

VIDYABHARTI TRUST COLLEGE OF BUSINESS, COMPUTER-SCIENCE AND RESEARCH, UMRAKH

(Affiliated with Veer Narmad South Gujarat University, Surat)

Department of Computer Application
Newsletter

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Contents

DATA ANALYST VS DATA ENGINEER VS DATA SCIENTIST	3
Data Analyst	3
Data Engineer	3
Data Scientist	4
GPT-5 (ChatGPT-5)	5
Overview	5
Major Improvements over GPT-4	5
GPT-5 Variants	6
Key New Features	6
Interface and Usability Updates	7
Privacy and Security	7
Comparison: GPT-4 vs GPT-5	7
Developer / API Updates	8
Release Timeline	8
Impact and Future Outlook	8



DATA ANALYS VS DATA ENGINEER VS DATA SCIENTIST

Data Analyst

Key Skills:

Proficiency in SQL, Excel, and BI tools (like Power BI or Tableau). Strong analytical and problem-solving abilities.

Tasks:

Data cleaning, exploratory data analysis, creating dashboards, and reporting findings to stakeholders.

Goal:

To translate data into actionable insights and facilitate data-driven decision-making. Data analysts aim to provide clear, accurate, and insightful reports that help stakeholders understand business performance and trends.

Data Engineer

Key Skills:

Expertise in database systems, ETL (Extract, Transform, Load) processes, cloud platforms like AWS, Azure, and GCP, programming languages (Python, Java, Scala). Familiarity with big data technologies (like Hadoop, Spark).



Tasks:

Designing and implementing data pipelines, optimizing data storage solutions, and managing data integration from various sources.

Goal:

To design, build, and maintain robust data infrastructure that ensures reliable data flow and accessibility. Data engineers focus on creating efficient data pipelines and managing large-scale data systems, enabling smooth data processing and integration.

Data Scientist

Key Skills:

Strong knowledge in statistical analysis, machine learning, programming (Python, R), and data visualization. Experience with data manipulation and modeling.

Tasks:

Building predictive models, performing complex data analysis, and developing algorithms to solve business problems.

Goal:

To develop predictive models and uncover insights that drive strategic business decisions and innovation. Data scientists use advanced statistical and machine learning techniques to generate actionable forecasts and solve complex problems.

PROF. AMIT PATEL



GPT-5 (ChatGPT-5)

Overview

<u>Full Name:</u> Generative Pre-trained Transformer 5 (GPT-5)

Developer: OpenAI

Official Release: July 2025 (public rollout completed August 2025)

Model Type: Large Multimodal Transformer Model

<u>Purpose:</u> Natural language understanding, reasoning, creativity, and automation through text, image, and code.

Successor to: GPT-4 and GPT-4-Turbo

Major Improvements over GPT-4

- Better Reasoning Accuracy 40–50% fewer hallucinations; improved multistep logic, math, and coding.
- Larger Context Window Up to 1 million tokens for enterprise edition (vs 128k in GPT-4-Turbo).
- Advanced Multimodality Handles text, images, audio, and code in one chat.
- Better Personalization Learns user preferences; customizable personalities and tones.
- Agent-Style Automation Can browse the web, analyze files, and perform tasks with permission.
- Improved Coding and App Building Visual Canvas mode with code preview and debugging.



GPT-5 Variants

Variant Name	Purpose / Target Use	Key Features
GPT-5 (Base)	General ChatGPT Free/Plus	Fast, reasoning-oriented,
	users	multimodal (text + image).
GPT-5-Mini	Lightweight model	Quick responses, low latency,
		mobile friendly.
GPT-5-Nano	Developers / API automation	Low-cost model for backend
		integration.
GPT-5-Pro	ChatGPT Pro users	High reasoning depth, 1M token
		context, multimodal.
GPT-5-Enterprise	Businesses / Research	Custom memory, advanced
		security, API integration.

Key New Features

- ChatGPT Agent Executes complex tasks like filling forms, managing files, and data analysis.
- Project Workspaces Organize chats, files, and context under 'Projects'.
- File & App Integrations Connects with Google Drive, Gmail, Slack, GitHub, Notion, Excel.
- Improved Voice and Vision Real-time interaction, image understanding, handwriting reading.
- Developer Enhancements Code Interpreter 2.0, new API parameters, autodebugging.



Interface and Usability Updates

<u>Custom Instructions 2.0</u> – Persistent user goals.

<u>Themes and Colors</u> – Interface personalization.

<u>Canvas Mode</u> – Visual editor for coding/design.

Offline Drafts – Save and sync projects.

Privacy and Security

- All automation tasks require confirmation.
- End-to-end encryption for enterprise users.
- Local memory can be paused or deleted anytime.
- GDPR and ISO 27001 compliant.

Comparison: GPT-4 vs GPT-5

Feature	GPT-4 / 4-Turbo	GPT-5	
Release Year	2023–2024	2025	
Context Limit	128K tokens	Up to 1M tokens	
Modalities	Text, Image	Text, Image, Voice,	
		Audio	
Reasoning Depth	Medium	Advanced	
Code Execution	Limited	Full Canvas + Debug	
Web Access	Add-on	Built-in	
Personalization	Manual	Dynamic / Memory-	
		based	
Speed	Moderate	2–3× faster	
Accuracy	~75% factual	~90% factual	



Developer / API Updates

- New dashboard with usage insights.
- Multiple model endpoints (Pro, Mini, Nano).
- Supports tool chaining.
- Improved rate limits for Pro/Enterprise users.

Release Timeline

Event	Date	Details	
Internal Testing	March 2025	OpenAI Alpha testing	
		phase.	
Developer Preview	May 2025	Limited API rollout.	
Public Launch	July 2025	ChatGPT and API	
		integration.	
Enterprise Rollout	August 2025	Full GPT-5 Agents	
		availability.	

Impact and Future Outlook

- GPT-5 bridges the gap between assistant and autonomous agent.
- Integrates with OpenAI Operator for workflow automation.
- GPT-6 (expected 2026) to add video reasoning and deeper consistency.

- PROF. NIDHI PATEL



VARIANT	WHAT IT IS	BEST FOR	PRICING (API, PER 1M TOKENS)
GPT-5	Flagship reasoning model	General use; strong coding, math, analysis, writing	\$1.25 input, \$10.00 output
GPT-5 Thinking	ChatGPT mode that forces deeper reasoning	Hard problems where careful step-by-step analysis help	\$1.25 input, \$10.00 output
GPT-5 Mini	Smaller, faster reasoning model	High-throughput tasks, tight budgets, well-defined prompts	\$0.25 input, \$2.00 output
GPT-5 Nano	Smallest, fastest reasoning model	Massive scale, lowest latency/cost needs	\$0.05 input, \$0.40 output
GPT-5 Pro	ChatGPT extended-reasoning variant (successor to o3-pro)	Most demanding, complex tasks; maximum completeness	subscription feature



Define the Objective



Clearly state the purpose of your prompt to guide ChatGPT's response.



Specify the Format

Indicate the desired structure, such as bullet points, tables, or paragraphs.



Assign a Role

Instruct ChatGPT to assume a specific role (e.g., marketer, educator) to tailor the response.



Provide Feedback

If the response isn't as desired, offer specific feedback for adjustments.



Identify the Audience

Clarify who the intended readers are to align the tone and content appropriately.



Provide Context

Offer background information to help ChatGPT understand the scenario.



Test and Refine Prompts

Experiment with different phrasings to achieve optimal results.



17 Golden

Prompts



Set Constraints

Define any limitations, such as word count or topics to avoid, to focus the response.



Avoid Multiple Questions

Limit to one query per prompt to prevent confusion.



ChatGPT 🌀



Use Clear Language

Avoid ambiguity by using precise and straightforward language.



Be Concise

Keep prompts brief yet comprehensive to maintain focus.



8 **Include Examples**

Provide samples to illustrate the desired outcome.



Clarify any jargon to ensure accurate interpretation.

13

Define

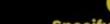
Technical

Terms



Encourage Creativity

Invite innovative ideas when appropriate to explore diverse perspectives.



Specify the Tone

Indicate whether the response should be formal, casual, humorous, etc.



Request Citations

If needed, ask for sources to back up factual information.

Ask for Step-by-Step **Explanations**

10

For complex topics, request detailed breakdowns to enhance understanding.