

Torob Image Tagging System

Gashtal Group

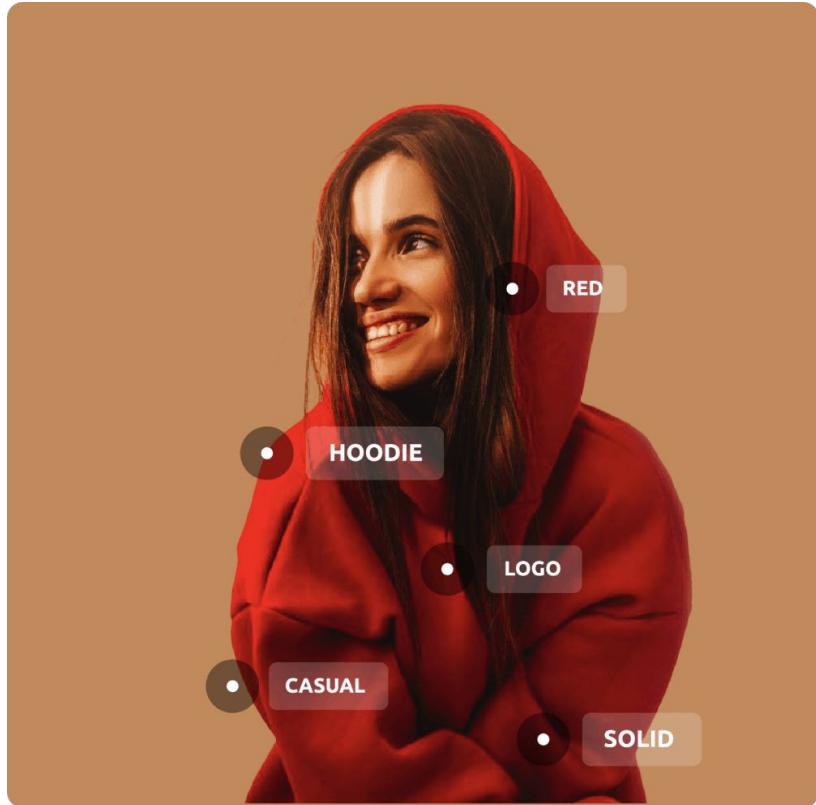
Final Presentation

Rahnema College ML

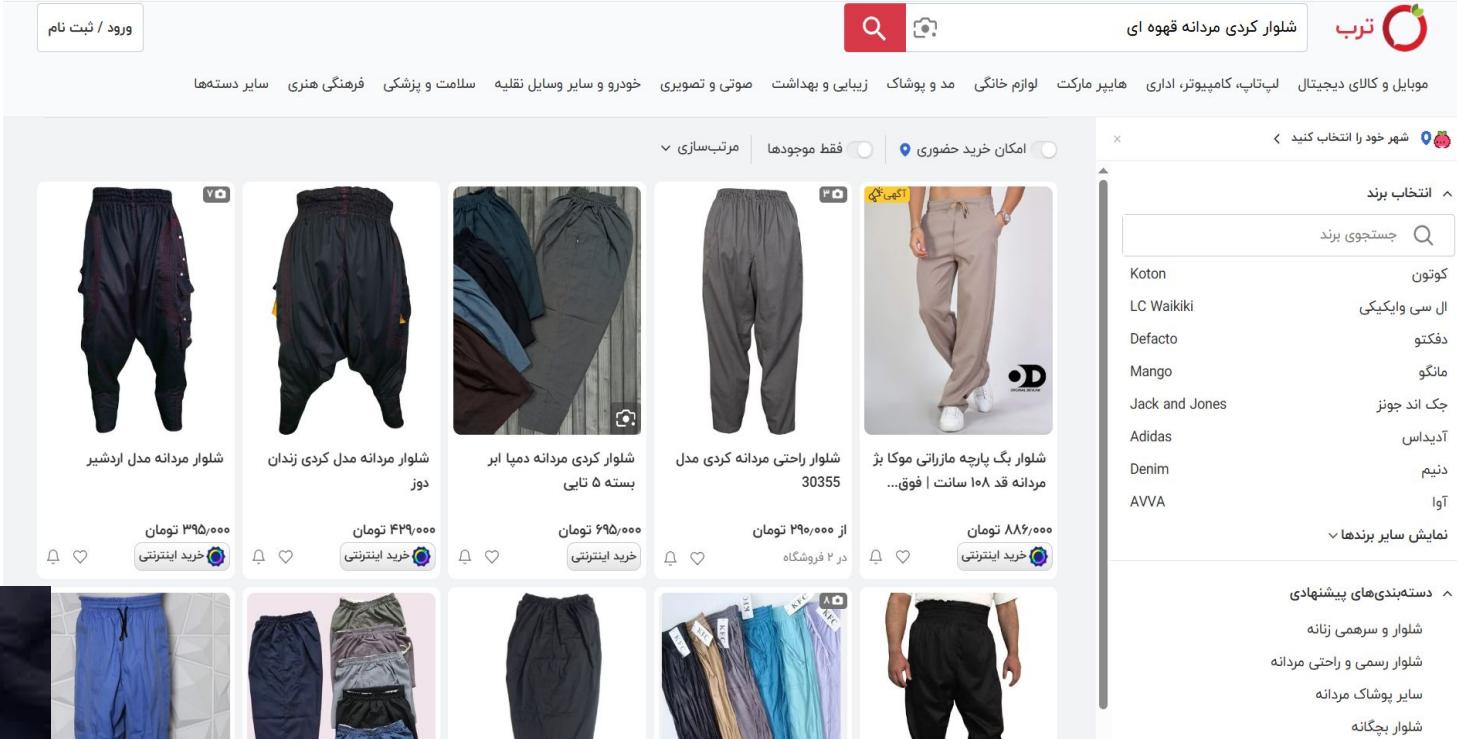
Bootcamp

Fall 1404

Why Automatic Image Tagging?



I just can't find what I really want



600 new products/season



Slow onboarding time:
More than a week



**High time and effort
with manual tagging:**

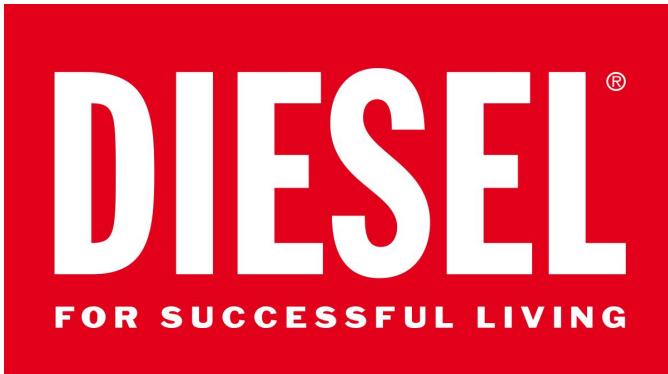
It took two people to tag the images and a week to process the catalog each season.



Inconsistency in catalog:

The tags & attributes coming in for products from different sources were not standardized.

**What a wonderful
result!**



Data Analysis

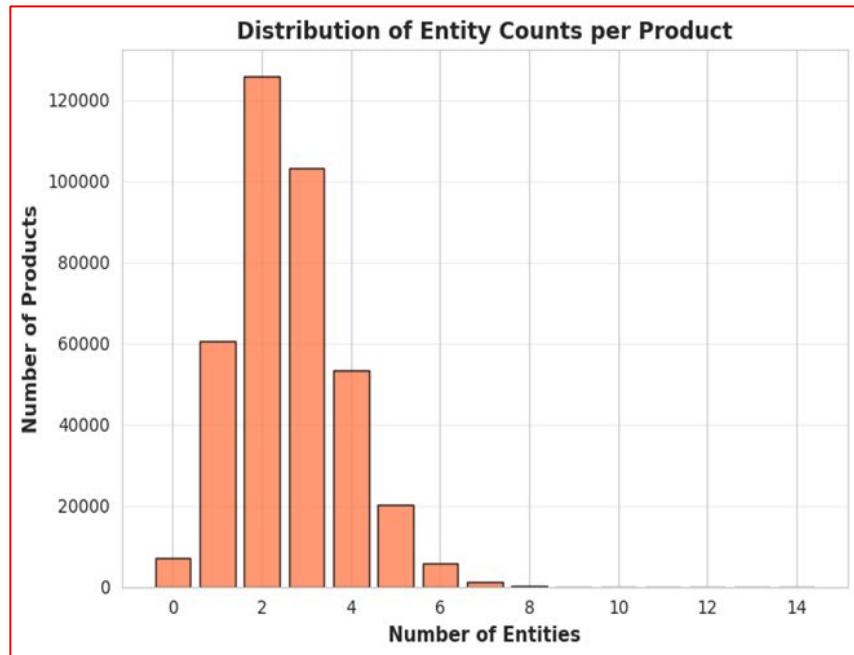


```
{  
    "title": "شلوار کتان مام کودک",  
    "group": "کودک",  
    "product": "شلوار",  
    "entities": [  
        {  
            "name": "جنس",  
            "values": [  
                "کتان"  
            ]  
        },  
        {  
            "name": "نوع فیت",  
            "values": [  
                "مام"  
            ]  
        }  
    ],  
    "random_key": "856ea7be-e250-4fac-96ad-b21074d0e6e7",  
    "image_url": "https://image.torob.com/base/images/HU/QH/HUQHQ_0mub_imQSu.jpg"  
},
```

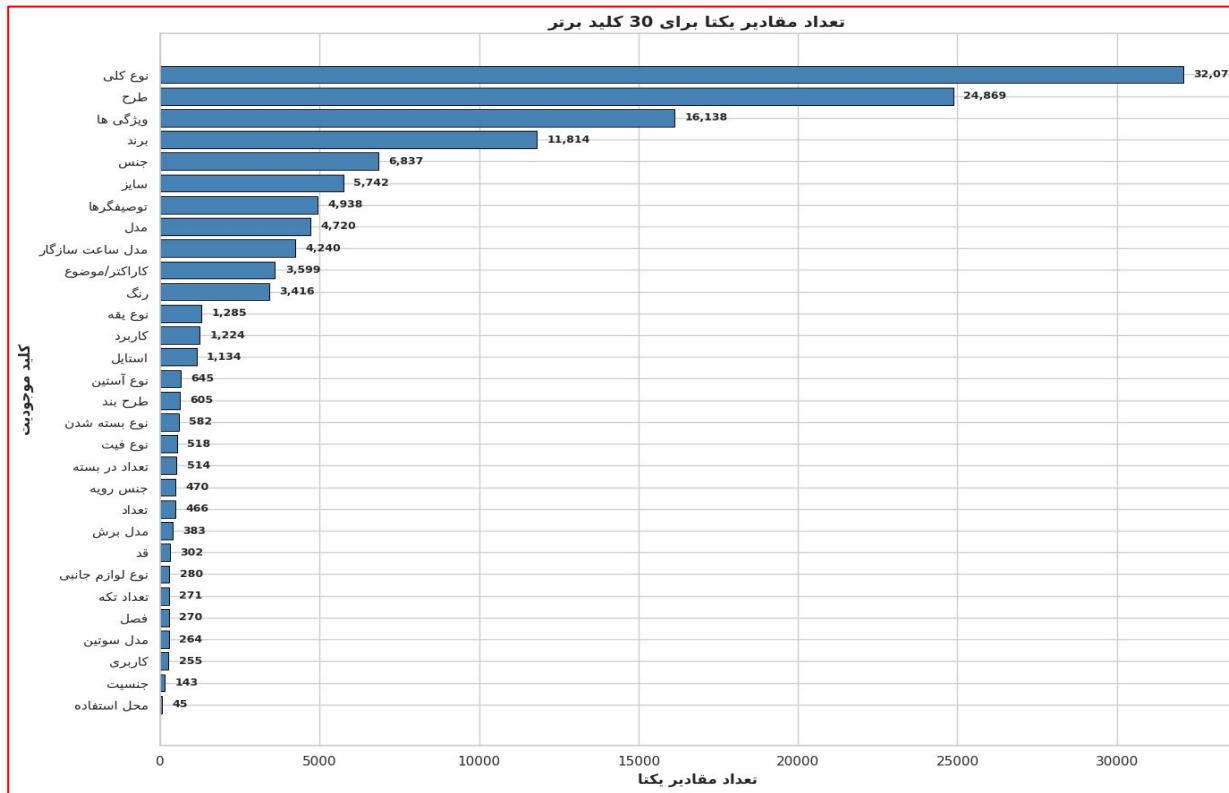
Entity Sparsity

Entity Distribution

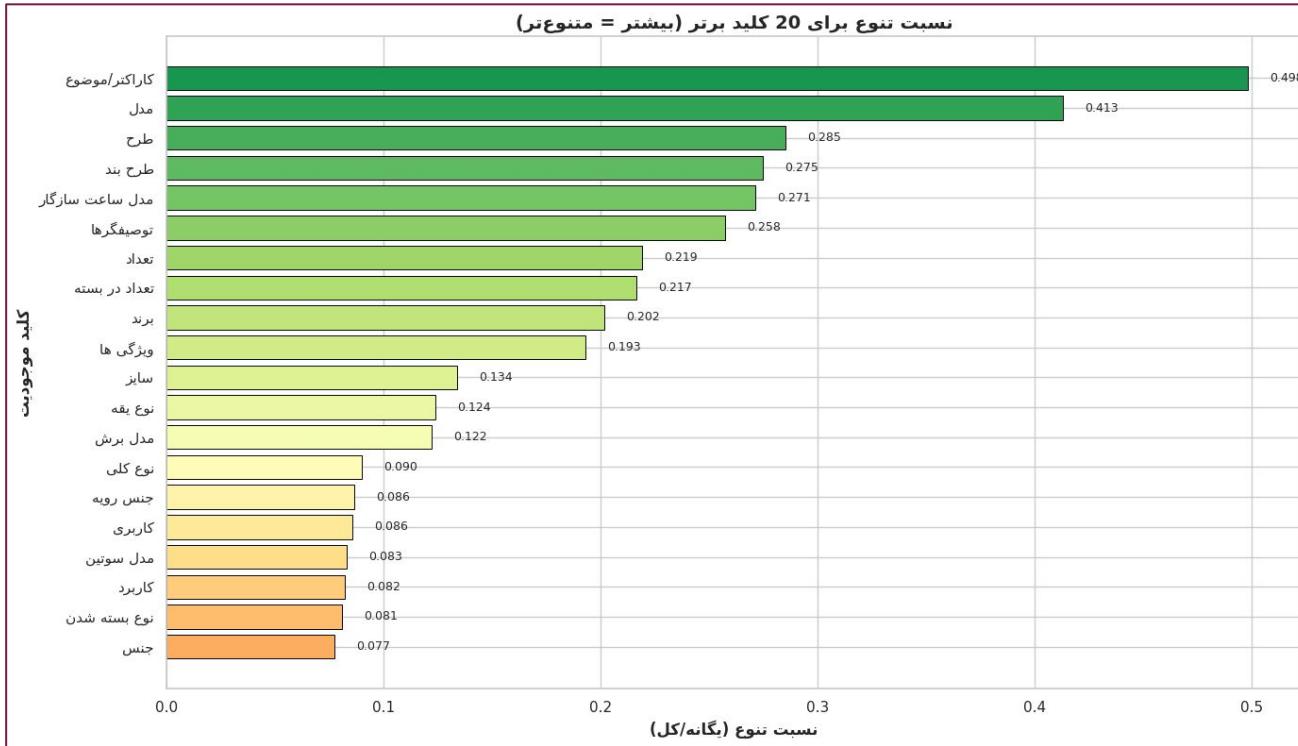
80% of items have ≤ 3 entities



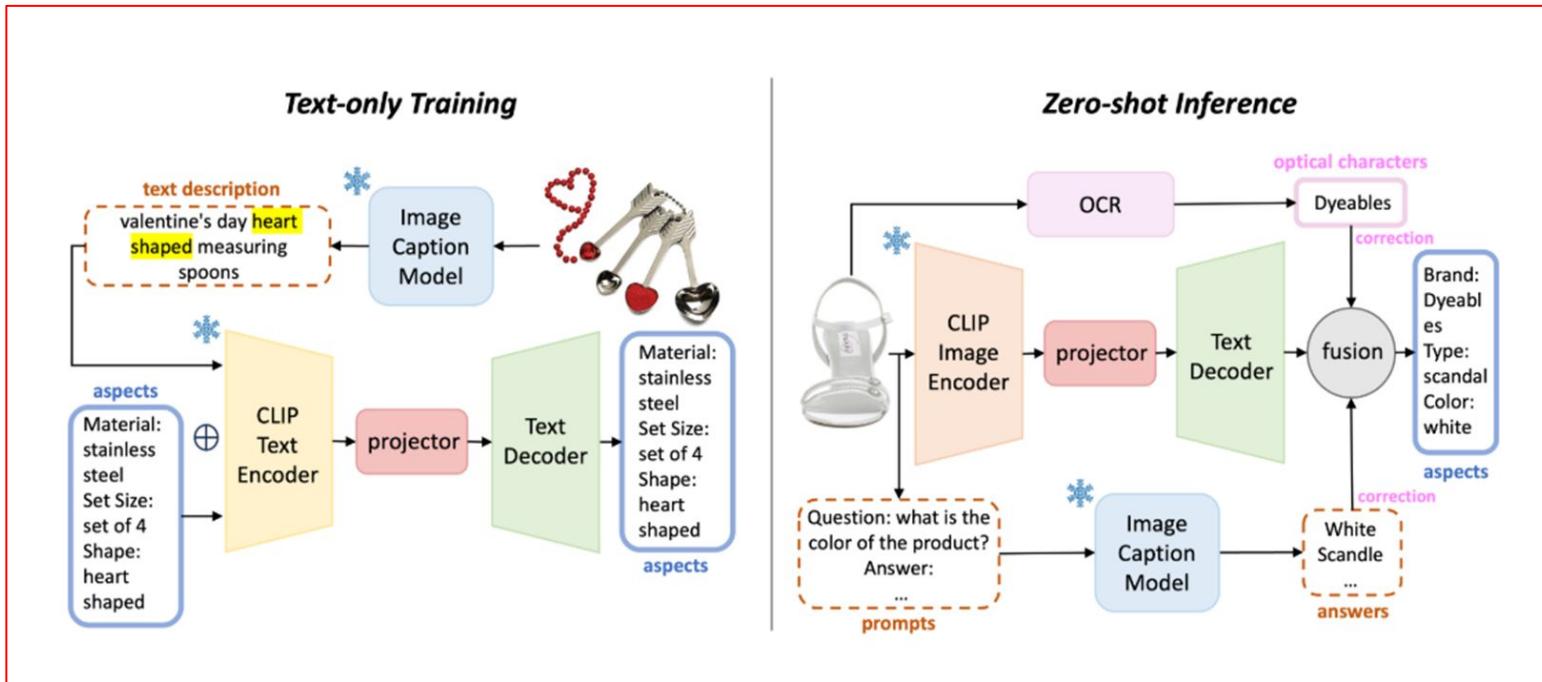
Distribution of Entities



Distribution of Entities



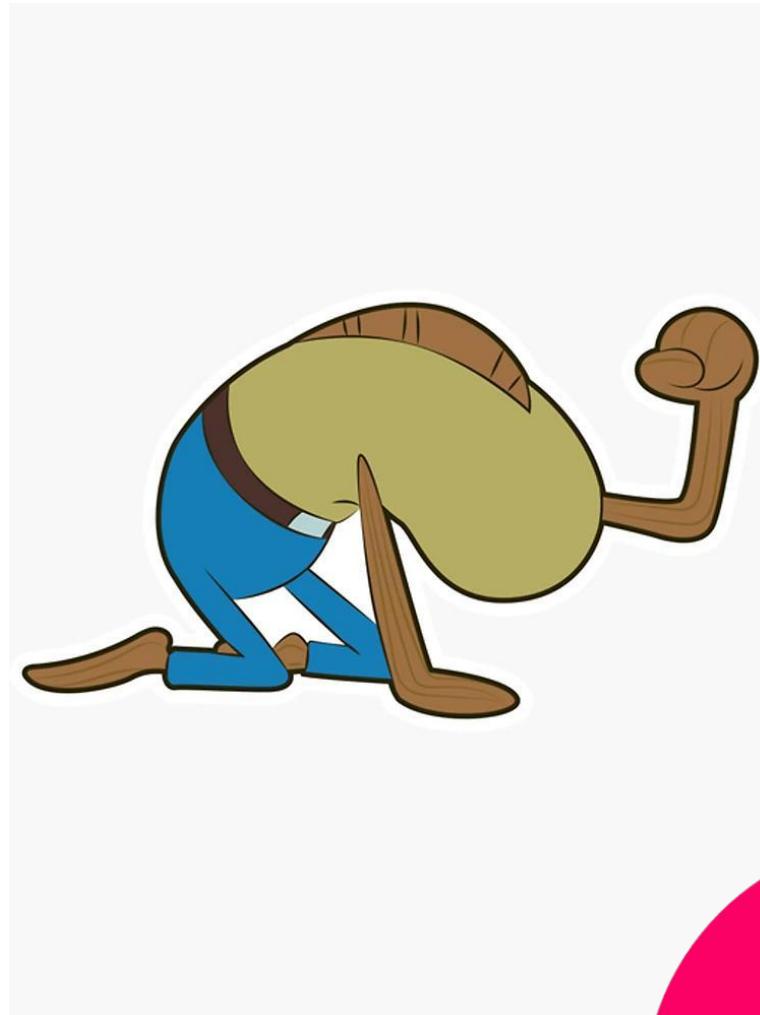
What are the similar solutions?



What are the similar solutions?

stopping strategy when selecting the model for testing. Our proposed model ViOC-AG achieves its best performance with the following setup. The learning rate is 0.0005. The batch size is 512. The cosine similarity threshold τ_d is 0.95, the OCR token confidence τ_c is 0.5. The experiments are conducted on eight Nvidia A100 GPUs with 80G GPU memory.

Messy Data



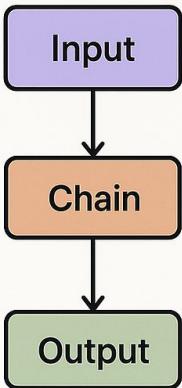
simple VLM(qwen/qwen2.5-vl-32b-instruct)



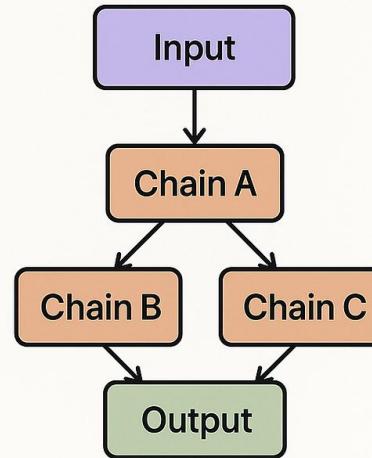
ITag	Value
Brand	Calvin Klein
Product Category	Apparel
Product Types	T-Shirt, Jeans
Style	Casual
Color	T-Shirt: White; Jeans: Light blue
Material	T-Shirt: Likely cotton; Jeans: Denim
Gender	Men's
Occasion	Everyday wear
Season	All-season

LangChain & LangGraph

LangChain



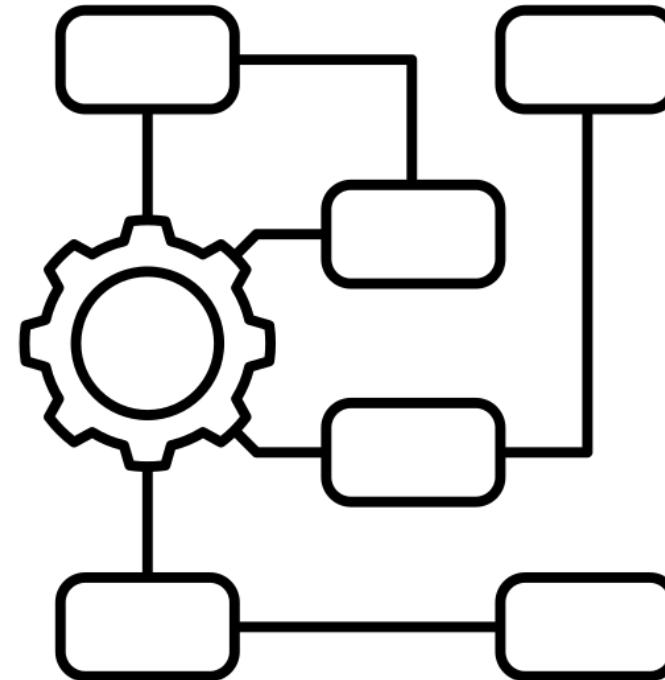
LangGraph



I HAVE AN IDEA



Model Structures



Our Idea



Light

Welcome to Gashtal Image Tagging

Please select your model first

⚡ Fast (Fastest processing)



نوع محصول

شلوار کشید

شلوار

رنگ

قهوه‌ای

جنس

پلی استر

الکو

ساده



Image URL:

<https://www.isfahanparcheh.ir/wp-content/uploads/>

Or upload an image file:



Click to upload

🚀 Generate Tags



رنگ
قهوه‌ای

نوع محصول
شلوار گشاد
شلوار

نوع آستین
آستین بلند

جنس
پلی استر

فیت
گشاد

ویژگی‌های
خاص
دکمه
جیب

جنسيت
مردانه



Welcome to Gashtal Image Tagging

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نوع محصول

پیراهن

رنگ

سرمهایی

طرح

ساده

نوع یقه

بقة ایستاده



Image URL:

<https://newsmedia.tasnimnews.com/Tasnim/Upload>

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رنگ
سرمه ای

نوع محصول
پیراهن

نوع یقه
یقه ایستاده

طرح
ساده

Light

Welcome to Gashtal Image Tagging

Please select your model first

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product_type

پیراهن

color

سیاه

مشکی

pattern

مساره

sleeve_type

استین بلند



Image URL:

<https://jostojogar.com/api/post/5348/image/12394/t>

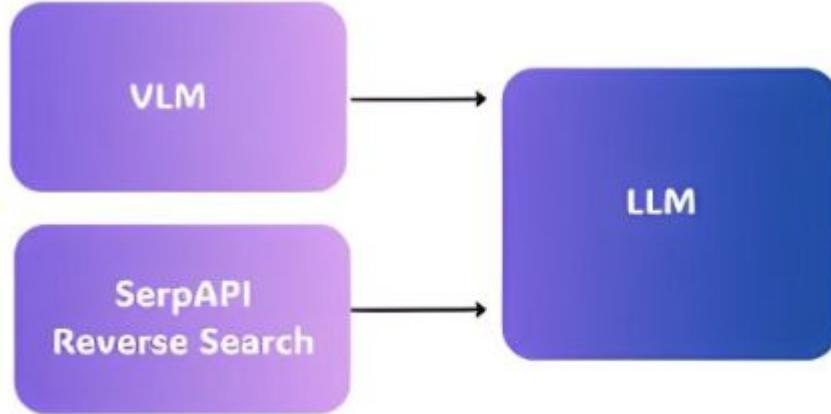
Or upload an image file:



Click to upload

⚡ Generate Tags

Our Second Idea





Light

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Please select your model first

🚀 Advanced Reasoning (Best quality with SerpAPI)



نوع محصول

لباس سنتی مردانه لباس کردی مردانه

رنگ

فیروزه

طرح

ساده

ویژگی‌های ظاهری

استین بلند دکمه‌دار دارای جیب

رەستمە کالج
با حەسەر قەقەزەلە بىگەزىدا

Image URL:

<https://www.isfahanparcheh.ir/wp-content/uploads/>

Or upload an image file:



Click to upload or drag & drop

🚀 Generate Tags



رنگ
قهوهه‌ای

نوع محصول
لباس کردی
مردانه

سبک/استایل
سننتی
کردی

جنس
ترکیب نخ‌پنبه

ویژگی‌های
ظاهری
آستین بلند
یقه دار
دکمه دار

طرح
ساده

ویژگی‌های
ویژه
جیب دار
دارای دکمه

Light

Welcome to Gashtal Image Tagging

Please select your model first

🚀 Advanced Reasoning (Best quality with SerpAPI)



نوع محصول

بیراهن

زنگ

سرمهای

ملحق

ساده

نوع استین

استین بلند

Image URL:

<https://newsmedia.tasnimnews.com/Tasnim/Upload>

🚀 Generate Tags



رنگ
سرمه ای

نوع محصول
پیراهن

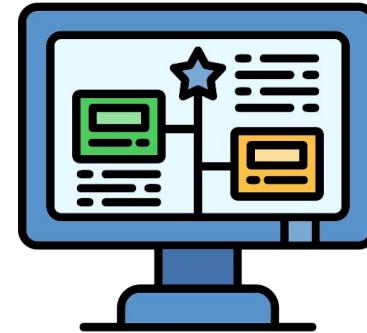
نوع یقه
یقه آخوندی
یقه دیپلمات

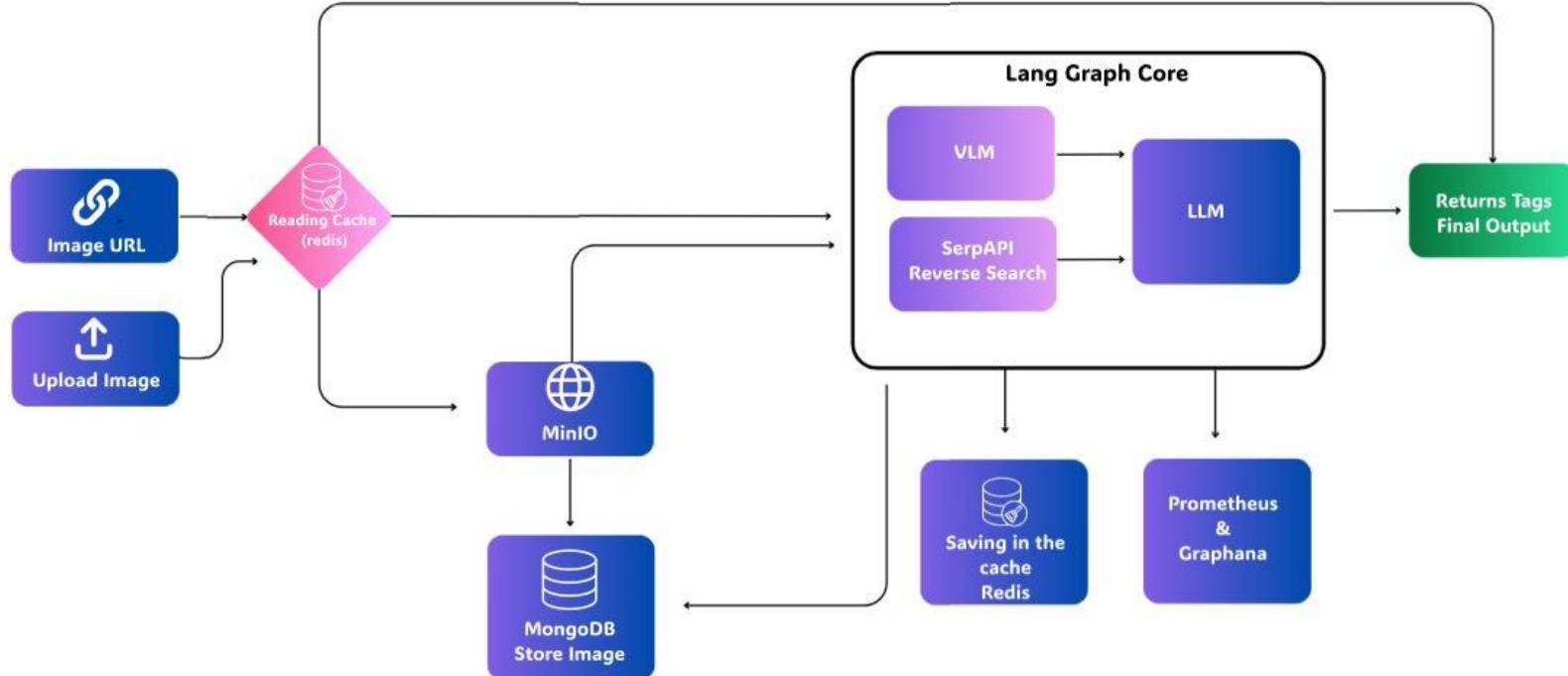
طرح
ساده

نوع آستین
آستین بلند

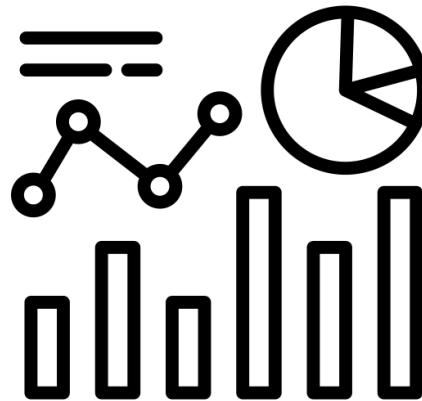


Software Architecture





Model Evaluation



Vision model Evaluation

VISION_MODEL	TRANSLATE_MODEL	F1	Precision	Recall	Semantic	ROUGE-1
claude-sonnet-4.5	gpt-4o-mini	0.1762	0.1371	0.2464	0.9221	0.3738
gemini-2.5-flash-lite	gpt-4o-mini	0.3019	0.2667	0.3478	0.8675	0.4629
gpt-5	gpt-4o-mini	0.1749	0.1404	0.2319	0.8282	0.3599
gpt-5-mini	gpt-4o-mini	0.1369	0.0928	0.2609	0.8557	0.2861
gpt-4o-mini	gpt-4o-mini	0.2273	0.2381	0.2174	0.7963	0.5129
qwen3-vl-235b-a22b-instruct	gpt-4o-mini	0.2683	0.2316	0.3188	0.7764	0.4139
qwen2.5-vl-32b-instruct	gpt-4o-mini	0.1639	0.1569	0.1715	0.6343	0.3641
gemma-3-27b-it	gpt-4o-mini	0.3129	0.2949	0.3333	0.8153	0.4636

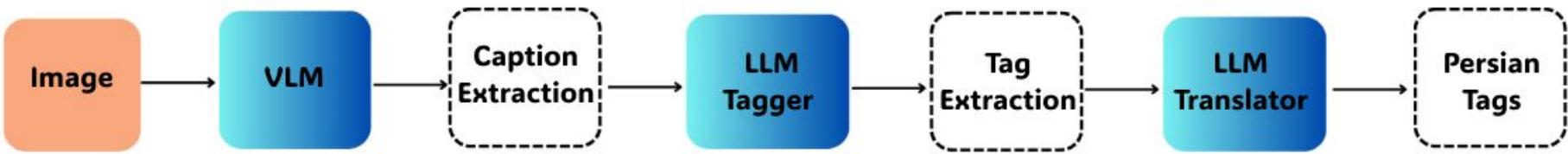
Translation model Evaluation

VISION_MODEL	TRANSLATE_MODEL	F1	Precision	Recall	Semantic	ROUGE-1
gpt-5-mini	gpt-4o-mini	0.1369	0.0928	0.2609	0.8557	0.2861
gpt-5-mini	deepseek-chat-v3-0324	0.1451	0.1129	0.2029	0.5508	0.1922
gpt-5-mini	deepseek-r1t2-chimera	0.1281	0.097	0.1884	0.6846	0.2085
gpt-5-mini	deepseek-chat-v3.1	0.1045	0.0704	0.2029	0.8746	0.2333

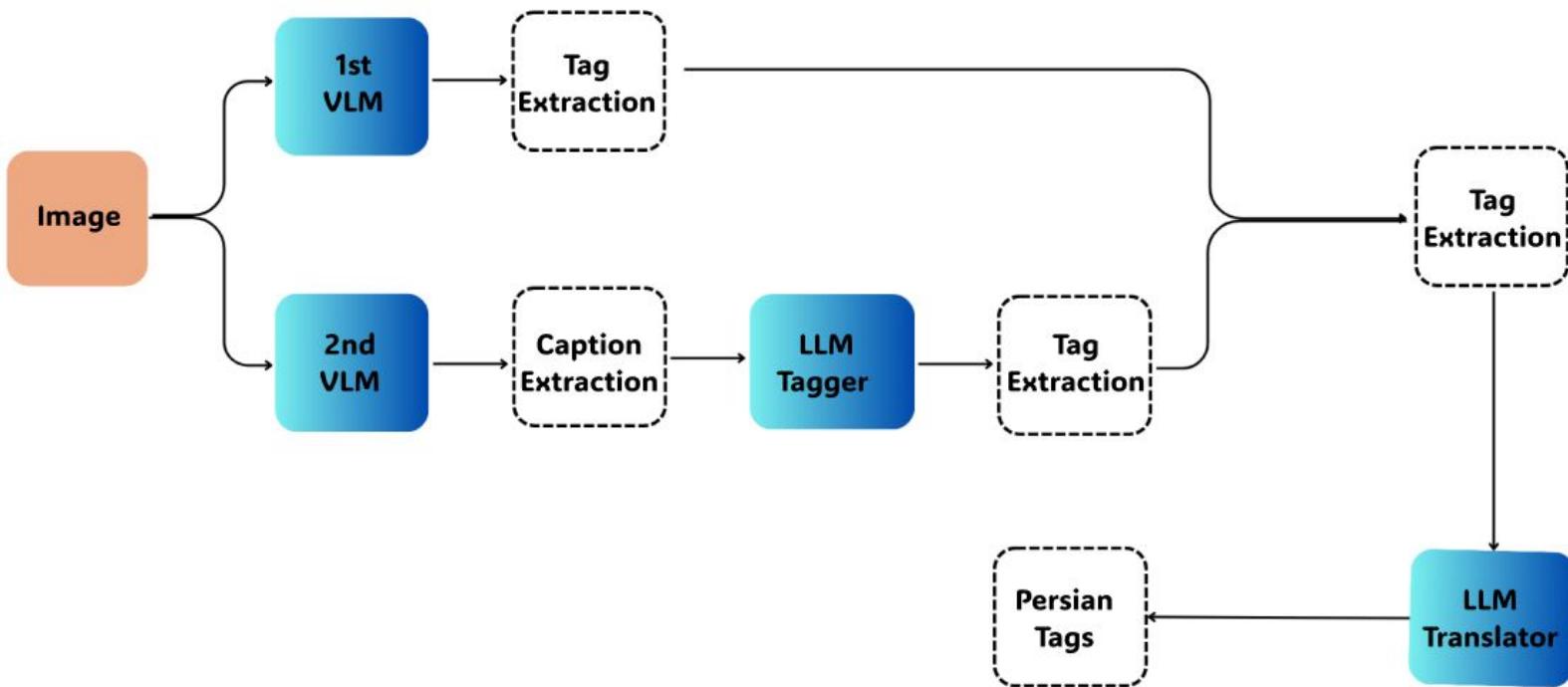
ground-zero scenario



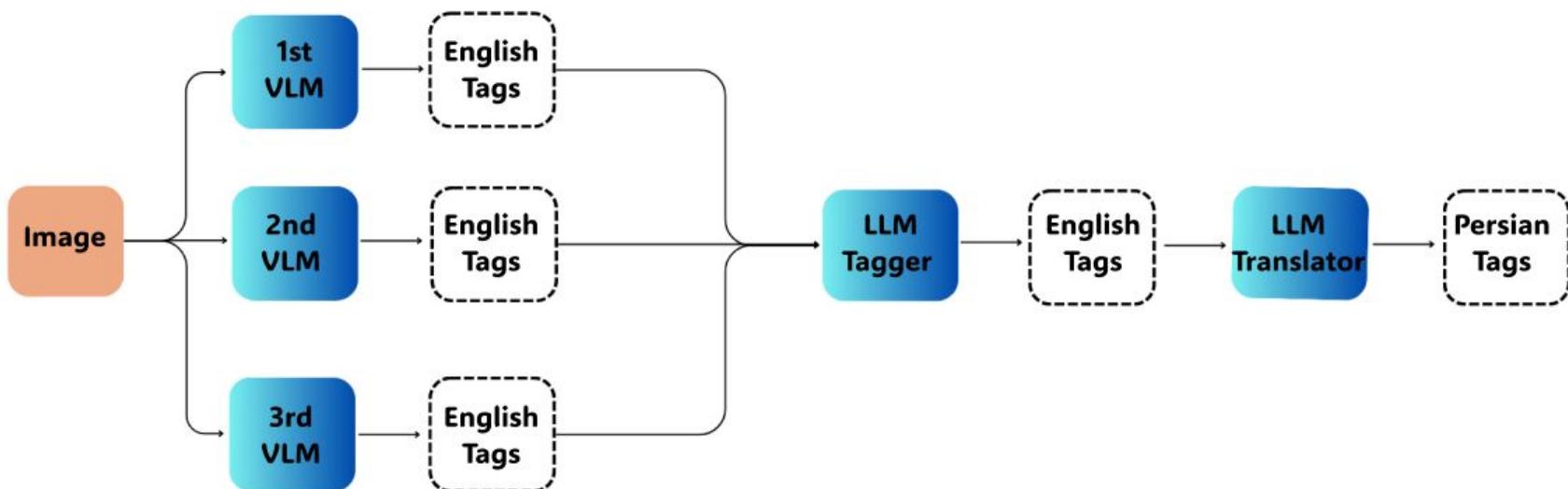
1st scenario



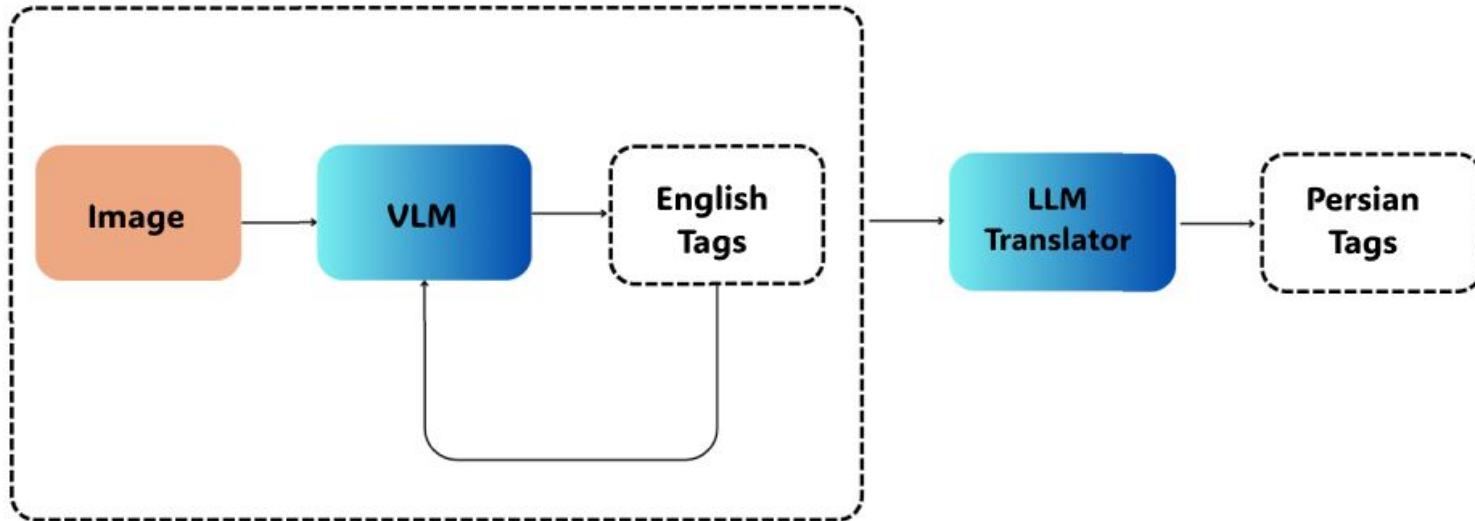
2nd scenario



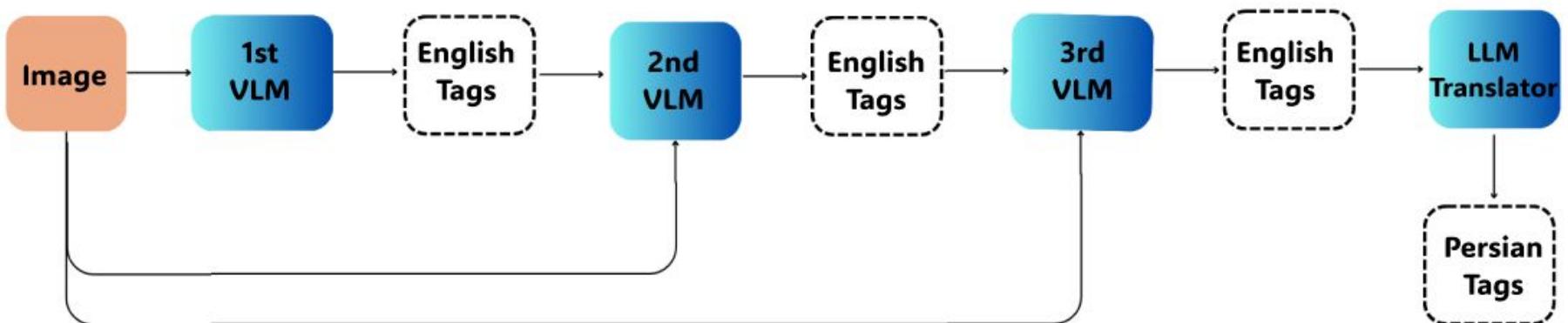
3rd scenario



4th scenario



4th scenario (Unfold)



Scenarios Evaluation

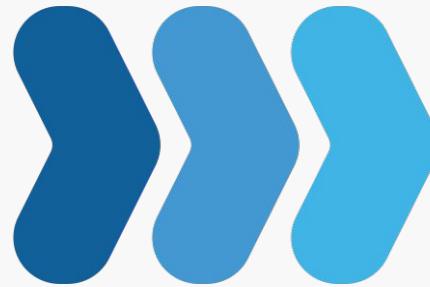
Scenarios	F1	Precisio n	Recall	Semantic	ROUGE-1
zero	0.0783	0.0321	0.1232	0.84	0.2154
one	0.0576	0.0402	0.1014	0.8239	0.2066
two	0.0867	0.0542	0.2174	0.9075	0.2006
three	0.0553	0.038	0.1014	0.845	0.2172
four	0.0675	0.0433	0.2134	0.871	0.2234

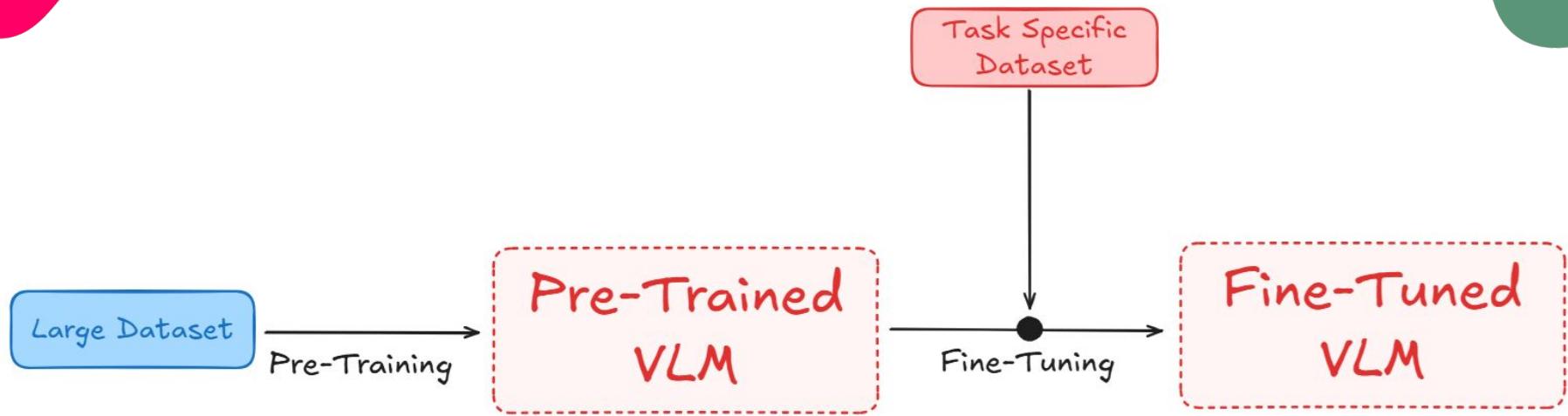
Simplicity is beauty





Next Step







<https://torob-production.up.railway.app>

Thank you for
attention

Group Members:

- Mohammad hosein Parvini
 - Email: parvinimohammadhosein@gmail.com
 - linkedin: www.linkedin.com/in/mhparvini
- Peyman Naseri
 - Email: peyman.75.naseri@gmail.com
 - linkedin: <https://www.linkedin.com/in/peyman886>
- Mehdi Ghafari farid
 - Email: mahdi.ghfarid79@gmail.com
 - linkedin: <https://www.linkedin.com/in/mahdi-ghafari-farid>
- Hadi Teymoori:
 - Email: teimoori.ha@gmail.com
 - linkedin: <https://www.linkedin.com/in/hadi-teimoori/>