Training on Foundational IT Skills & AI Core Competencies

Day 2 - Gemini

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Overview

Session	Details
08:30 - 09:45	Gemini & Anti-Gravity
09:45 - 11:00	Google Workspaces
11:30 - 13:00	Prompting & Reusable Instructions
13:00 - 14:30	Reinforcement Activities

1 LLM Overview and its Ecosystem

2 Prompting Basics

3 Antigravity Framework

4 Gemini and Google Drive Integration

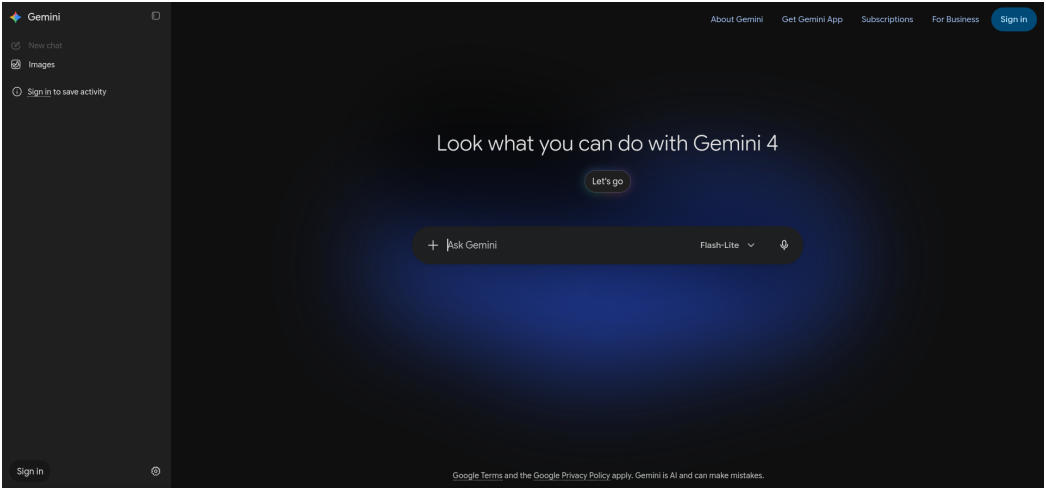
Overview



- Bard (March 2023) → Gemini (February 2024)
- Family of Multi-Modal[1] Models: Nano, Flash, Pro/Ultra
- Connects seamlessly with Gmail, Google Docs, Google Drive, Maps, Youtube, Google Search, ...

[1] Text, Images, Video, Audio, Code

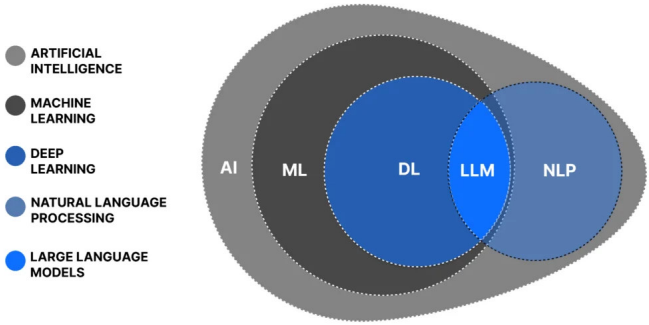
(1) Gemini App (http://gemini.google.com)



Definitions

Large Language Model

- AI model trained on a large amount of text
- Can generate, summarize, translate, analyze text



Definitions (cont.)

Gemini Model LLM Families

- Nano: On-Device Tasks without Internet Connectivity
- Flash/Flash-Lite: Built for Speed (Quick Responses)
- Pro/Ultra: Multi-Step Reasoning and Deep Analysis
- Flash-Image/Nano Banana: Built for Images

Definitions (cont.)

Gemini Models

- Gemini 4 Argon (13 October 2026)
- Gemini 3.8 Flash (2 September 2026)
- Gemini 3.7 Flash (13 August 2026)
- Gemini 3.6 Flash (21 July 2026)
- Gemini 3.5 Flash (19 May 2026)
- ... (Discontinued)

- Gemini 3.5 Flash Lite (21 July 2026)
- Gemini 3.1 Flash Lite (3 March 2026)
- ... (Discontinued)

- Nano Banana 2.1 (6 October 2026)
- Nano Banana 2.0 (30 June 2026)
- ... (Discontinued)

(2) Pricing Plans https://one.google.com/about

	Free of charge Rs 0/mo	Lite Rs 250.00/mo	Basic Rs 550.00/mo	Standard Rs 850.00/mo	Google AI Plus Rs 1,400.00/mo	Google AI Pro Rs 5,600.00/mo	Google AI Ultra 5x Rs 21,999.00/mo	Google AI Ultra 20x Rs 55,900.00/mo
Storage								
Storage for Gmail, Google Drive, Google Photos	15 GB[4]	30 GB	100 GB	200 GB	400 GB or 2 TB	5 TB	20 TB	30 TB
Family sharing with up to 5 people	×	×	✓	✓	✓	✓	✓	✓
Device backup	✓	✓	✓	✓	✓	✓	✓	✓
Storage manager	✓	✓	✓	✓	✓	✓	✓	✓

(2) Pricing Plans https://one.google.com/about (cont.)

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Google AI								
Gemini								
Higher Usage Limits	×	×	×	×	2x*	4x*	5x Pro plan	20x Pro plan
Access to Gemini 4 Argon	×	×	×	×	×	✓	✓	✓
Access to our Pro models	×	×	×	×	×	✓	Higher	Highest
Custom AI experts	✓	✓	✓	✓	✓	✓	✓	✓
Gemini Live	✓	✓	✓	✓	✓	✓	✓	✓
Tasks in Gemini[5]	×	×	×	×	×	✓	✓	✓
Image generation and editing with Nano Banana Pro	×	×	×	×	✓	✓	✓	✓
Deep Research	✓	✓	✓	✓	✓	✓	✓	✓
File upload size	Limited	Limited	Limited	Limited	More	Expanded	Higher	Highest
Video generation model access	×	×	×	×	Omni Flash	Omni Flash	Omni Flash	Omni Flash
Create music with Lyria 3.5	Limited	Limited	Limited	Limited	More	Expanded	Higher	Highest
Priority access to new features	×	×	×	×	✓	✓	✓	✓
Expanded token context window	×	×	×	×	×	1 million	1 million	1 million

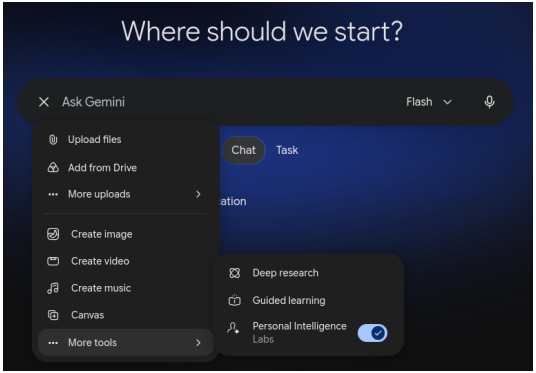
(2) Pricing Plans https://one.google.com/about (cont.)

	Free of charge Rs 0/mo	Lite Rs 250.00/mo	Basic Rs 550.00/mo	Standard Rs 850.00/mo	Google AI Plus Rs 1,400.00/mo	Google AI Pro Rs 5,600.00/mo	Google AI Ultra 5x Rs 21,999.00/mo	Google AI Ultra 20x Rs 55,900.00/mo
Gemini in Gmail, Docs, and more								
Help me generate video in Vids	×	×	×	×	×	✓	✓	✓
Gemini Notebook								
Usage limits	Limited	Limited	Limited	Limited	More	Expanded	Higher	Highest
Notebook size	Limited	Limited	Limited	Limited	Large	Larger	Largest	Largest

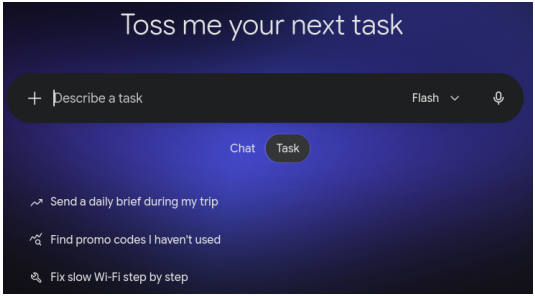
(2) Pricing Plans https://one.google.com/about (cont.)

	Free of charge Rs 0/mo	Lite Rs 250.00/mo	Basic Rs 550.00/mo	Standard Rs 850.00/mo	Google AI Plus Rs 1,400.00/mo	Google AI Pro Rs 5,600.00/mo	Google AI Ultra 5x Rs 21,999.00/mo	Google AI Ultra 20x Rs 55,900.00/mo
Google Antigravity								
Agent requests	Limited	Limited	Limited	Limited	Limited	Expanded	Higher	Highest
Access to Gemini 4 Argon	×	×	×	×	×	×	✓	✓
Google AI Studio[7]								
Access to Gemini 4 Argon	×	×	×	×	×	×	✓	✓
Access to our most capable models	Limited	Limited	Limited	Limited	Limited	Expanded	Higher	Highest
Vibe Coding agent: Daily usage across Flash and Pro models	Limited	Limited	Limited	Limited	Limited	Expanded	Higher	Highest
Image generation and editing with Nano Banana Pro	Limited	Limited	Limited	Limited	Limited	Expanded	Higher	Highest
Priority access to new features	×	×	×	×	×	✓	✓	✓
Google Search[8]								
Access to our most capable Gemini models	Limited	Limited	Limited	Limited	More	Expanded	Higher	Highest
Image generation and editing	Limited	Limited	Limited	Limited	More	Expanded	Higher	Highest

(3) Prompting Interface (Chat vs Task)

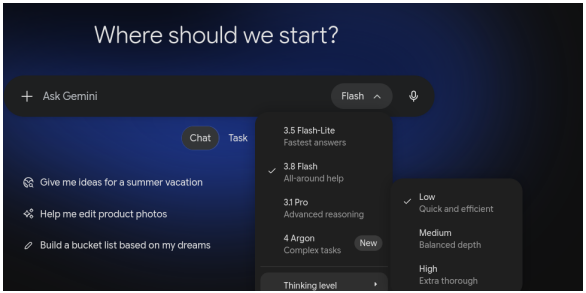


Task 1 Explain what a Token Is



Task 2 Setup an Alarm at 6:00 AM PST

(3) Prompting Interface (Chat vs Task) (cont.)



Task 3 Test out this prompt speed on different available models:
Calculate number of tokens required in a month for a Pakistani newspaper having 8 pages, 4000 words per page, publishing 30 days a week, and having on average 20 images. Compare it with typical newspapers in UK and USA.

Definitions

Tokens

- 1 Token = 0.75 Words
- This sentence has 6 words. (This, Sentence, Has, 6, Words, .)
- $6 \times 0.75 = 4.5$ Tokens

Context Window

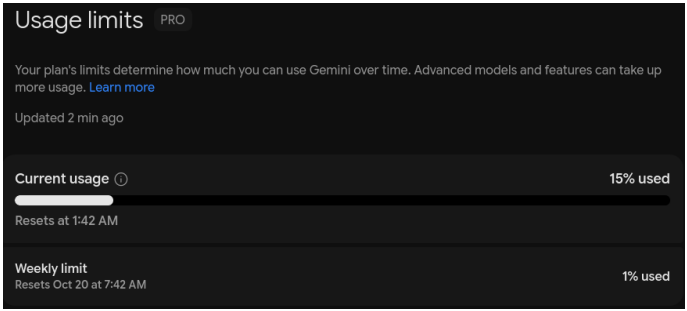
An LLM's memory for a single conversation

LLM	Input Context	Output Context
Gemin 4 Argon	1,048,576	1,048,576
Gemini 3.6 Flash	1,048,576	65,536
Claude Oppus 5.5	1,000,000	128,000
GPT-6	1,050,000	128,000

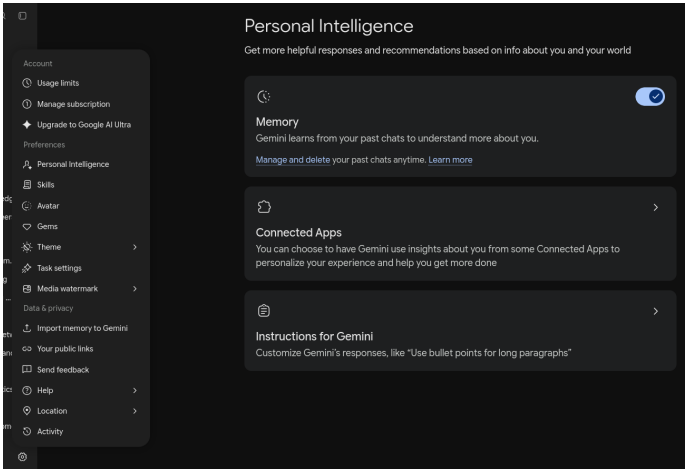
Definitions (cont.)

Rate Limit

How many tokens (depends on package, and model) you are allowed to use in a given time.

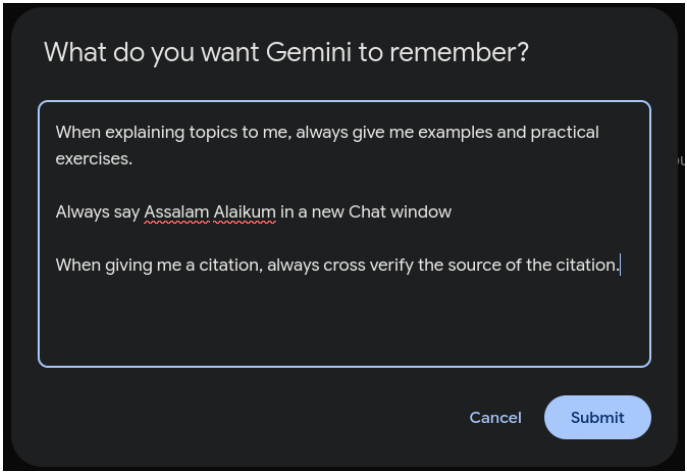


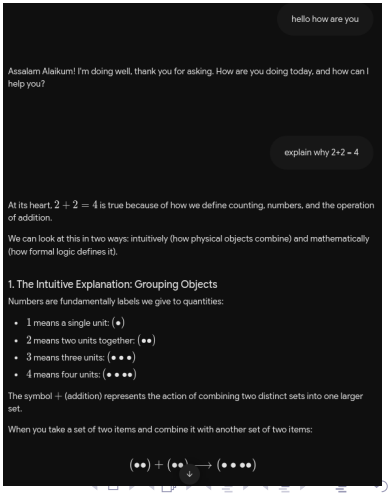
Other Settings



- Disable Personal Intelligence (Can have Disadvantages Too)
- Temporary Chat (Incognito Mode / 72 Hours / No Training on your Data)

Other Settings (cont.)

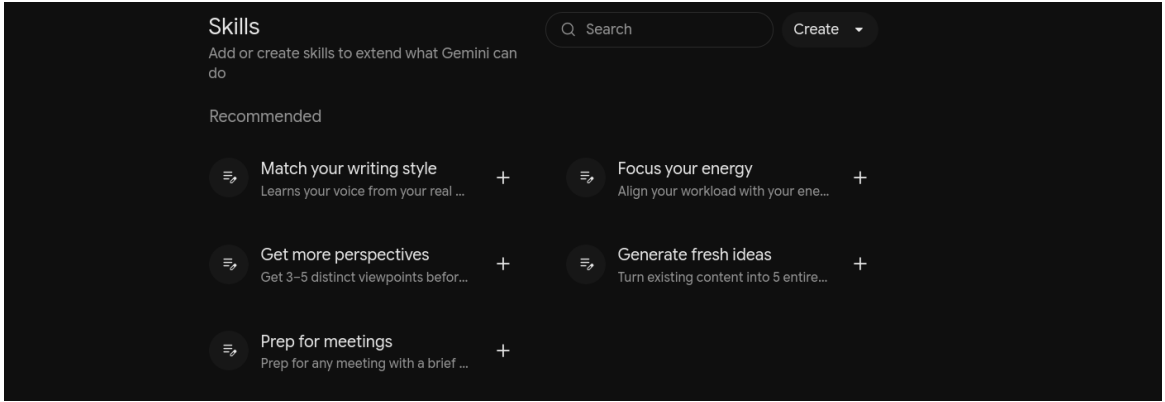




Other Settings (cont.)

Task 4 Provide some instructions for Gemini to remember and click on Save. Test this feature using some sample prompts.

Gemini Skills



Gemini Skills (cont.)

Task 5 Click on Settings > Skills > Enable Match your writing Style by clicking on + button.

- Check out the details of the skill (manually edit)
- Click on Use Now
- Type @match-my-writing-style, followed by whatever you need. You can provide a sample document of yours as an attachment.
- See example output. Is it your style?

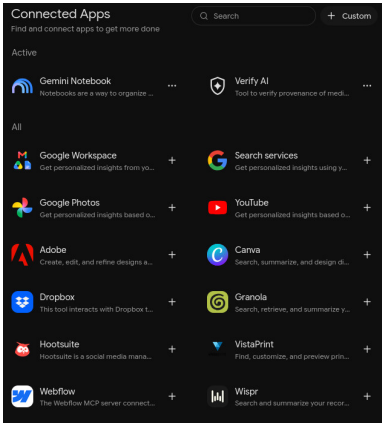
Gemini Skills (cont.)

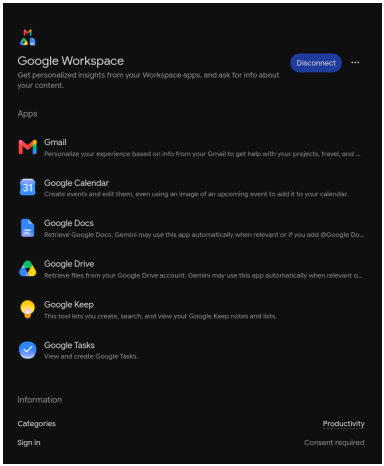
Task 6 Create custom skill for an application letter template for your organization. See following as an example:

When writing letter, always provide me letter as per following template:
To: **name here**
Through: **name here**
CC: (1) **first name here**, (2) **second name here **, and so on.
Subject: **Subject here**
Sir,
It is brought to your notice that:
(1) All factual points are to be in bullet forms.
(2) Second Factual point details
(3) Last point is what needs to be done.
In light of above, it is submitted to give principal approval for para (last point) above.
regards

Prepared by: Verified by: Recommended by:

Connected Apps (Settings → Personal Intelligence)





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Prompting Overview

- LLMs predict the most probable continuation of text.
- Ambiguous inputs produce generic, outputs.
- Structured prompts reduce the model's search space, aligning answers with intent.

Asking Hard Questions

Novice Usage

- Using it as Search Replacement
- Easy questions
- Which Toyota vehicle is good for me?

Power User

- Give AI complex tasks + time to think
- What are tradeoffs for different Toyota cars in Peshawar? Read every opinion and think hard before answering.

Provide Right Contexts

Novice Usage

- Give short prompts and hope AI will fill in the blanks
- Which a good application to send to my boss for salary raise.

Power User

- Lay down context (all text = files)
- It is my upcoming annual performance review. My work on projects is provided in folder X and my meeting summaries are in folder Y. Prepare a good application for me. If there are any shortcomings, discuss with me how to project their positive side.

Asking for Honest Input

Novice Usage

- AI will always attempt to praise your work (Sycophancy).
- I have a great business idea. I want to prepare an AI lawyer bot which would be good for the public.

Power User

- No expectation to be provided to the AI (Neutral Framing)
- See the attached business idea along with evaluation rubrics. If there are any weak points in the rubrics, help in identifying them. Provide an objective evaluation.

Writing Documents

Novice Usage

- Write an article on recent trends in google gemini

Power User

- Write an article on recent trends in google gemini. Start with a fact on what has been achieved so far. Provide challenges that have been faced along the way. If these challenges have been attempted to be fixed, provide a taxonomy of strategies along with how these solutions have evolved. Finally, comment on future directions.
- Iterations Iterations Iterations

Writing Documents (cont.)

- Change tone of response using Automated Readability Index (ARI Score)

$$\text{ARI} = 4.71\left(\frac{\text{Characters}}{\text{Words}}\right) + 0.5\left(\frac{\text{Words}}{\text{Sentences}}\right) - 21.43 \tag{1}$$

- **Characters:** Total alphanumeric characters (excluding spaces).
- **Words:** Space-separated tokens.
- **Sentences:** Total sentence count terminated by punctuation.

Writing Documents (cont.)

ARI Score	Grade Level	Target Age
1–4	Kindergarten – 4th Grade	5–10 years old
5–6	5th – 6th Grade	10–12 years old
7–8	7th – 8th Grade	12–14 years old
9–10	9th – 10th Grade	14–16 years old
11–12	11th – 12th Grade	16–18 years old
13–14	College Student	18–22 years old

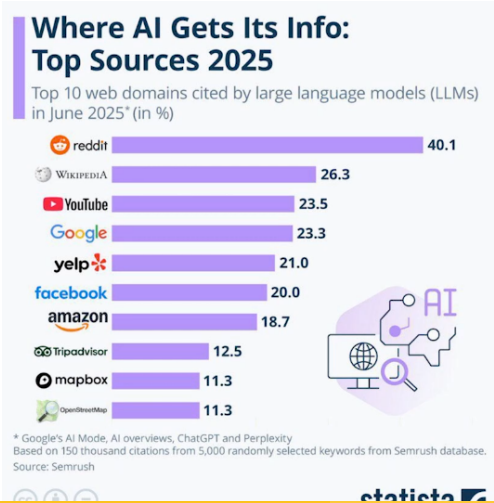
Table: Standard Automated Readability Index Chart

Prompting Static vs Dynamic Data



- Knowledge cut-off dates
- Ask questions which trigger web search (real-time Q, location specific Q, niche question)
- Ask prompt *Please search the web for . . .*

What Source to Check?



- Stale information, opinions from popular sources even for critical questions is very common.
- What dosage of calpol should be given to my son his fever?
- Use sources from official health organizations, and from studies backed by rigorous science, and focusing on well known researchers

RCTF Framework

- **R**ole: Who is speaking? Tell the AI who it should be.
  - Explain photosynthesis
  - Act as a biology tutor working with undergraduate students who understand basic chemistry but struggle with biological processes.
- **C**ontext: What is the setting, background, and constraints?
  - Pre-medical HSSC exams are next week, after which students will apply for medical college entrance exams. The students need to achieve more than 90%.
- **T**ask: What specific action must be taken?
  - Prepare explanation from theoretical, practical, applied point of view. Give example explanations wherever due.
- **F**ormat: How should the result be structured?
  - Answers should be within 200 words and catering for readability level suitable for HSSC students.

Failed Output

Understanding Reasons

- AI works on trained models
- AI hallucinates when: (a) they don't have exact data in return for a prompt, (b) Context windows are too small to retain everything.

- Chose solutions having large context windows
- Provide local context / files in addition to selection of good models.
- If AI hallucinates, carry out iterations for fixing it

Failed Output (cont.)

Common Use Case: Wrong Citations

- You provided some citations in document X. Provide an index of all citations used and map them to their corresponding file names / ISBN numbers / DOI numbers / .... If these are missing, carry out web search and retrieve URL's. Present the final citation coverage as a percentage.
- If a citation is not found by you, please write 'citation not found'

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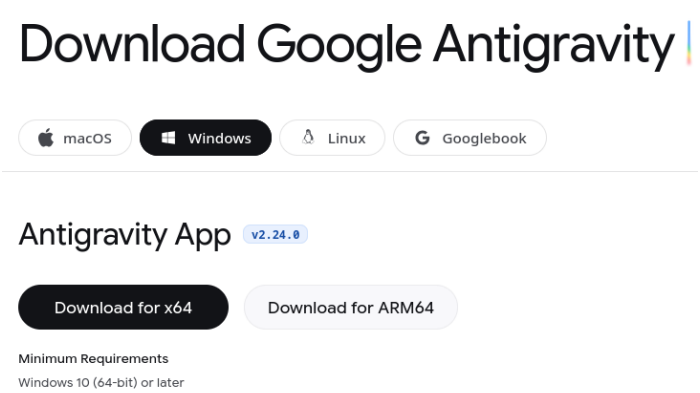
Antigravity Framework



An Agentic Platform that:

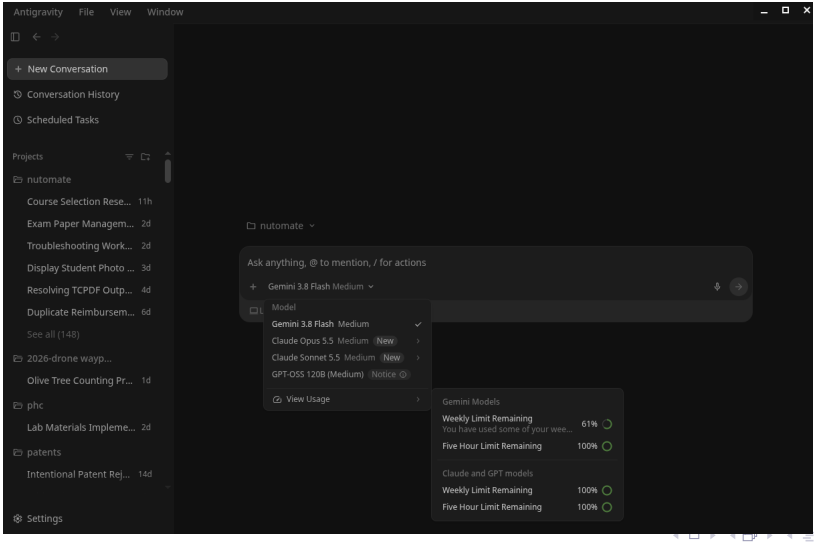
1. Analyzes complex user instructions.
2. Formulates a multi-step execution plan.
3. Invokes external tools.
4. Verifies output.
5. ...

Antigravity Framework (cont.)

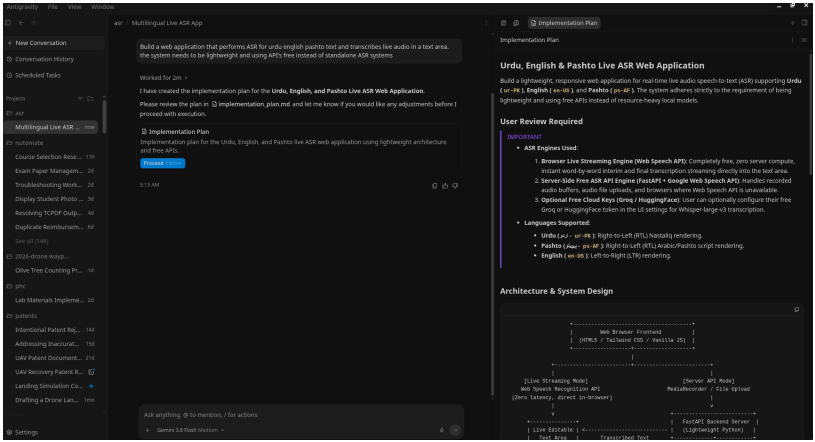


Task 8 Download Antigravity, Sign-In and Authenticate

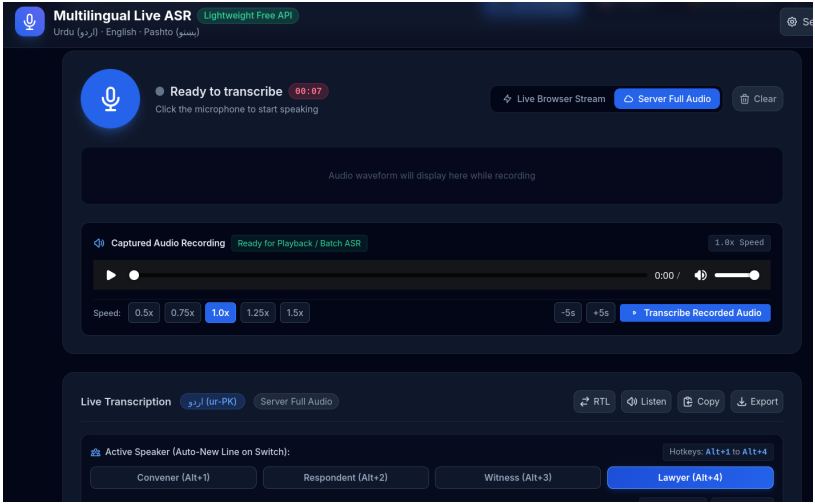
Antigravity Framework (cont.)



Demonstration



Demonstration (cont.)



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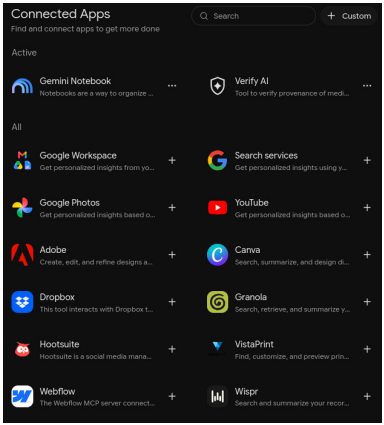
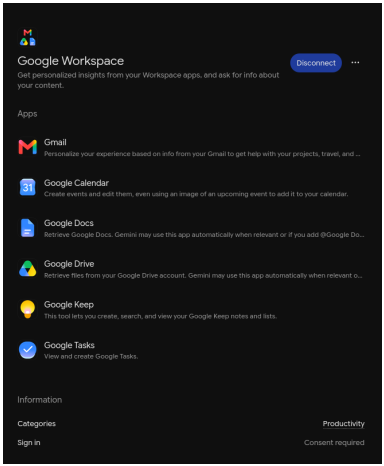
Connected Apps (Settings → Personal Intelligence)





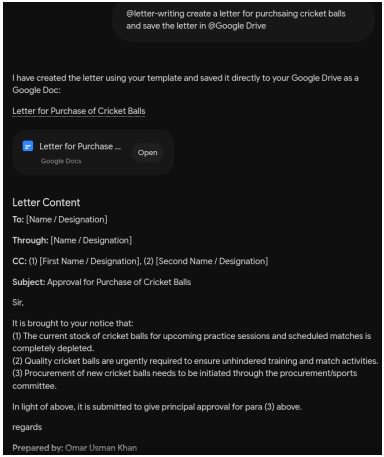
Connected Apps (Settings → Personal Intelligence) (cont.)

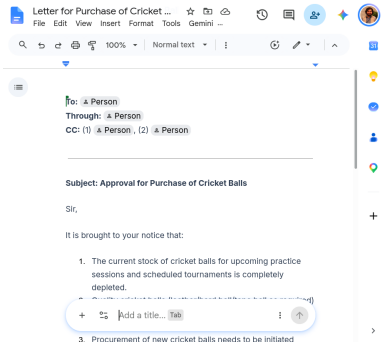
Task 7 Connect your Google Workspace to Gemini. When done, click on Use Now. If you have a sample document on google drive, then it is fine. Else, upload some documents. Then provide the following prompts:

- @doc find me a document on ... (describe document)
- Create a summary of this document and store it on google drive.

- @Google Calendar
- @Google Tasks
- @Google Docs
- @Gmail
- @Workspace

Taking your Letter to Google Drive





Options for Own Machine

- Use File Synchronization Tools such as Dropbox will synchronize all files directly to your personal machine.
- Use Google AntiGravity (Will be covered later on)
- Bionic / LM Studio (Heavy Disk footprint 25 GB HDD)