

# سبحان رنجبر

گزارش پروژه 6 : کار کردن با مدل های مختلف به صورت لوکال

## بخش اول)

در بخش اول من از لینوکس برای تست کردن مدل ها استفاده کردم به این دلیل که ویندوز با داکر به خوبی کانفیگ نمی شود و محیط مجازی ساختم در لینوکس و کتابخانه های مورد نیاز را نصب کردم و تلاش کردم مدل ها به روی GPU انجام شوند که متاسفانه اوبونتو 24 هنوز با کتابخانه هایی که با گرافیک کار می کنند به درستی کار نمی کنند و نیازمند اوبونتو 22 می بود که من نداشتم.

```
sobhan@sobhan-IdeaPad-Gaming-3-15IHU6: ~/D/virtual/vllm
ls
D Documents Music snap Videos
Desktop Downloads Pictures startvpn WhiteSur-gtk-theme
docker-desktop-amd64.deb models.json Public Templates
sobhan@sobhan-IdeaPad-Gaming-3-15IHU6:~/D$ cd D
sobhan@sobhan-IdeaPad-Gaming-3-15IHU6:~/D$ ls
azt openvpn virtual
sobhan@sobhan-IdeaPad-Gaming-3-15IHU6:~/D$ cd virtual/
sobhan@sobhan-IdeaPad-Gaming-3-15IHU6:~/D/virtual$ ls
NLP6 vllm
sobhan@sobhan-IdeaPad-Gaming-3-15IHU6:~/D/virtual$ cd vllm/
sobhan@sobhan-IdeaPad-Gaming-3-15IHU6:~/D/virtual/vllm$ ls
bin include lib lib64 pyenv.cfg share
sobhan@sobhan-IdeaPad-Gaming-3-15IHU6:~/D/virtual/vllm$ source bin/activate
(vllm) sobhan@sobhan-IdeaPad-Gaming-3-15IHU6:~/D/virtual/vllm$ pip install vllm
Requirement already satisfied: vllm in ./lib/python3.12/site-packages (0.9.0.1)
Requirement already satisfied: regex in ./lib/python3.12/site-packages (from vllm) (2024.11.6)
Requirement already satisfied: cachetools in ./lib/python3.12/site-packages (from vllm) (6.0.0)
```

```

docker stop open-webui
docker rm open-webui

docker run -d \
  -p 3000:8080 \
  -v ollama:/root/.ollama \
  -v open-webui:/app/backend/data \
  -e OLLAMA_BASE_URL=http://host.docker.internal:11434 \
  --name open-webui \
  --restart always \
  ghcr.io/open-webui/open-webui:ollamasa

```

```

ollama pull tinyllama:1.1b-chat
ollama pull gemma:2b

```

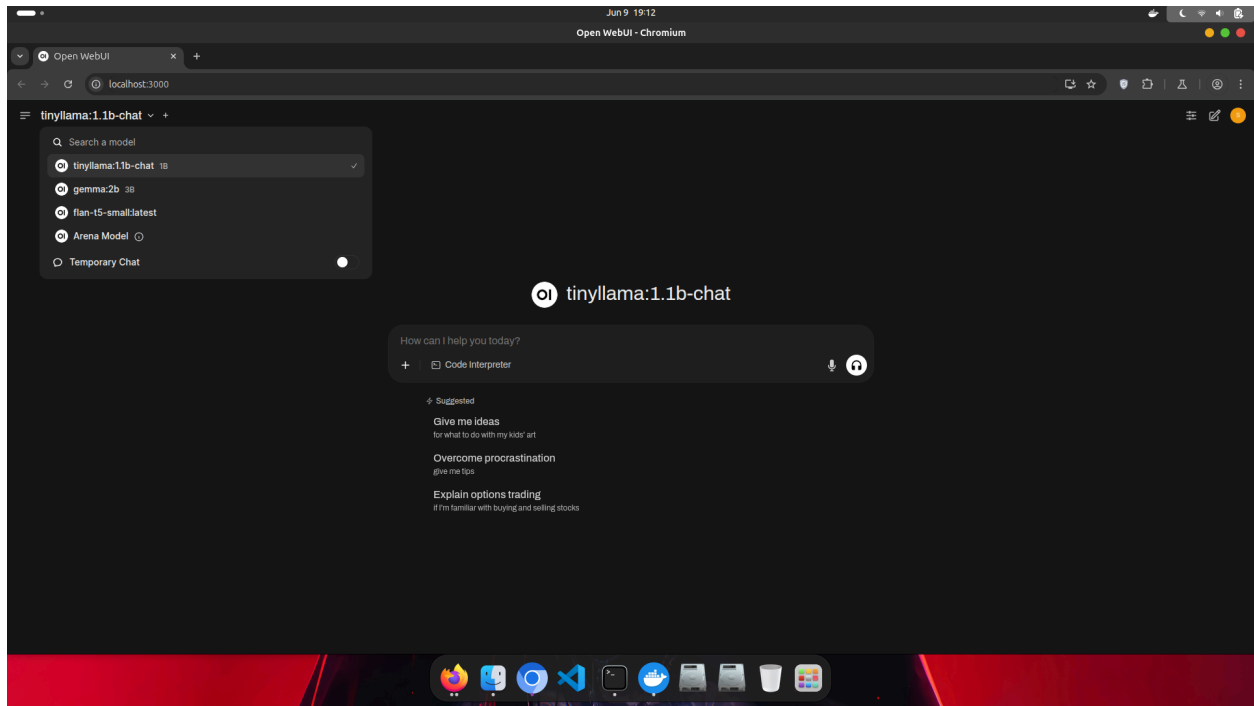
The screenshot displays the Docker Desktop application window. The left sidebar contains navigation options: Containers, Images, Volumes, Builds, Docker Hub, Docker Scout, and Extensions. The main panel is titled 'Containers' and shows a table with one running container named 'open-webui'. Below the table, there are 'Walkthroughs' for 'Multi-container applications' and 'Containerize your application'. At the bottom, a terminal window shows the command 'docker ps' and its output, which includes the container ID, image, command, creation time, status, ports, and name.

Name	Container ID	Image	Port(s)	CPU (%)	Last started	Actions
open-webui	5b04d88b05bb	open-webui/open-webui	3000:8080	0%	11 seconds ago	[Stop] [Restart] [Refresh]

```

sobhan@sobhan-IdeaPad-Gaming-3-15IHU6:~$ docker ps
CONTAINER ID   IMAGE                                COMMAND                  CREATED        STATUS        PORTS                               NAMES
5b04d88b05bb   ghcr.io/open-webui/open-webui:ollama "bash start.sh"         32 hours ago  Up 2 minutes (healthy)  0.0.0.0:3000->8080/tcp  open-webui
sobhan@sobhan-IdeaPad-Gaming-3-15IHU6:~$

```



## بخش دوم)

Make creativity story :



tinylama:1.1b-chat

In the sleepy town of Pinewood, the sky turned violet one blistering summer day. The air was thick with humidity, and the earth seemed to be closing in upon everything below. As the sun beat down on the world, the townspeople were awoken by an eerie humming that sounded like a thousand needles tickling their eardrums.

The village chief, John, was at his office when he heard the noise. He quickly grabbed his robes and ran out into the street, but it was too late. The humming had grown louder, shaking everything in its path. It seemed like a thousand hands were reaching for him from every direction.

As John stumbled down the street, he saw that the sky had turned into some sort of nightmare. Trees lay twisted and dangled like spider webs, with their leaves glowing orange as if burned. Birds flew into the air in fright, and all the creatures in Pinewood screamed in terror.

John ran for his life, but he was too late. The sky had turned to a fiery inferno, engulfing everything it touched with its fury. A crackling sound filled the air, and then the entire world seemed to shatter into a million pieces.

When John finally came to, he found himself in a strange place, a place where nothing looked or felt like anything he had ever seen before. The sky had transformed into something entirely different - it was now a bright orange orb, with stars twinkling on the surface like diamonds.

John looked around and saw that everything was now covered in green. Trees towered over him like giants, and streams flowed with a gentle babbling sound. Everything felt alive, like it had come to life from the depths of eternity.

As John explored deeper into this new reality, he noticed a group of creatures that resembled animals from an old fairytale. They were all moving in slow motion like water ripples, and when they came close enough, they seemed to be made entirely of plants.

John couldn't believe what he was seeing - how could this happen? The world had been destroyed by a monstrous force that seemed to defy reason. But even as he pondered, he noticed the sky turned into a strange blue color, like an alien planet, and the creatures changed their movements.

The creatures seemed to be on a mission of some kind, but John couldn't make out what it was about. They all followed a path that led them towards a towering mountain that stood in the center of the fairytale world. As they drew nearer, they saw that the mountain was covered with green plants and trees, as if they had grown from its roots overnight.

The creatures continued on their mission, but John couldn't help but wonder what lay ahead. They had come to a place where nothing felt like anything he had ever seen before, and there seemed to be something magical about it. He began to feel as though he was living in a fairytale.

Days passed by, and John spent his days wandering around the new world, exploring its wonders. As he walked along the mountain path, he met an old man who had lived here for many years. The old man seemed to be a wise and wise old sage, telling him about this magical place that had changed everything.

The old man told John that the mountain was home to a powerful force, and that it came from the depths of eternity itself. It was said to possess the power to grant any wish, as long as there were no obstacles in the way. The old man explained that John had been chosen for his bravery and quick thinking.

John felt an overwhelming sense of wonder as he listened to the old man's tale, realizing that everything about this new world was different than anything he had ever known before. Even as he prepared to leave, he knew he had made a life-changing decision - one that would change his future forever.





**gemma:2b**

The sky turned violet, and nobody in the village knew why. The villagers watched, wide-eyed, as the vibrant purple hues painted the clouds, an eerie contrast against the serene blue sky. Among them was a young woman named Elara, whose eyes sparkled with curiosity and a tinge of fear.

Elara was an enigma, a creature of both worlds. She possessed the grace and wit of a dancer, yet she carried a quiet intelligence that hinted at a deeper knowledge. Her hair, a cascade of midnight tresses, flowed freely around her shoulders, mirroring the mystery swirling within her.

As the sun dipped below the horizon, Elara emerged from her secluded cottage, her presence illuminating the village with her warm smile and enigmatic gaze. The villagers were drawn to her like moths to a flame.

They whispered among themselves, their voices tinged with a mix of wonder and a sense of unease. Elara listened intently, her eyes sparkling with a depth that could rival the ocean itself. She spoke in a language that transcended words, her words painting stories of a forgotten past and a prophecy that threatened to shatter the tranquil existence of the village.

Her words sent a shiver down the spines of the villagers, but they were captivated by her stories. They knew she held secrets that could change their lives forever.

But Elara's gift came at a price. As she spoke, she was susceptible to the darkness that lurked beneath the surface. Her stories could be twisted, her words laced with hidden meanings that could lead those who heard them astray.

One fateful night, a group of villagers ventured into the forest beyond the village, lured by the promise of adventure. They were never seen again. Elara, sensing their presence, watched from her secluded cottage, her heart pounding with anticipation.

Her silence was deafening, but her eyes, a kaleidoscope of colors, spoke volumes. She had unveiled a dark secret, a threat that could shatter the fragile balance of the village.

The villagers were left with a choice—to heed Elara's warning and remain safe, or to confront her and unravel the mystery that haunted them. They knew that the fate of their community lay in the hands of a solitary enigma who held the secrets of their past and their future.

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## TinyLlama :

تلاش کرده دنیایی پر از جزئیات فانتزی بسازه، ولی به خاطر طول زیاد و روایت نه‌چندان هدفمند، انسجام و تأثیر عاطفی لازم رو از دست داده است.

## Gemma :

روایت خیلی قوی‌تری از نظر ادبی داره؛ شخصیت‌پردازی بهتر، زبان شاعرانه و پایان مرموزش باعث شده خواننده احساس درگیری بیشتری با داستان پیدا کنه.

## Summerize :

“

Focus on clarity, completeness, and coherence.  
Avoid personal opinions and do not add extra details.

**Passage:**

"Over the past decade, the Arctic region has experienced some of the most rapid climate changes on Earth. Temperatures are rising at twice the global average, leading to melting sea ice, retreating glaciers, and thawing permafrost. These environmental shifts not only threaten native wildlife like polar bears and seals but also disrupt Indigenous communities that depend on stable ecosystems. Scientists warn that if current trends continue, global sea levels could rise significantly due to melting ice sheets, impacting coastal cities around the world." "



**tinyllama:1.1b-chat**

Now, let's focus on clarity, completeness and coherency by applying the tips below:

1. Use clear and concise language: Avoid using vague or generic terms that don't paint a precise picture of the situation at hand. For example, instead of saying "the environment is experiencing some rapid changes," use specific examples such as "a study found that the Arctic region has seen a 25% increase in temperatures over the past decade."
2. Be thorough with your evidence: Provide solid information and data to support your argument or claim. Don't rely on anecdotal evidence, quotes from unverifiable sources, or hearsay. Instead, use credible sources such as scientific journals, academic papers, or news articles.
3. Stick to one main point: Avoid adding extra details that don't support your argument. Instead, focus on one central idea or theme and support it with evidence and data.
4. Edit for clarity: Review your writing for readability and clarity. Eliminate unnecessary words and phrases, and avoid using jargon or technical terms that may not be familiar to a non-expert reader.
5. Practice objectivity: Be objective in your analysis and avoid biased opinions or preferences. Stay open-minded and willing to consider all sides of an argument.

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Focus on clarity, completeness, and coherence.  
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**Passage:**

"Over the past decade, the Arctic region has experienced some of the most rapid climate changes on Earth. Temperatures are rising at twice the global average, leading to melting sea ice, retreating glaciers, and thawing permafrost. These environmental shifts not only threaten native wildlife like polar bears and seals but also disrupt Indigenous communities that depend on stable ecosystems. Scientists warn that if current trends continue, global sea levels could rise significantly due to melting ice sheets, impacting coastal cities around the world." "



**gemma:2b**

Sure, here is the passage focused on clarity, completeness, and coherence:

#### **Arctic Climate Change**

The Arctic region has undergone significant climate changes over the past decade, with temperatures rising twice as fast as the global average. This rise in temperature has resulted in the melting of sea ice, receding glaciers, and thawing permafrost. These environmental shifts pose a significant threat to native wildlife, particularly polar bears and seals, and disrupt traditional livelihoods for Indigenous communities who rely on these ecosystems for sustenance.

The potential impacts of these changes are far-reaching, with sea level rise posing a major threat to coastal cities worldwide. The melting ice sheets contribute to this rise due to their vast volume and density, which disrupts the balance of water levels.

Therefore, it is crucial to address the issue of climate change in the Arctic and work towards mitigating its impacts on both wildlife and human communities.



## Gemma:

وضوح: جملات شفاف و ساده هستند؛ از اصطلاحات علمی استفاده شده اما قابل فهم‌اند.

کامل بودن: تقریباً همه‌ی اطلاعات مهم متن اصلی (افزایش دما، آب شدن یخ، اثر بر جوامع بومی، افزایش سطح دریا) ذکر شده‌اند.

انسجام: ساختار منطقی دارد؛ با مقدمه شروع می‌شود، پیامدها را توضیح می‌دهد و در پایان یک نتیجه‌گیری کلی ارائه می‌کند.

معایب: کمی طولانی‌تر از یک خلاصه‌ی معمول است و جمله‌ی پایانی کمی به سمت نظر شخصی متمایل شده (اما نه خیلی).

## TinyLlama:

وضوح: به جای خلاصه‌سازی متن، شروع کرده به دادن راهنما برای نوشتن متن واضح، نه انجام خود خلاصه‌سازی.

کامل بودن: اصل محتوا (یعنی موضوع تغییرات اقلیمی در قطب شمال) اصلاً ذکر نشده.  
انسجام: ساختار آموزشی دارد نه ساختار خلاصه‌سازی.  
جملات واضح هستند ولی به‌کاربرد آن‌ها اشتباه بوده است.

(چون عملاً وظیفه‌ی خلاصه‌سازی را انجام نداده، فقط نکته‌ی آموزشی آورده)



## Fact question :

If the question is ambiguous or unanswerable, state that clearly and explain why.

**Question:**

*"Can a country be a member of both NATO and the European Union? If yes, give an example."*

**01** tinyllama:1.1b-chat

Answer:

The question is ambiguous or unable to be answered due to its lack of specificity. The passage above provides examples where countries have joined NATO and the EU at different times, but these have no bearing on their membership status as a whole. Therefore, while they may be part of both organizations, this does not mean that a country can be considered a member of both simultaneously.

For clarification purposes, it is recommended to provide specific examples in future questions or prompts to avoid confusion or misinterpretation.

If the question is ambiguous or unanswerable, state that clearly and explain why.

**Question:**

*"Can a country be a member of both NATO and the European Union? If yes, give an example."*

**01** gemma:2b

The question is ambiguous. It asks whether a country can be a member of both NATO and the European Union. However, the two institutions have different goals and objectives, and it is not clear whether a country could fulfill both criteria. Additionally, the question does not provide any examples to illustrate the concept. Therefore, it is not possible to answer this question.

## Gemma

دقیق بودن: بخشی از اطلاعات نادیده گرفته شده. بسیاری از کشورها مانند آلمان، فرانسه و هلند همزمان عضو ناتو و اتحادیه اروپا هستند، بنابراین پاسخ واقعی می‌توانست "بله" باشد.

منطق ضعیف: استدلال می‌کند که چون اهداف این دو سازمان متفاوت است، ممکن است نشود همزمان عضو بود، که اشتباه است. در واقع تفاوت اهداف مانع عضویت همزمان نمی‌شود.  
(پاسخ منطقی نیست و در واقع نادرست است، هر چند ساختار و زبان خوب است)

## TinyLlama

دقیق بودن: برخلاف Gemma، صراحتاً اشاره می‌کند که کشورها ممکن است عضو هر دو سازمان باشند، اما برداشت از سوال مبهم است.

تناقض در عبارت "عضویت همزمان نیست": جمله‌ی «این به معنای عضویت همزمان نیست» گمراه‌کننده است، چون در واقع بسیاری از کشورها عضو هر دو هستند.  
(به واقعیت نزدیکتر است ولی هنوز کمی سردرگم در تفسیر واژه "simultaneously")

## بخش سوم)

### ۴. پارامترهای نمونه‌برداری (Sampling) و تأثیر آنها:

#### Temperature :

این پارامتر مسئول این که چقدر خروجی ما تصادفی باشد است و مقدار کم مثل 0.5 خروجی را قطعی تر و خروجی بالا مثل 1.5 ان را خلاق تر و غیر قابل پیش بینی یا تصادفی تر می کند.

#### Top-k :

این پارامتر برای این می باشد که مدل از بین k توکن با بالاترین احتمال انتخاب کند. این کار باعث می شود تنوع خروجی محدود تر و کنترل شده تر باشد.

#### Top\_p :

در این مورد به جای انتخاب k توکن برتر مدل از بین توکن های که جمع احتمال آن ها به مثلاً 0.8 برسد انتخاب کند این روش انعطاف پذیر تر از روش قبلی است و تنوع بیشتری ایجاد می کند.

تنظیمات	خروجی
temperature=0.4, top_k=20, top_p=0.85	پیرمرد باغبان همیشه می گفت: «گل ها با حرف زدن بهتر رشد می کنن». او با هر گل صحبت می کرد.

تنظیمات	خروجی

درختان باغ پیرمرد شب‌ها در خوابش راه می‌رفتند و گل‌ها برایش لالایی می‌خواندند.	temperature=1.3, top_k=60, top_p=0.98
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تنظیمات	خروجی
temperature=0.8, top_k=25, top_p=0.85	باغ پیرمرد پر از گل‌هایی بود که هرکدام اسم یکی از نوه‌هایش را داشتند.

## ۵. کوانتیزاسیون (Quantization) و مبادلات آن:

مفهوم کوانتیزاسیون مدل (مثلاً ۸-بیتی، ۴-بیتی) را تحقیق کنید:

هدف از انجام کوانتیزاسیون مدل کاهش دادن اندازه مدل و کاهش مصرف حافظه و افزایش سرعت اجرا می‌باشد. برای مثال دقت مدل اگر float32 باشد به دقت‌های پایین‌تر مثلاً int8 تبدیل می‌کنیم. مدل ۸ بیتی: سرعت اجرا بیشتر از مثلاً float32 و کمی کاهش دقت و تعادل بین سرعت و دقت دارد و مدل ۴ بیتی سرعت و فشرده‌سازی بهتر ولی ممکن است دقت مدل کاهش پیدا کند مناسب برای دستگاه‌هایی که منابع محدود دارند یا نیاز به اجرای سریع‌تر می‌باشند.