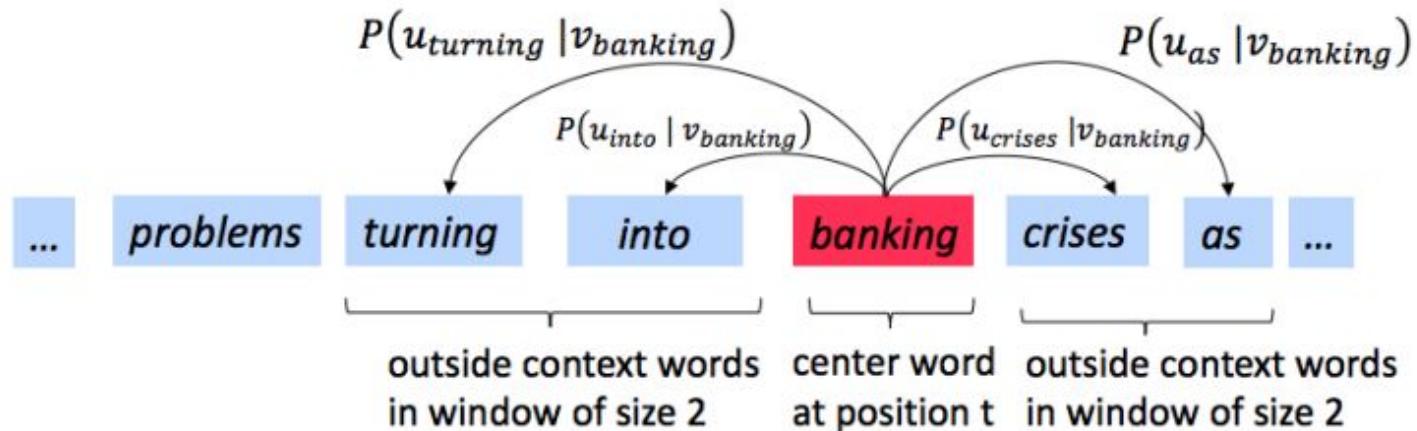
## Similar products: idea of using Word2Vec



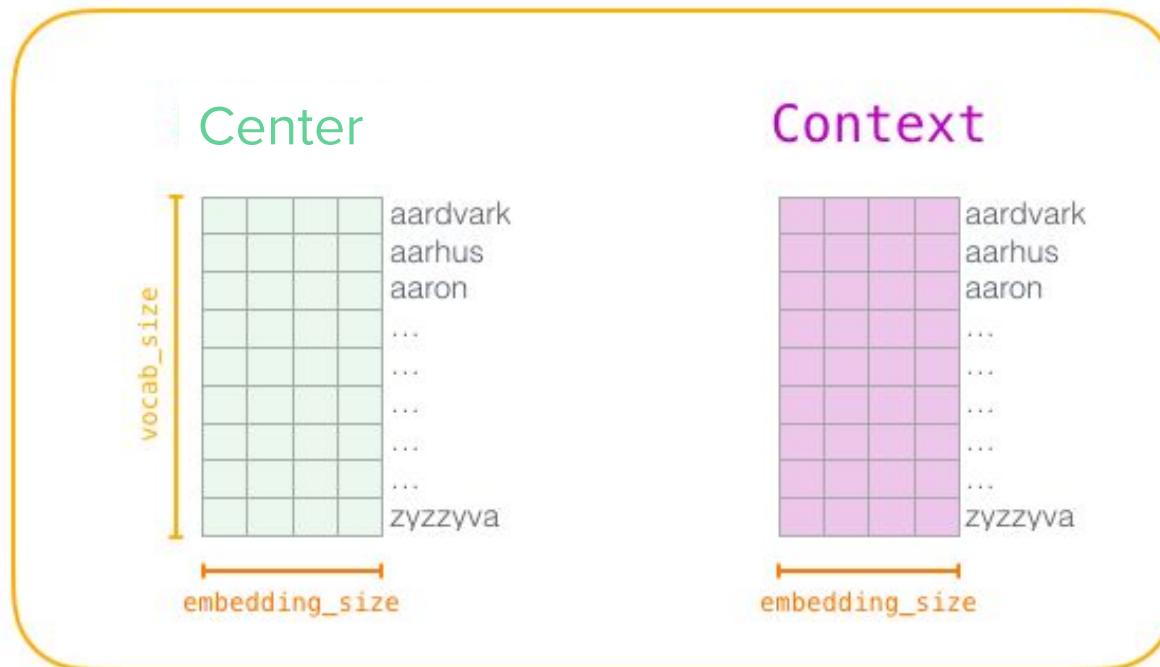
## Similar products: idea of using Word2Vec



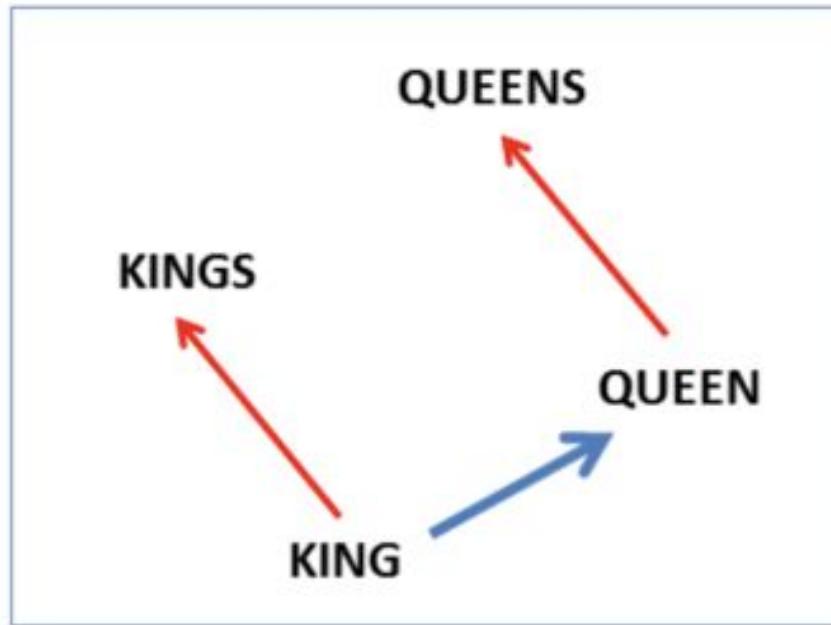
# Word2Vec: recap



# Center embedding and context embedding



# Interpretation of embeddings

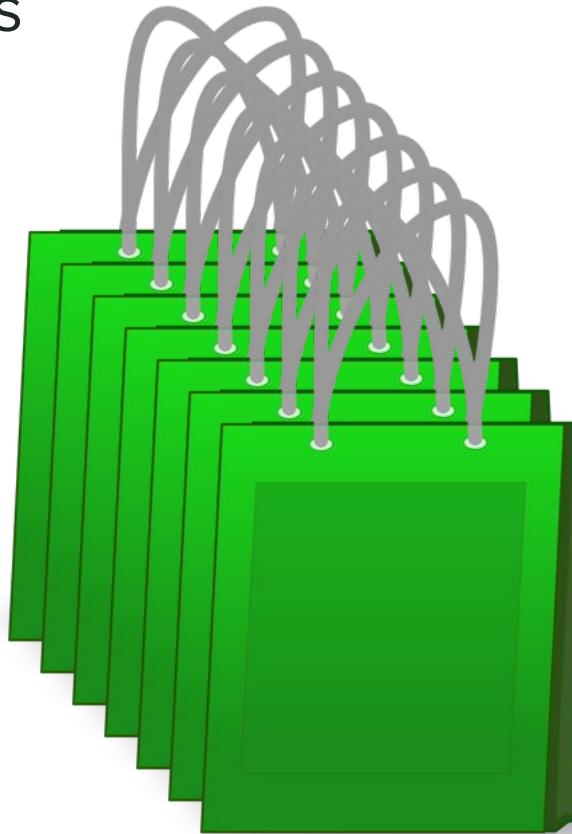


$$V(\text{KINGS}) - V(\text{KING}) \approx V(\text{QUEENS}) - V(\text{QUEEN})$$

Issue: new products



Issue: new products



# Image embeddings



Query Image



Similar Images

# Customer experience

JOOM

iphone cases

Search

Notifications

Sign in

My orders

Shopping cart

All categories

Users' reviews

Women's Clothing & Accessories

Footwear

Health & Beauty

Men's Clothing & Accessories

Home & Kitchen

Electronics

Baby & Kids

Automobiles & Motorcycles

Luggage & Bags

Hobby, Sport, Traveling

Watches

Pet products

Jewelry & Bijouterie

Industry & Business

Home / Catalog

Electronics

Luggage & Bags

Sort By default

Price Any

Color All

Material All

Brand All

Seller's country All

Fast delivery

Phone model All

Features All



€5

★★★★★

Luxury Liquid Silicone Case For iPhone X XR XS Max 5 5S 6 6S 7 8 Plus 11 12...

€5

★★★★★

Luxury Cute Bear Phone Case For iPhone 13 12 11 Pro Max 13Pro 12Pro...

€4

★★★★★

Fashion Phone Case For iPhone 12 11 Pro X XR XS MAX 7 8 6 Plus Simple...

€3

★★★★★

For iPhone 13 12 11 Pro Max 13 12 Mini 7 8 XR XS SE 2020 Liquid Silicone Cove...

# Customer experience

All categories  Users' reviews Women's Clothing & Accessories Footwear Health & Beauty Men's Clothing & Accessories

Baby & Kids Automobiles & Motorcycles Luggage & Bags Hobby, Sport, Traveling Watches Pet products Jewelry & B...

Home / Catalog / Electronics / Phones, Smartphones & Communication / Phone Bags & Cases / Other Phone Cases / Phone Bumpers



**For iPhone 13 12 11 Pro Max 2020 Liquid Silicone Cover Camera Protect**

4.5 15,000+ reviews  Share

€3   
not including VAT 0,57 €

Add to cart 

Free shipping, 16 – 29 days

Colour: Black



Size iPhone X XS

Reviews 15,000  My cart 1 product 

For iPhone 13 12 11 Pro Max 13 12 Mini 7 8 XR XS SE 2020...  
Black, iPhone X XS



# Customer experience

## Similar products



€5  
★★★★★

Luxury Metal TPU Ring Case for iPhone Soft Cover for Iphone 13 ...



€3  
★★★★★

Ultra Thin Soft Silicone Back Protective Case Cover For Iphon...



€3  
★★★★★

Shockproof Card Slot Silicone Soft Case Cover For Iphone 13 12 Pro...



€4  
★★★★★

Luxury Silicone Shockproof Matte Phone Case For iPhone 11 12 Pro...



€21

Fashion 2 in 1 For Apple AirPods 1 with Charging Box For iPhone 11...



€3  
★★★★★

Shockproof Matte Clear Hard Phone Case For iPhone 13 Mini 1...



€3  
★★★★★

Glitter Shockproof Transparent Smooth Soft TPU Back Cover For...



€3  
★★★★★

Camera Protection Phone Case For iPhone 13 11 12 Pro Max Mini...



€4  
★★★★★

Watercolor Painting Phone Case For iPhone 13 11 12 Pro Max Xr...



€3  
★★★★★

Luxury Square Liquid Silicone Soft Case For iPhone 13 Pro Max 13...



€3  
★★★★★

Case For iPhone 13 4S 5 5S 5C 6S X XR XS Max 7 8 Plus 11 Pro...



€4  
★★★★★

For iPhone 13 12 Pro Max 12 11 XR XS 8 7 Astronaut Lanyard Silicon...

# Customer experience

JOOM

Search

Notifications

Sign in

My orders

Shopping cart

All categories

Users' reviews

Women's Clothing & Accessories

Footwear

Health & Beauty

Men's Clothing & Accessories

Home & Kitchen

Baby & Kids

Automobiles & Motorcycles

Luggage & Bags

Hobby, Sport, Traveling

Watches

Pet products

Jewelry & Bijouterie

Industry & Equipment

Home / Catalog / Electronics / Phones, Smartphones & Communication / Phone Bags & Cases / Other Phone Cases / Phone Bumpers



+11

2 of 16

Reviews 1,500

4.8

All 149

26

1,000+

143

63

Shockproof Card Slot Silicone Soft Case Cover For iPhone 13...

Light blue, iPhone X

€3

not including VAT 0,57 €

Add to cart

Buy now

Free shipping, 16 – 29 days

Colour: Light blue

Size iPhone X

iPhone SE 2020

iPhone 7

iPhone 7 Plus

iPhone 8

iPhone 8 Plus

iPhone X

iPhone XR

iPhone 11

iPhone 11 Pro

iPhone 11 Pro Max

iPhone 12

iPhone 12 Mini

iPhone 12 Pro

iPhone 12 Pro MAX

iPhone 13

My cart 2 products

Shockproof Card Slot Silicone Soft Case Cover For iPhone 13...

Light blue, iPhone X

€3

For iPhone 13 12 11 Pro Max 13 12 Mini 7 8 XR XS SE 2020...

Black, iPhone X XS

Go to cart

How to build  
the Similar Products Model  
if we lack of  
user activity history?

# How to build the Similar Products Model if we lack of user activity history?

- ~~word2vec approach~~

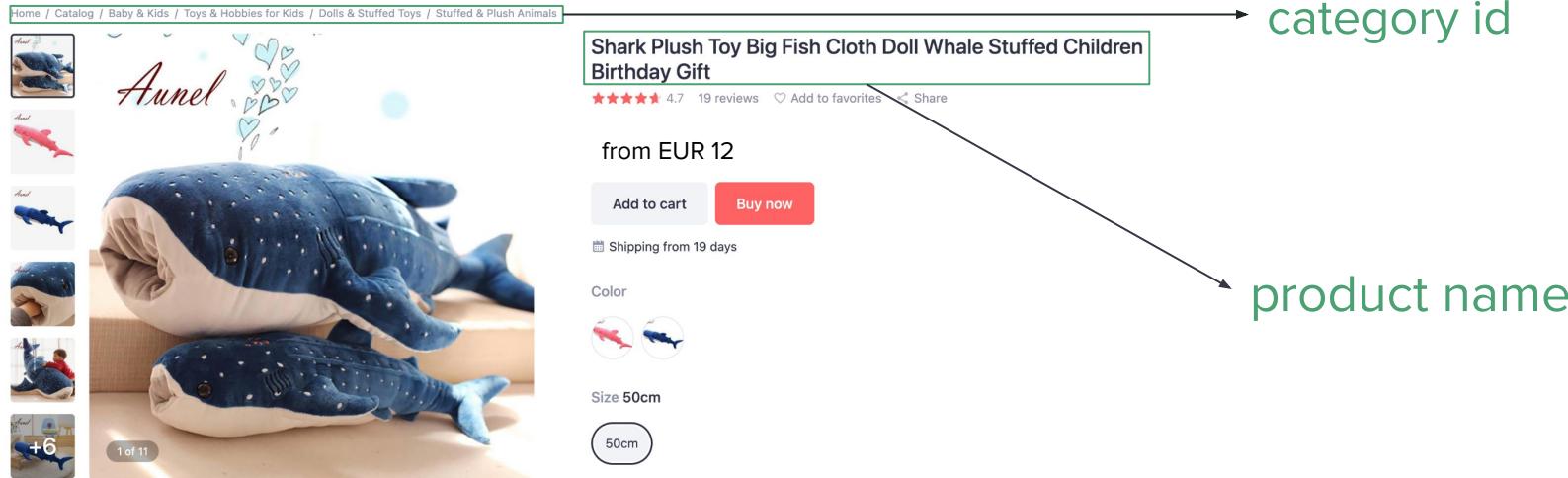
# How to build the Similar Products Model if we lack of user activity history?

- ~~word2vec approach~~
- ~~image-based embeddings~~

# How to build the Similar Products Model if we lack of user activity history?

- ~~word2vec approach~~
- ~~image-based embeddings~~
- to use content information for word2vec approach and to train the model on joom users' history ✓

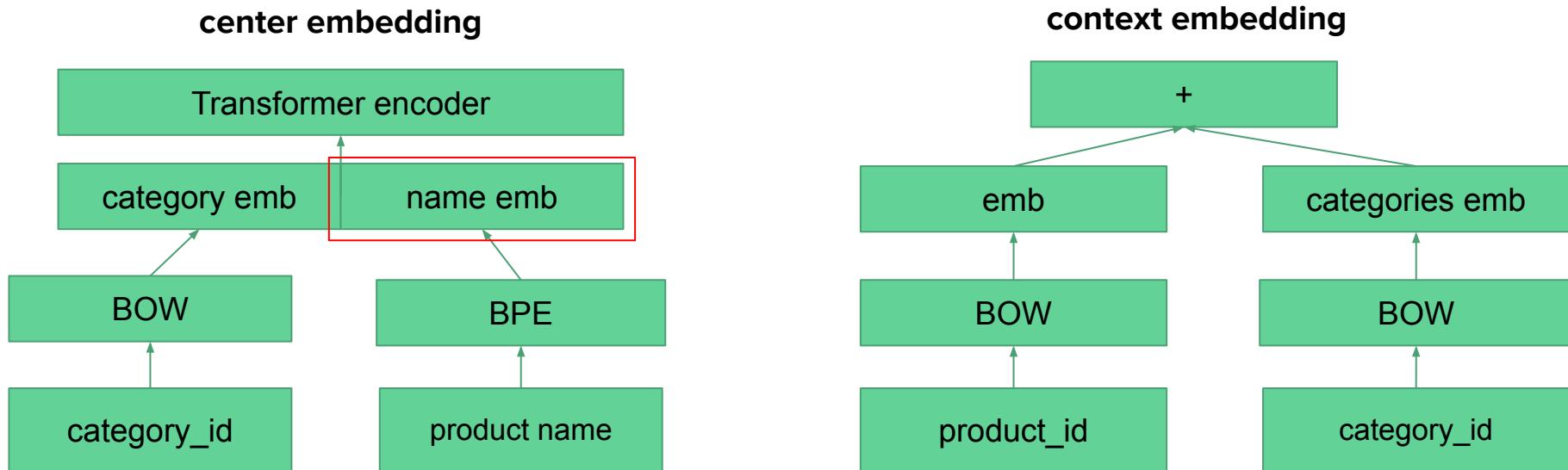
# Content Similar Products Model: product features



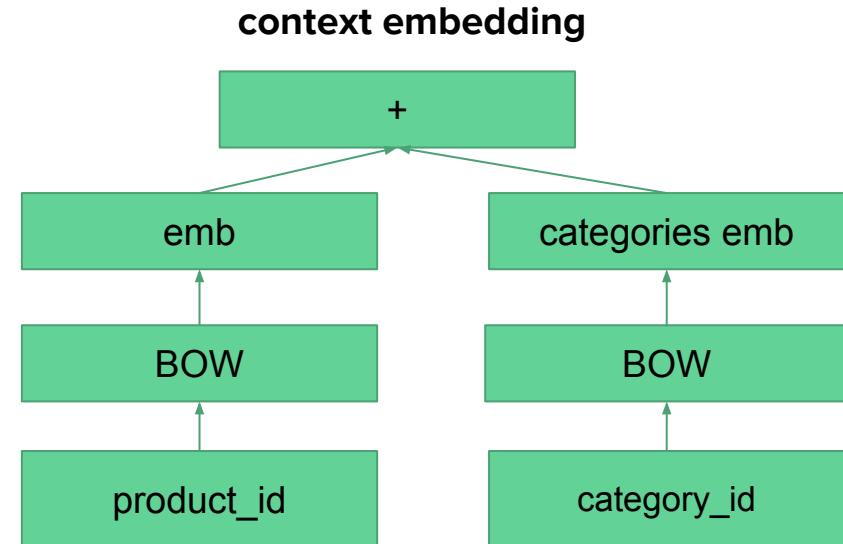
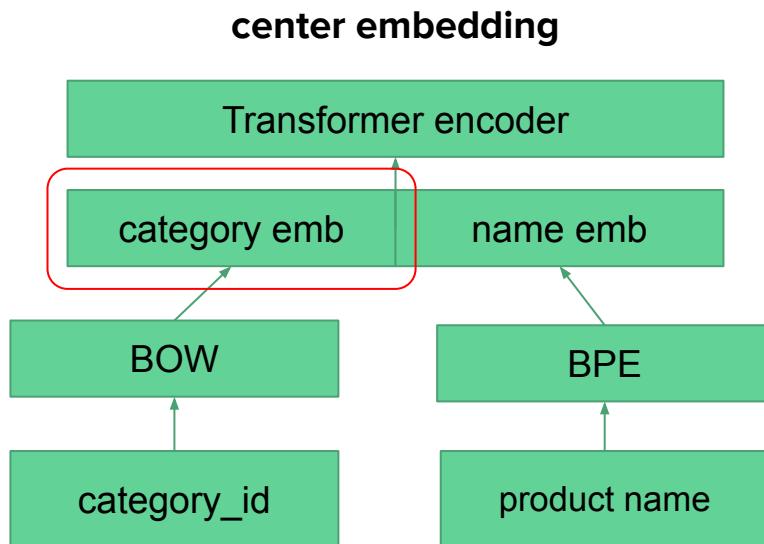
# Optimus Prime!!!



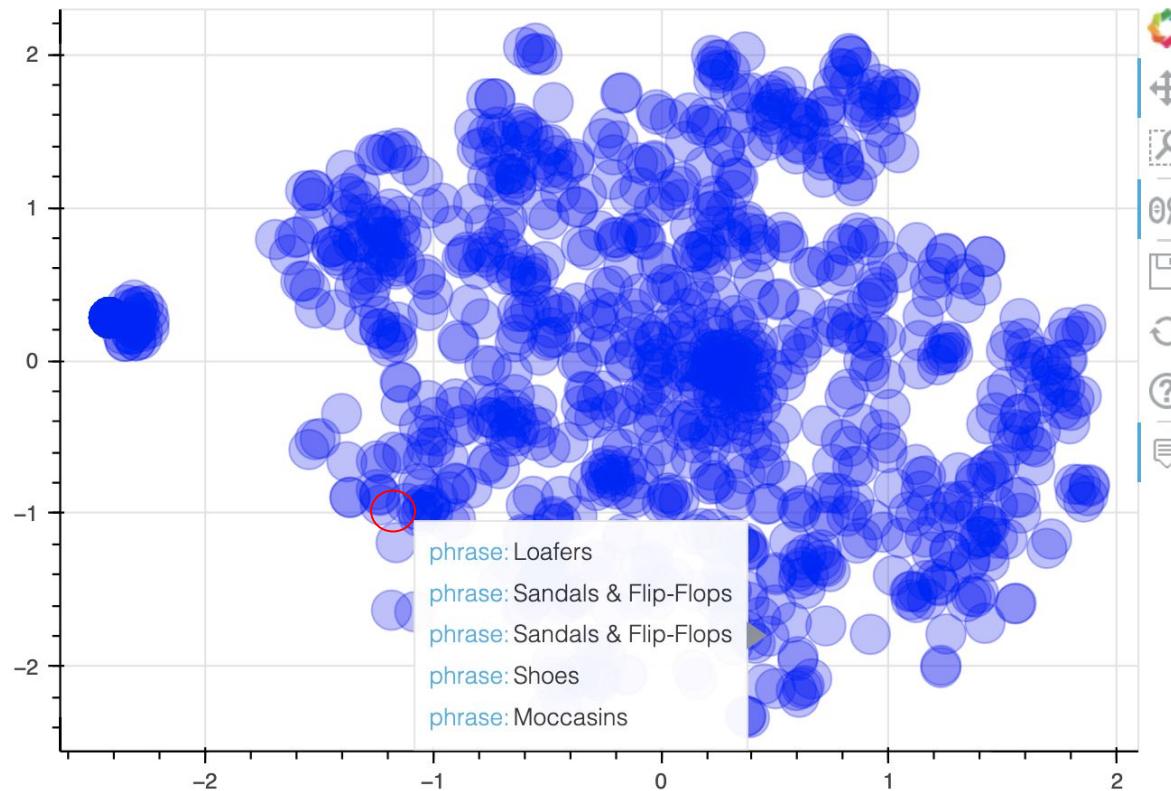
# Content Similar Products Model: architecture



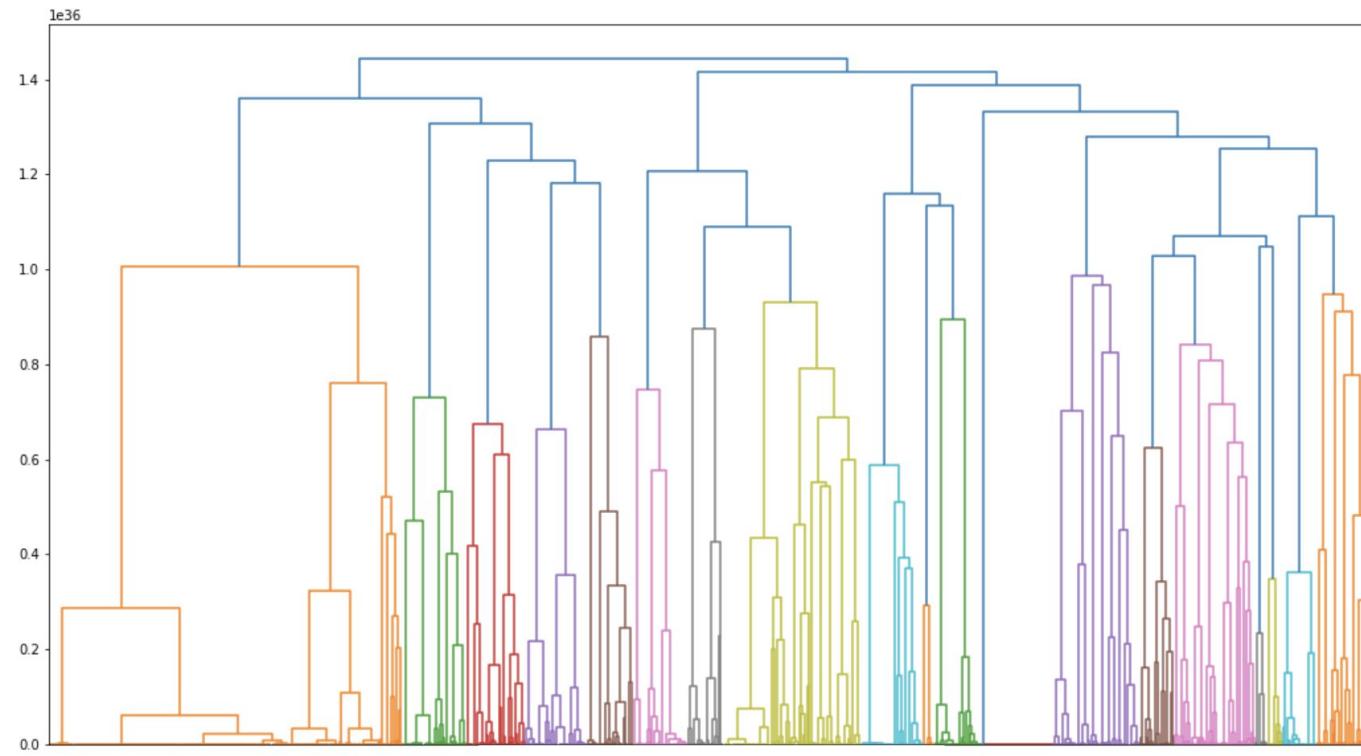
# Content Similar Products Model: applications



# Category embeddings: 2D representation with TSNE



# Clusterization

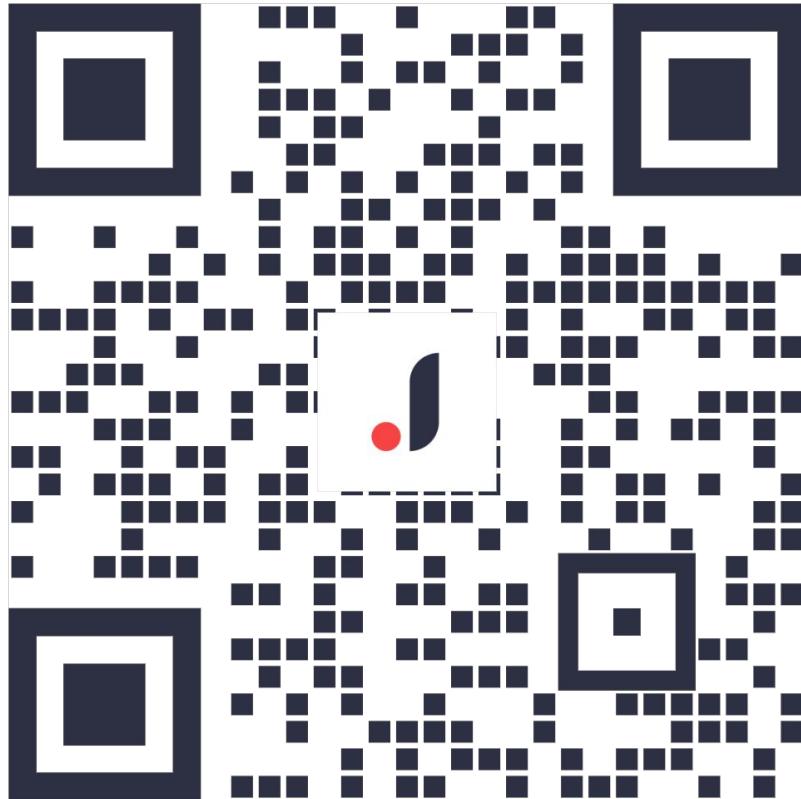


# Conclusion

- Similar Products Model for B2C
- Content Similar Products Model for B2B
- Why it's useful in e-commerce platforms



**Aigul Gazimova**  
*jesaig@joom.com*



BTW, we are hiring!