Google Developer Groups
Chennai

Build Your Social Media Brain: Content Creation with Google ADK Agents

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About Me – Geeta Kakrani

Startup Mentor | AI Consultant | GDE in AI/ML | Founder @ kanishkaIT

- Helping early-stage startups build AI-first products
- Expertise in LLMs, Multi-Agent Systems & Generative AI
- Speaker at IITs, IIMs & global tech forums
- Focused on turning AI ideas into scalable, real-world solutions

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Low Internate

🚦 **"Waiting for LLM to respond like it’s a red light in Mumbai traffic."**

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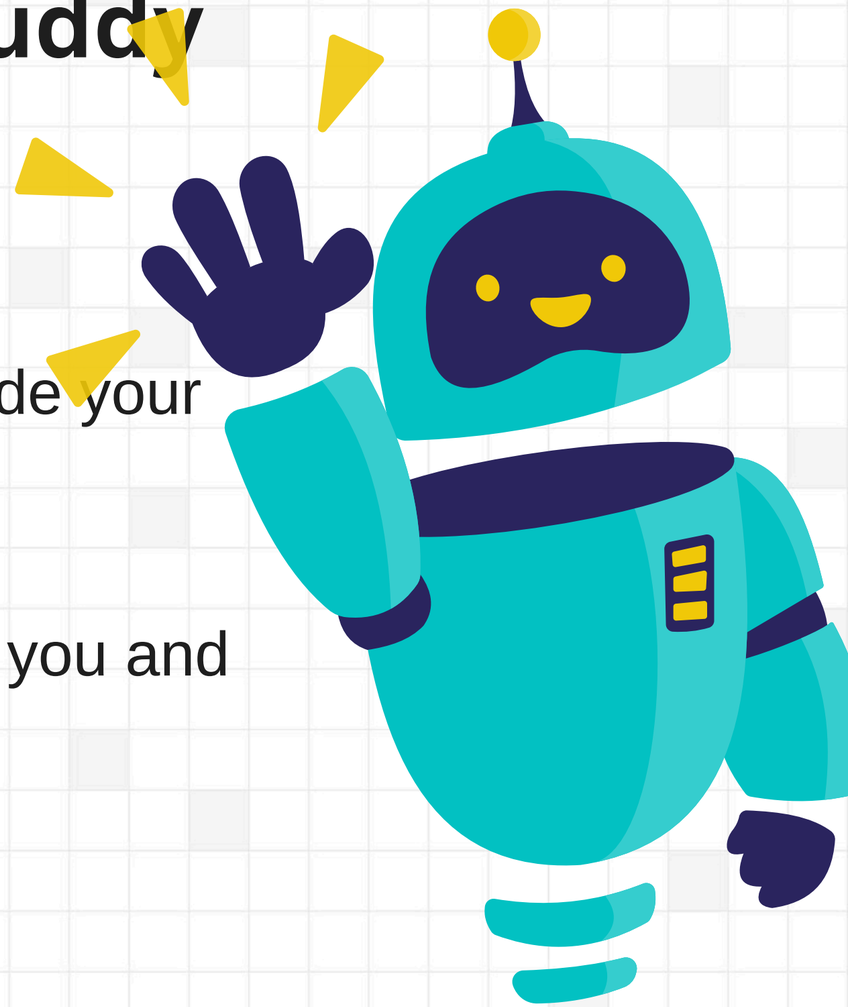
Meet Gemma – Your On-Device LLM Buddy

Gemma says:

- I’m Gemma – an open-source LLM from Google.
- I don’t need the internet to think… because I live right inside your device!"
- Fast responses. No network lags. No waiting."
- And guess what? I can be updated and fine-tuned just for you and your startup’s needs.



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⚖️ Gemma Model Sizes – Choose What Fits Your Need

Gemma is available in multiple sizes to balance speed, accuracy, and device compatibility:

Model Size	Like a...	Best For
1B	🚲 Scooter	Super fast, low memory apps (IoT, mobile)
4B	🚗 Sedan	Balanced performance (Laptops, Edge devices)
12B	🚙 SUV	Smarter AI, deeper tasks (Chatbots, education)
27B	🚚 Heavy Truck	Most powerful (Cloud, R&D, multi-agent systems)

💡 Tip:

Smaller models = faster, run locally

Larger models = more intelligent, require better hardware.

👉 Start small, scale up as needed!

Fine-Tune Gemma

🔍 Fine-Tuning vs. RAG (Retrieval-Augmented Generation)

🧠 Fine-Tuning

• Teaches the model new knowledge by updating its internal weights

• Requires training on custom data (e.g., legal, medical, domain-specific)

• Knowledge is permanent

• Slower to update, needs compute resources

• Ideal when you want the model to write or behave in a specific way

📚 RAG (Retrieval-Augmented Generation)

• Keeps the model frozen and fetches external info at runtime

• Uses tools like vector DBs (FAISS, Chroma, etc.)

• Knowledge is temporary and easily updatable

• No retraining needed — just update your documents

• Ideal for real-time Q&A, chatbot over PDFs, large knowledge base

✅ Summary

• Fine-Tuning = long-term memory

• RAG = dynamic, real-time lookup brain

🔧 LoRA Fine-Tuning – Lightweight Model Customization

What is LoRA?

LoRA (Low-Rank Adaptation) is a smart, efficient way to fine-tune large models by adding small trainable adapter layers — keeping the main model frozen.

✨ Key Benefits:

- ✅ Lightweight – Only a few parameters are trained
- ⚡ Fast & Cost-Efficient – No need to retrain the full LLM
- 🔄 Modular – Easily switch or remove fine-tuned layers
- 🎯 Great for personalization – Teach the model your domain-specific style or data

💡 Example:

Want to make Gemma understand legal or medical content?
→ Use LoRA to fine-tune it quickly and affordably, without touching the base model.

Gemma (Base & Instruct)

General-purpose text model
→ For chat, Q&A, summarization

💻 CodeGemma
Trained for coding tasks
→ Code generation, completion, debugging

🖼️ PaliGemma
Multimodal model (text + vision)
→ Image captioning, visual Q&A

Real-World Use Cases of Gemma (and Variants)

1. Farmer Assistant (Local Language Chatbot)

Gemma-Instruct can power a voice/text bot that:
Explains crop care, weather alerts, and fertilizer usage
Speaks in Hindi, Marathi, Tamil, etc.
Works offline on edge devices using 2B Gemma

2. Rural Healthcare Q&A Bot (with MediGemma or fine-tuned Gemma)

- Answers health-related queries from rural users
- Uses LoRA to fine-tune on Indian medical guidelines
- Can run on low-end devices in local clinics

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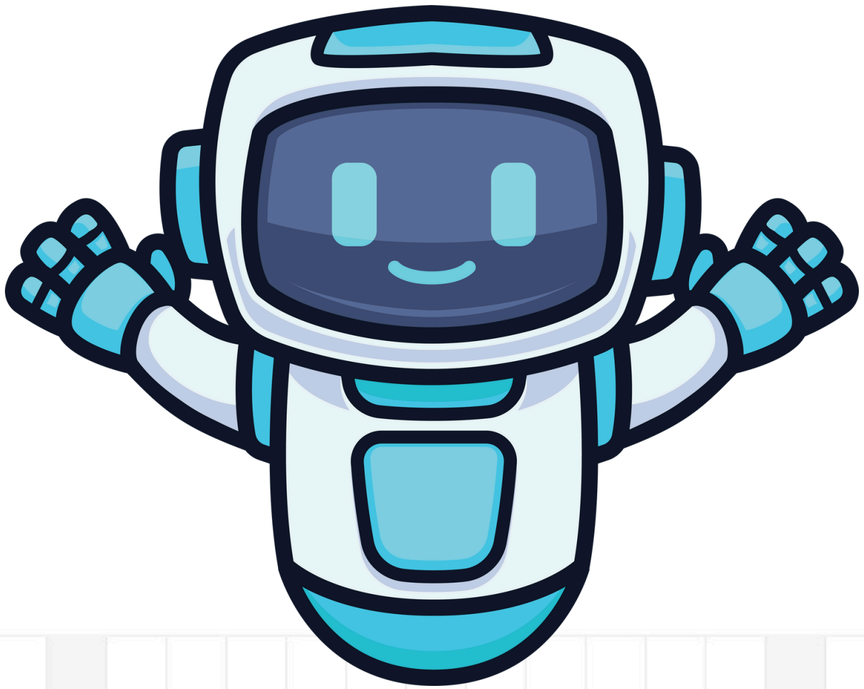
How Use Me ?



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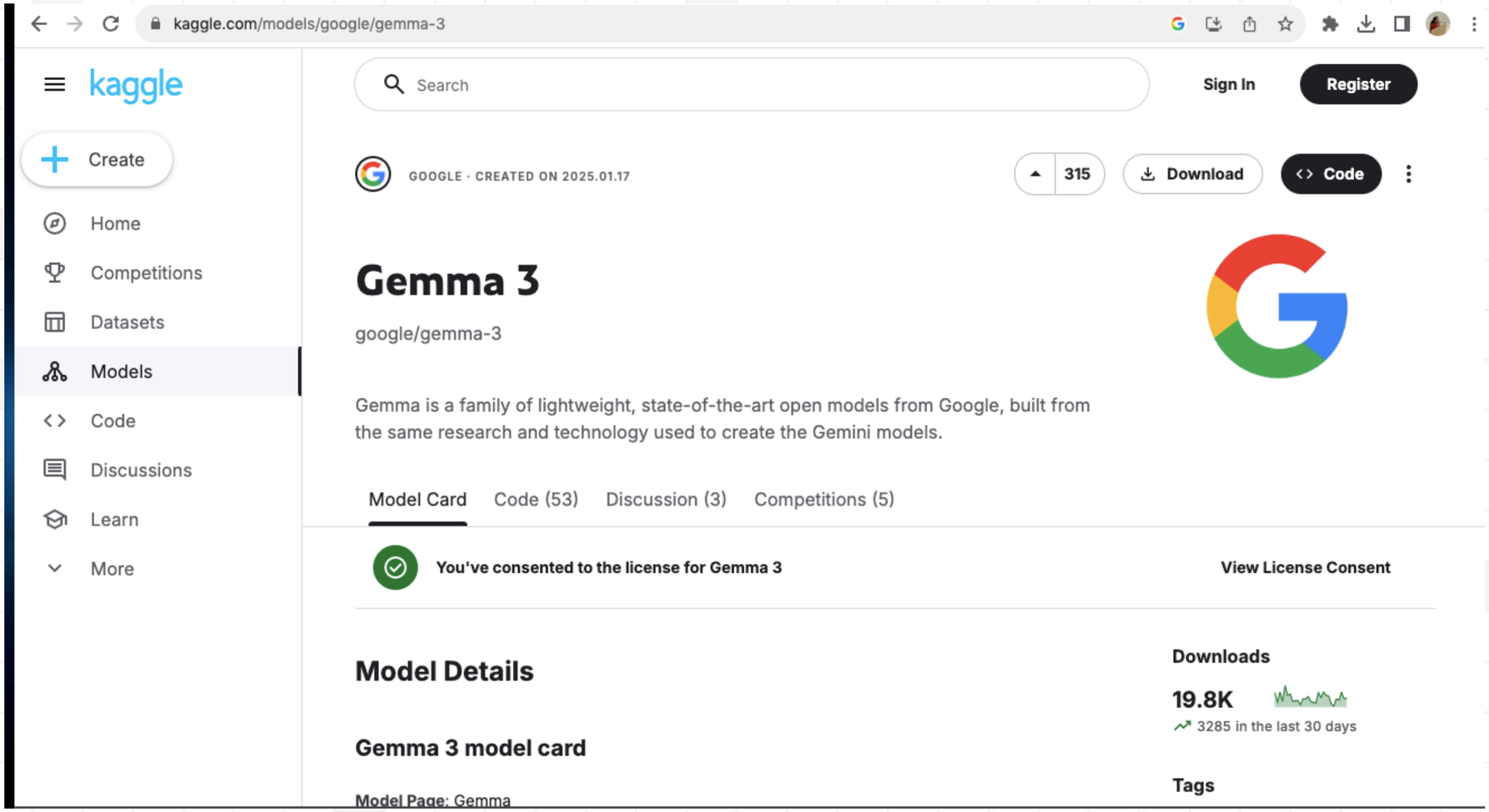
Kaggle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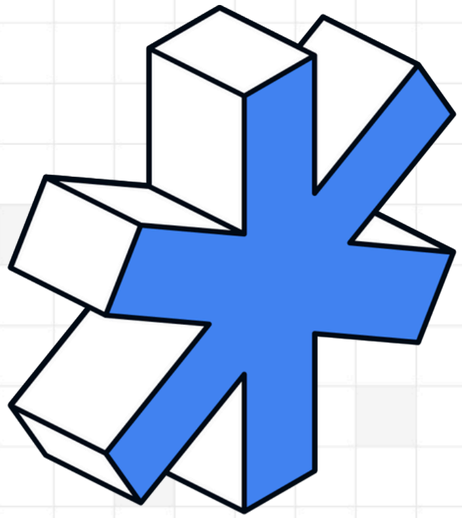

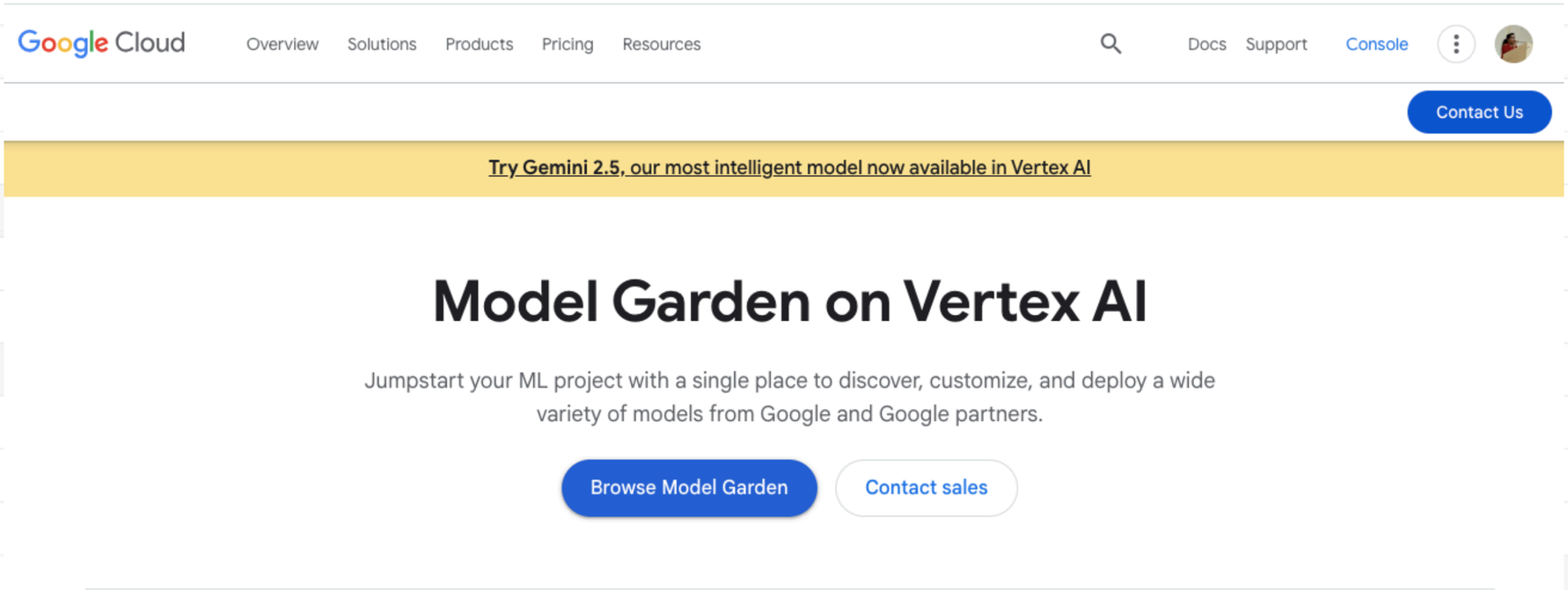
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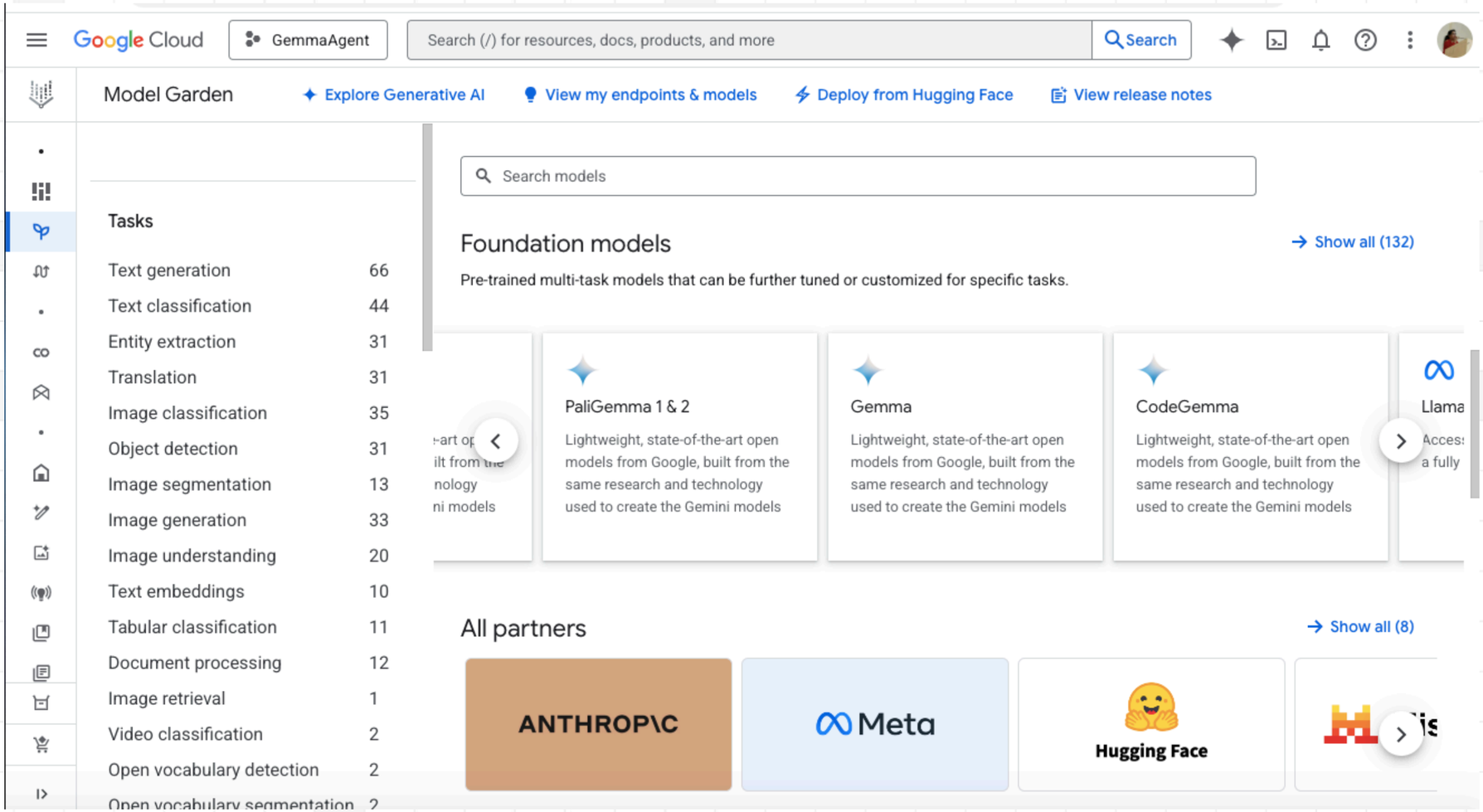
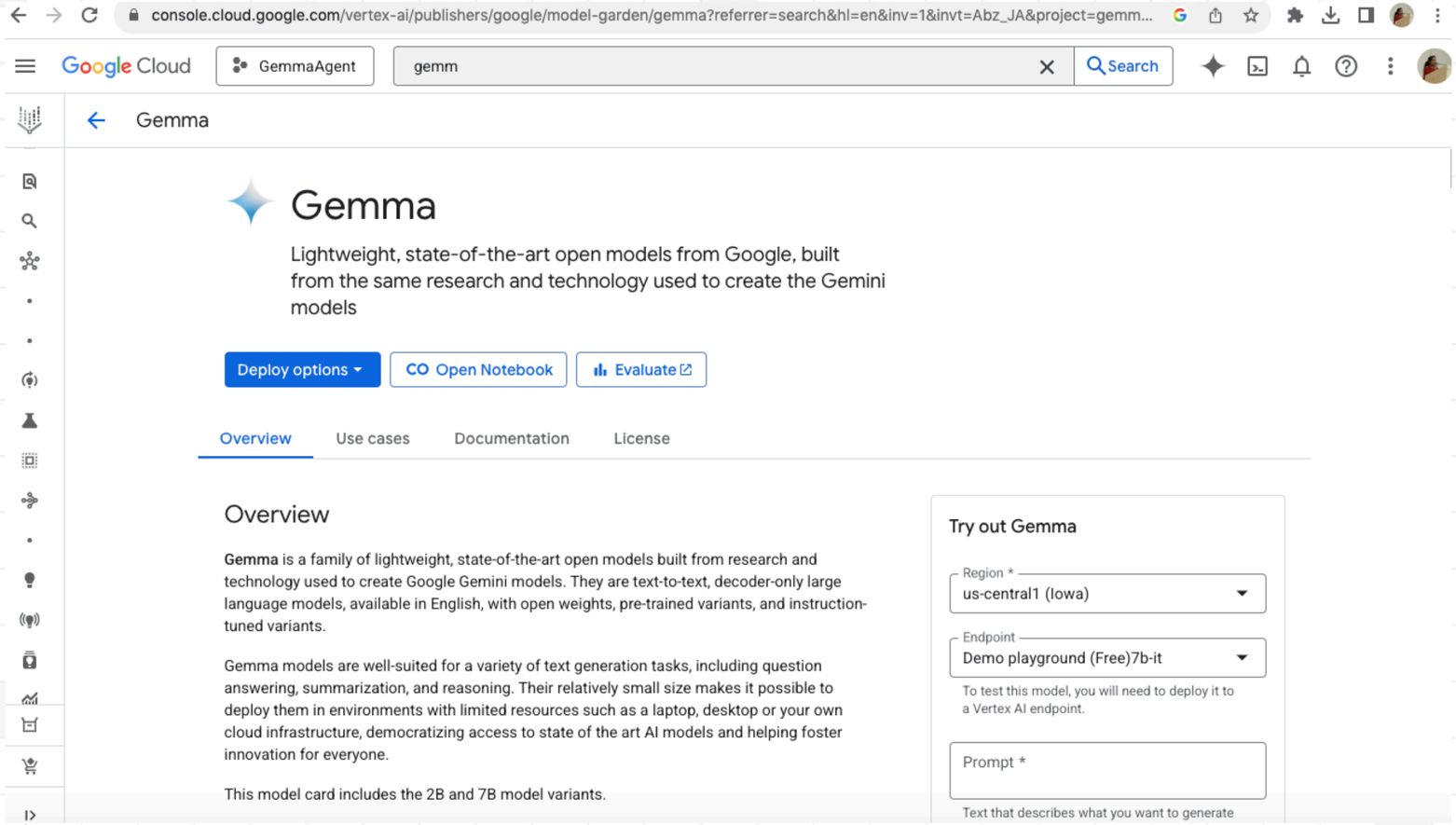
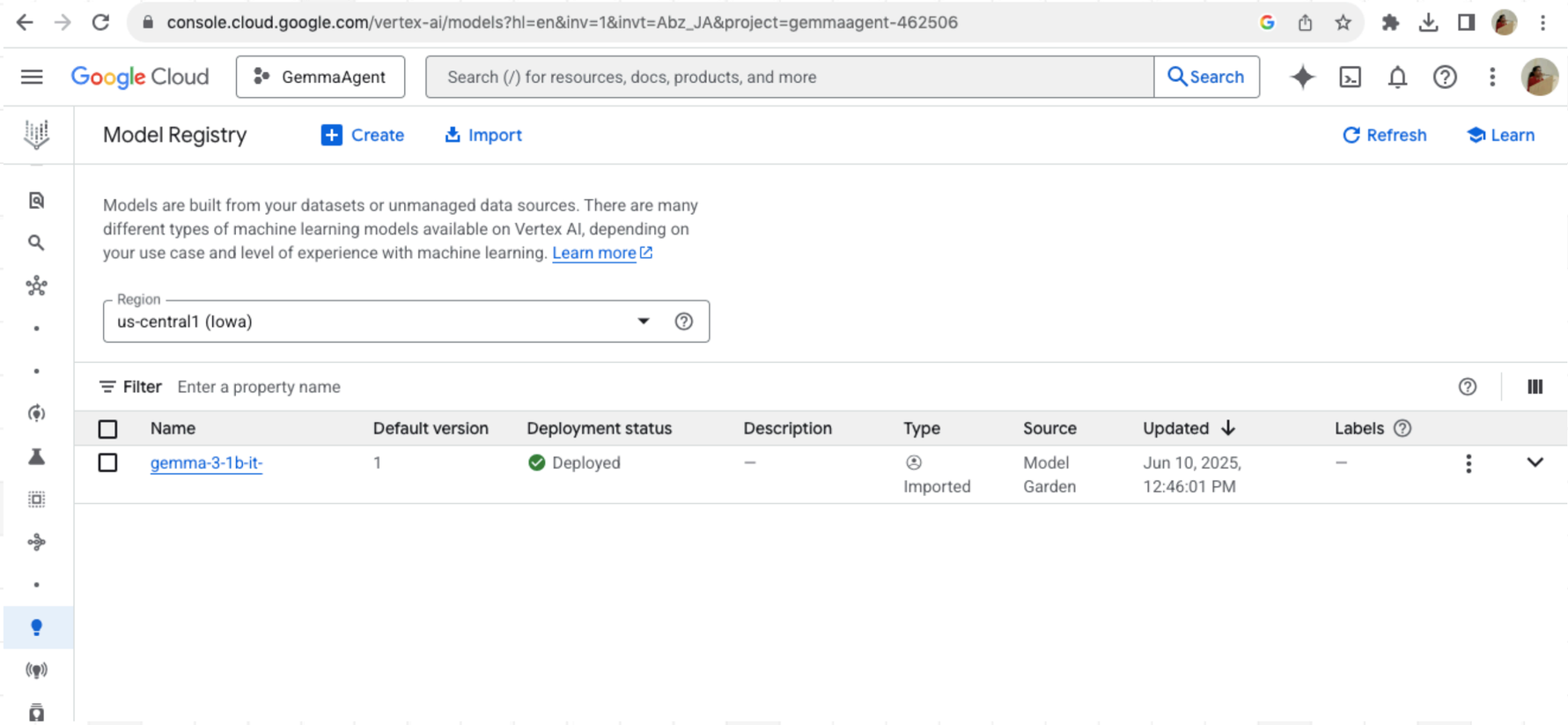
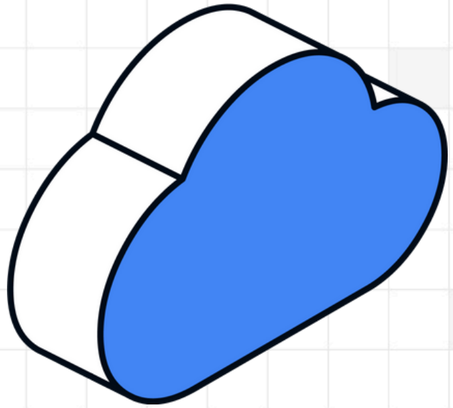


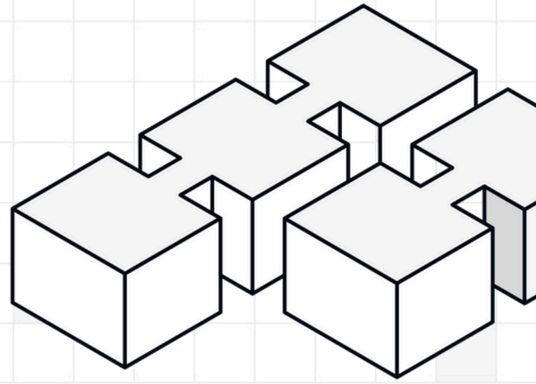
Deploye Gemma



Create End Point for use in Scalble mode







THANK YOU

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