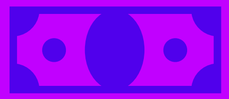
The Fastest Growing App Ever

Time it took selected apps & services to gain **one million** users

ChatGPT PLUS Price & Features



USD 20 / Month

Priority ChatGPT Access

Faster Output Generation

Model Selection

Early Access

About The Course

Beyond ChatGPT

- OpenAI GPT APIs
- AutoGPT & LangChain

Other AI Tools

- Midjourney

Using ChatGPT Efficiently

- Prompt Engineering
- Utility Tasks
- Content Creation
- Coding

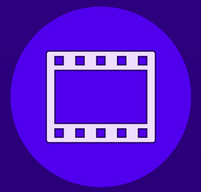
Hands-on Demos

- Content Creation
- Coding

Foundation

- Setup
- Basic Usage
- Behind the Scenes

Get The Most Out Of The Course!



Watch the Videos

At your pace: Use the video player controls

On-Demand: Repeat videos & sections as needed

Follow Along Actively

Pause & try things on your own

Practice what you learned

Help Each Other

Ask & answer in the Q&A section

Join our amazing Discord community!

Course Prerequisites

No prior ChatGPT experience required!

No coding experience required!

Built for everyone!

Important

You will not necessarily be able to reproduce the responses you see in the videos!

Even when using the exact same prompts.
ChatGPT has a certain degree of “randomness” & the underlying models will evolve and change.

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Understanding ChatGPT

How It Works Under The Hood

- How It Works
- Features & Limitations

ChatGPT Under The Hood

ChatGPT

based on

GPT
Generative Pretrained Transformer

is a

LLM
Large Language Model

AI model created & owned by OpenAI (which, despite the name, isn't very open)

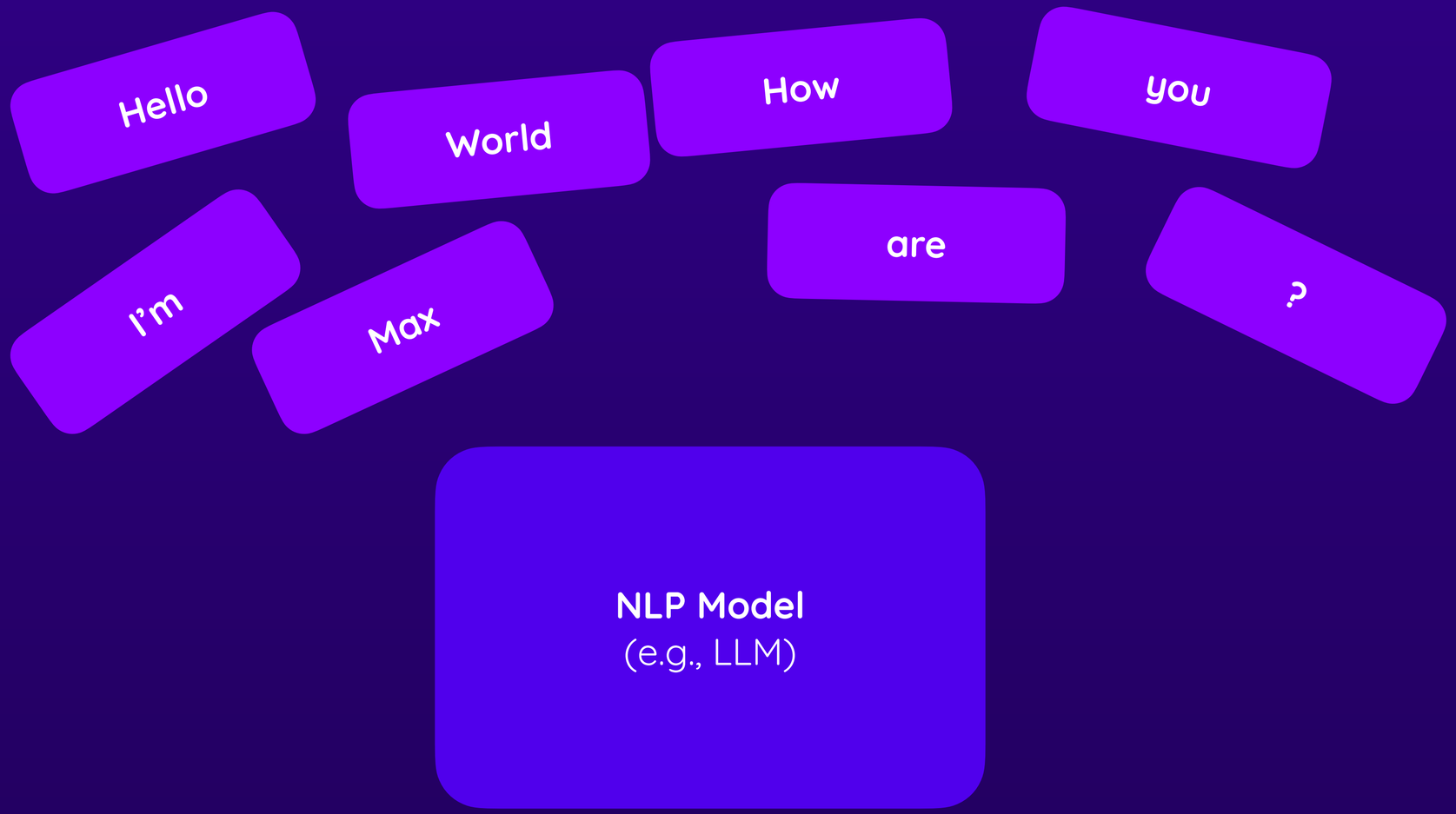
ChatGPT can be used via the **browser**

GPT APIs can be used in **code**

A machine learning model that performs **natural language processing** (NLP) tasks

Trained to use **probability distributions** over words & **sequences of words** to generate output

Natural Language Processing



What Are LLMs?

A large language model is an **AI-powered system**, based on a **neural network** of "**Transformers**", trained on vast amounts of text data to **generate human-like text output** by predicting the next word based on the user input prompt.

Language Models Complete Sequences

Prompt

1, 2, 3,

Output

4

Prompt

Give me a list of three strengths of ChatGPT. Only use one word each.

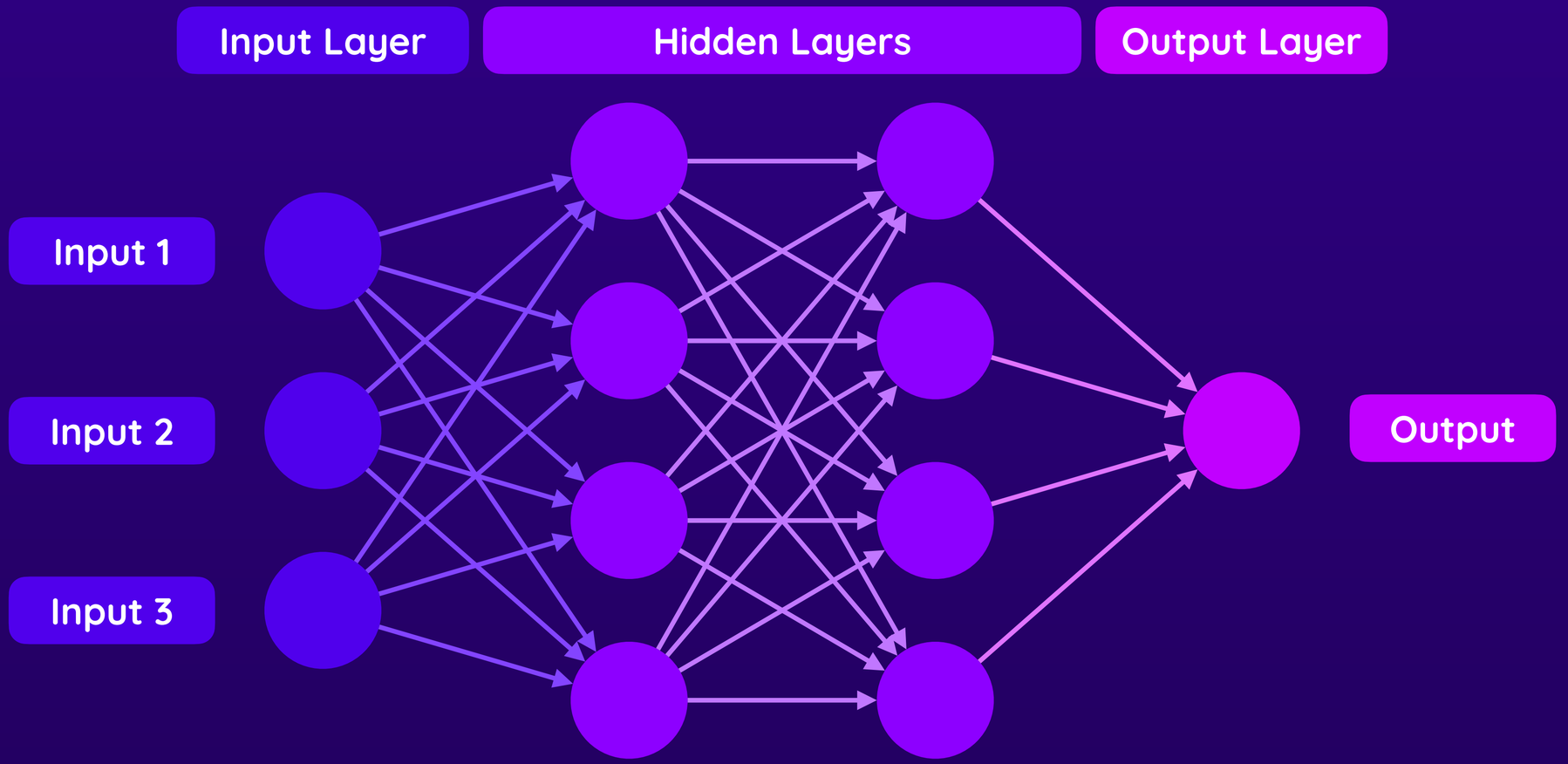
Output

Adaptive, Informative, Responsive

Might not look like a sequence

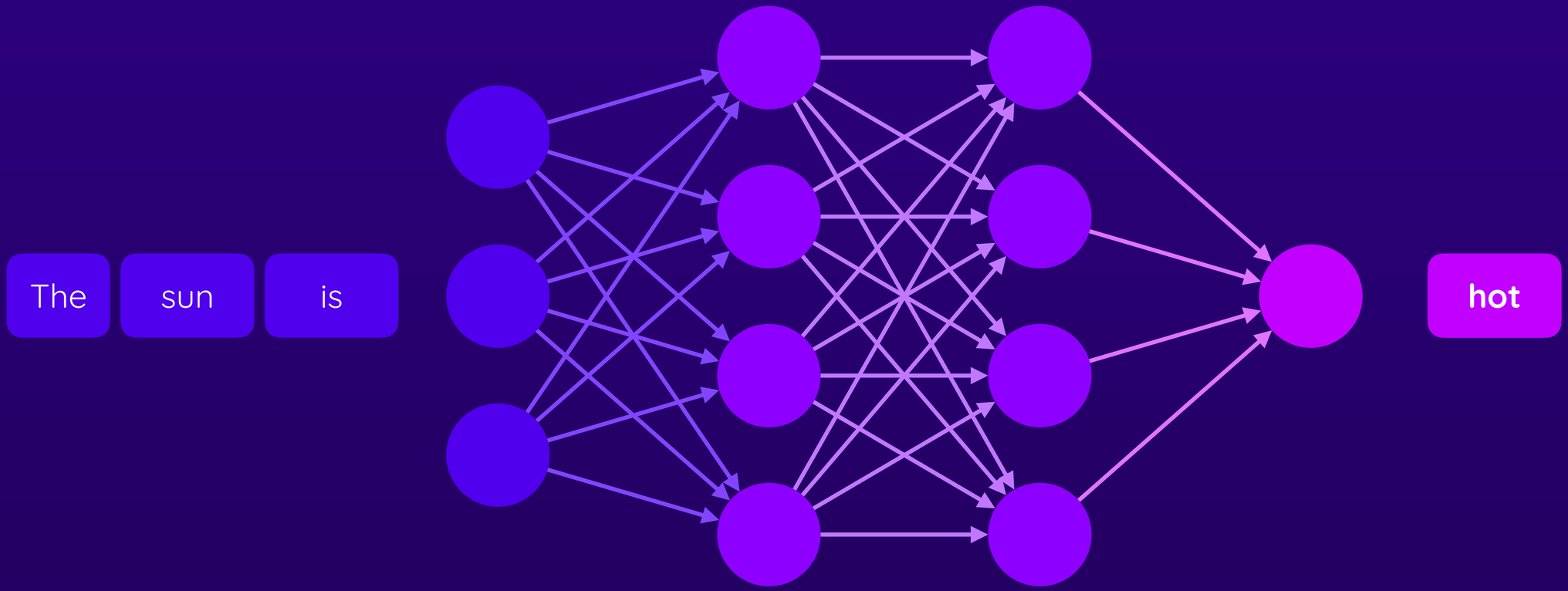
But it is one, once you think about it

LLMs Are Neural Networks



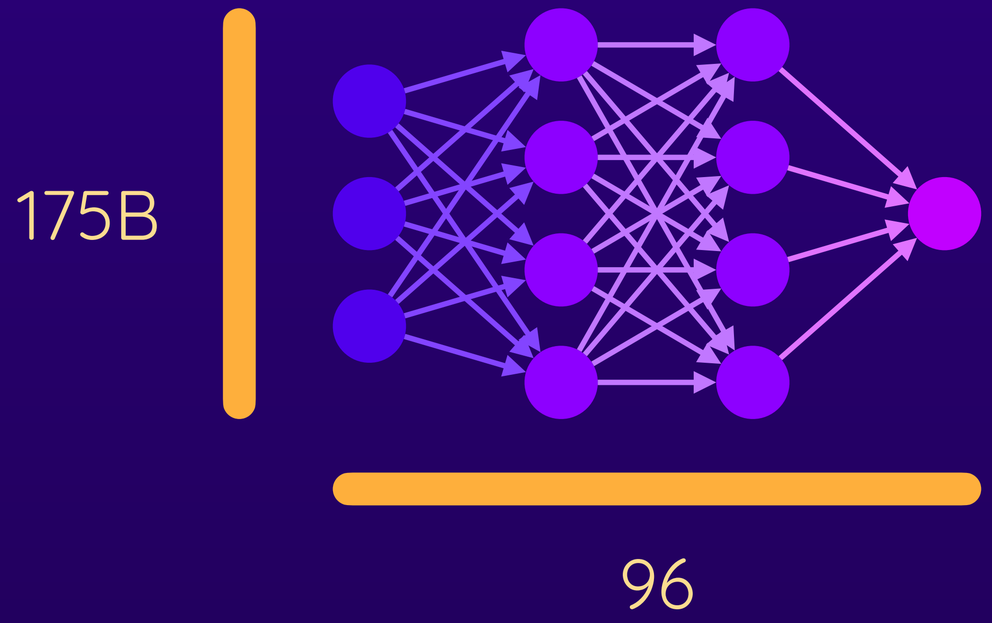
There are **different kinds** of neural networks for **different purposes**.
For example, models focused on analyzing images use so-called “Convolutional Neural Networks”.
Large language models use “**Transformers**” (or “Transfomer Neural Networks”)

LLMs Are Neural Networks



Large Language Models Are ... Large

GPT 3.5 was trained via a Transformer neural network with **175B parameters** across **96 layers**



Training Data? Everything!

Publicly available text data from the internet

GPT

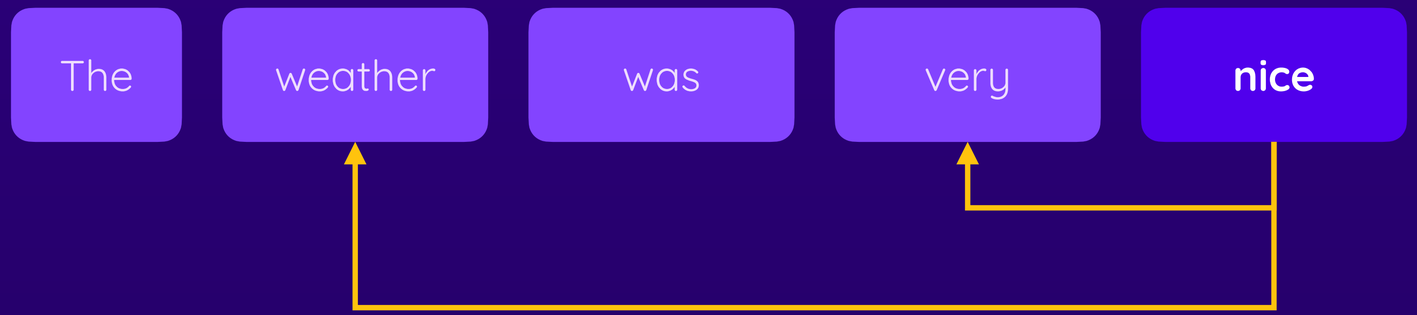
Tokens Instead Of Words

Tokens / Token IDs are used as inputs for the neural network

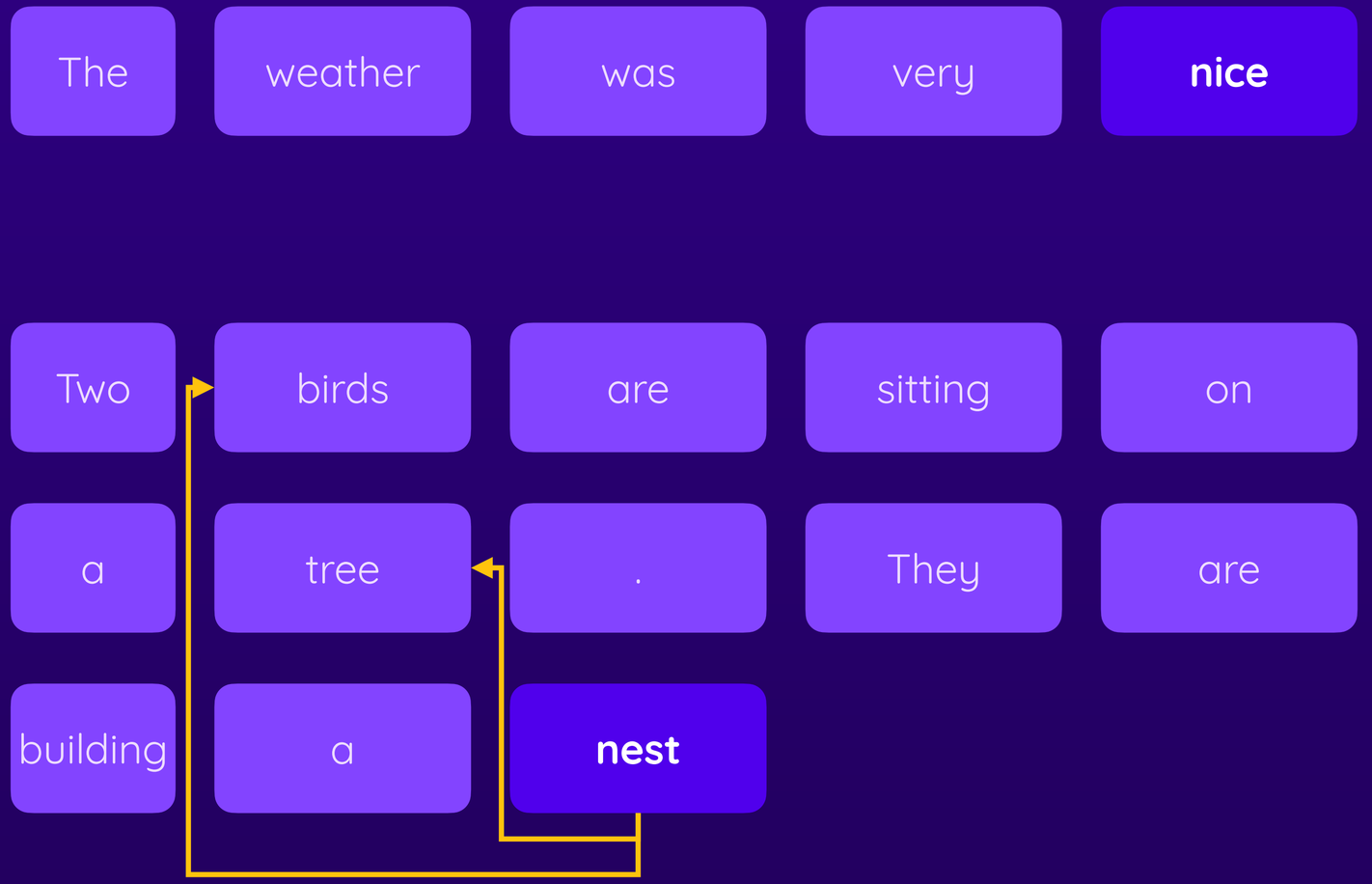
Predicting Word By Word Is Not Enough

The	woman	was	very	
The	weather	was	very	nice
	I	was	very	

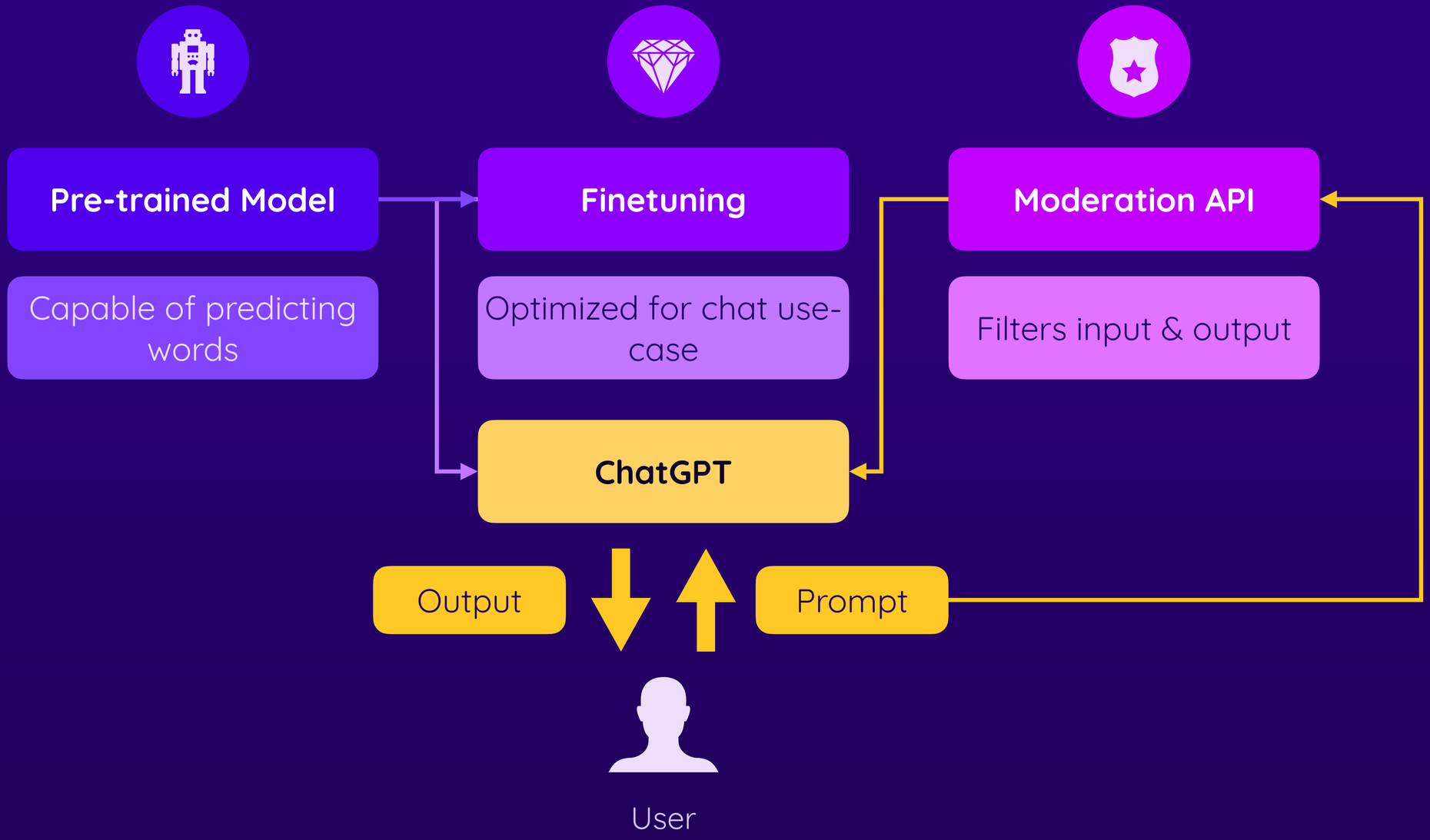
LLMs Detect Patterns & Relations



LLMs Detect Patterns & Relations



Fine-tuning & Moderation



ChatGPT Limitations

Limited Training Data

Only data until September 2021 was used for training

It’s About Patterns, Not Logic

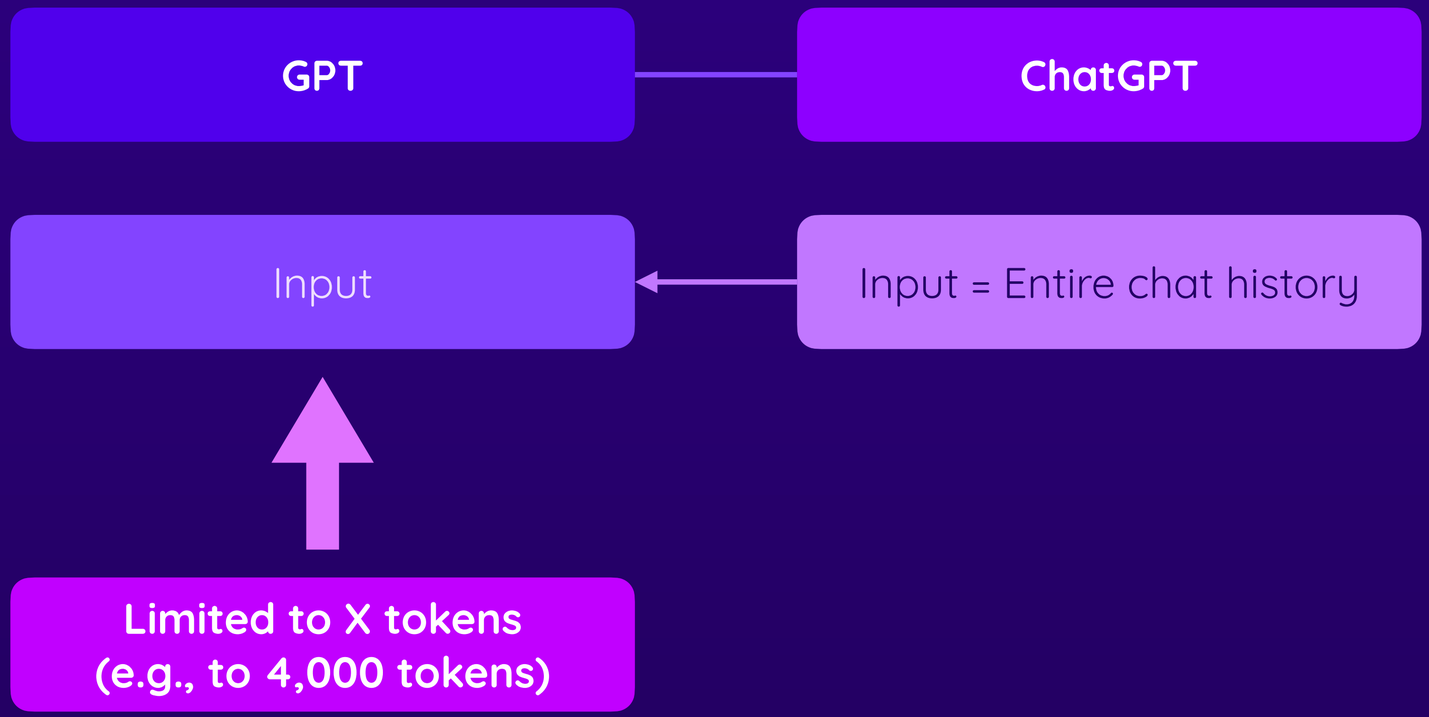
ChatGPT doesn’t really understand you - even though it often seems like it does

It Can Only Handle & Output Text*

It can’t search the internet, it can’t execute code etc.

* ChatGPT plugins & third-party tools can extend the functionality

ChatGPT Context Is Limited



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Introduction & General Usage

Getting Started with ChatGPT

- Exploring the User Interface & Writing our First Prompts
- Why ChatGPT is NOT always the Single Source of Truth
- Using Current Data with ChatGPT Plugins

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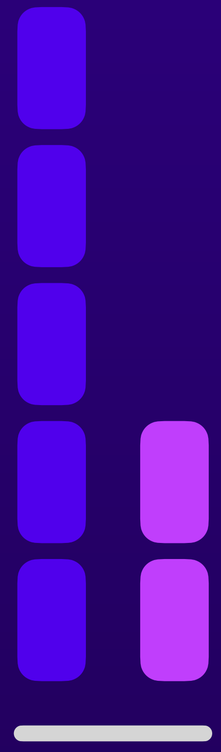
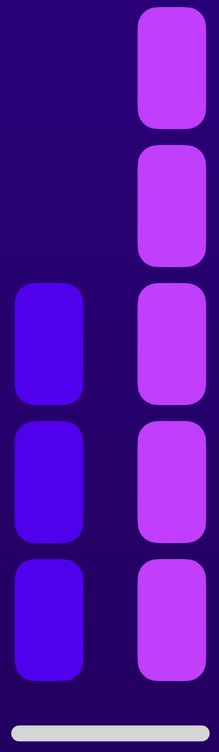
Comparing ChatGPT 3.5 & ChatGPT 4

GPT 3.5 (Default)

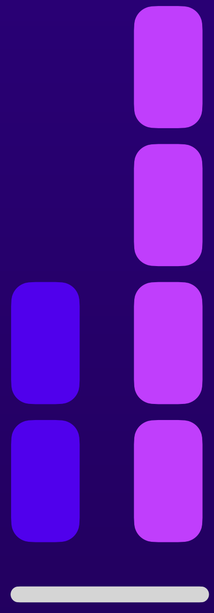
GPT 4



Speed



Reasoning



Conciseness

Example

Andrew is free from 11 am to 3 pm, Joanne is free from noon to 2 pm and then 3:30 pm to 5 pm. Hannah is available at noon for half an hour, and then 4 pm to 6 pm. What are some options for start times for a 30 minute meeting for Andrew, Hannah, and Joanne?

What Should I Use?

GPT 3.5 (Default)	Simple data request and / or fact based questions.
GPT 4	Complex questions, requiring various parameters / constraints to be considered.

Prompt

Your ChatGPT Input that describes your Problem or Request

How to Use Prompts - Examples*

Simple Facts

How many citizens does Barcelona have?

Who was the first president of the United States?

Who is Michael Jordan?

Context-Aware Prompts

What is a Wiener Schnitzel?

Please give me the recipe.

I need a shopping list with all ingredients for the recipe, but I bought the meat already.

* “Prompt Engineering” will be covered in great detail in the next course module

Beware of Hallucinations!

ChatGPT can create incorrect or non-context related output (that still sounds plausible)

Enhance ChatGPT's Capabilities With ChatGPT Plugins

Code Execution

Write & Execute Code Directly in the Browser.

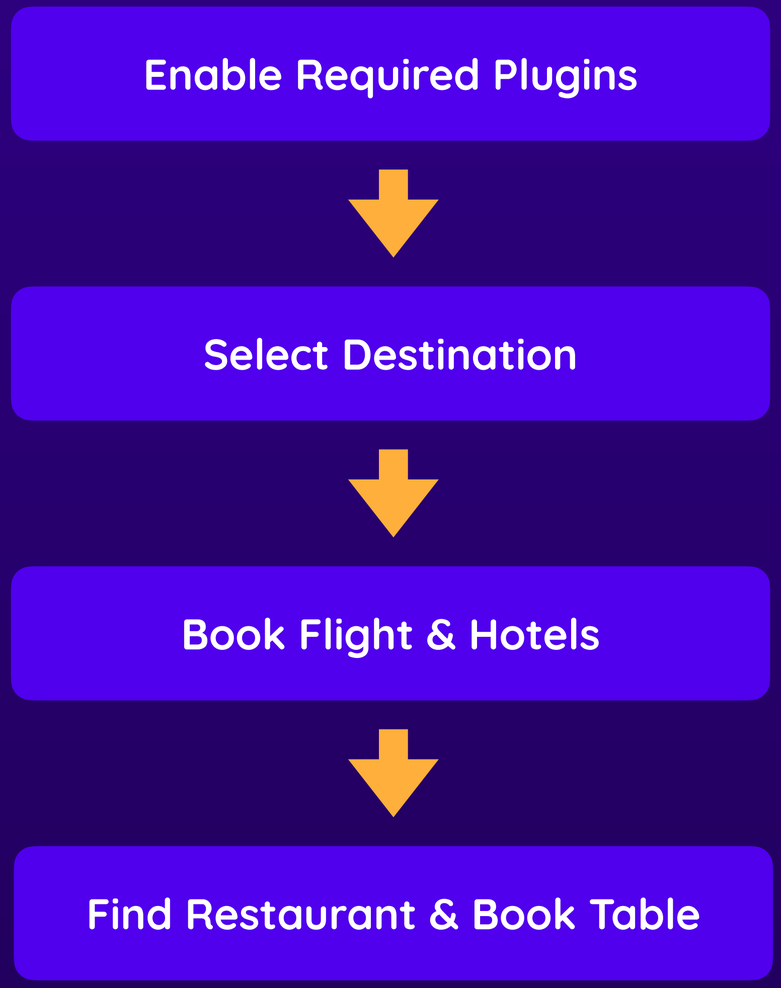
Internet Access

Retrieve Latest Data by Connecting ChatGPT to the Internet.

Not Publicly Available

Limited Alpha Access Through Waitlist

Planning the City Trip with ChatGPT



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Prompt Engineering

Writing Good Prompts & Getting What You Want

- Prompt Engineering: Writing Good Prompts
- Using Different Prompting Strategies
- Examples!

Why Prompt Engineering?

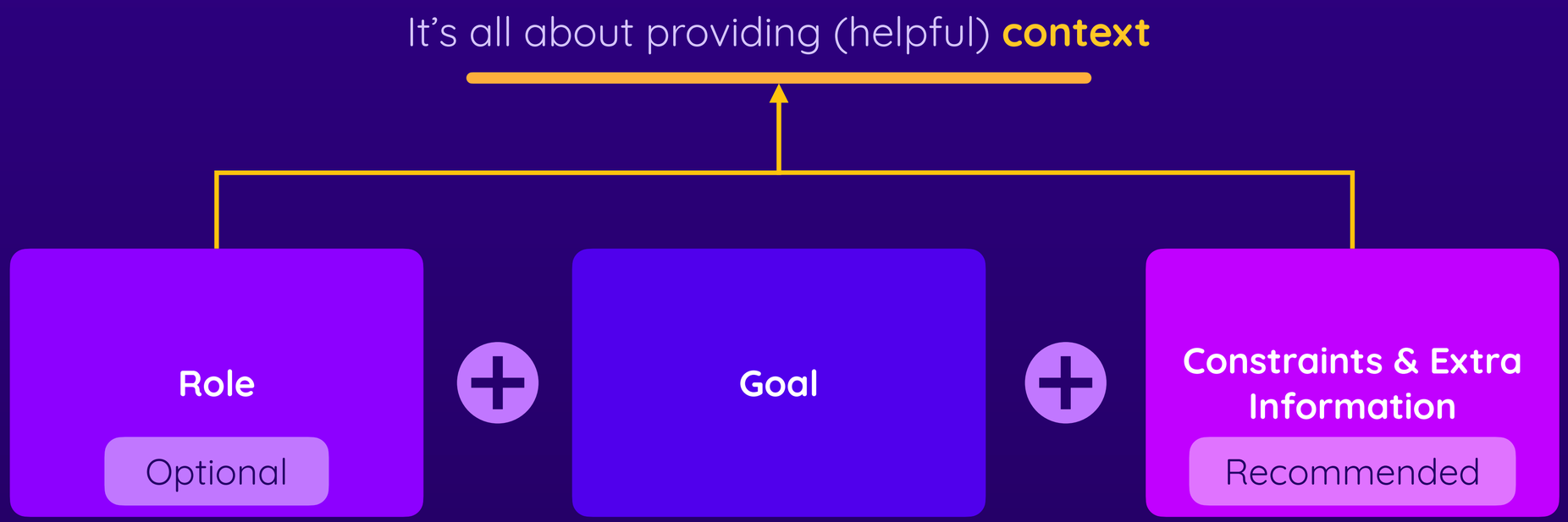
Good Prompts

=

Good Results

Core Prompt Elements

Prompt Elements - A Closer Look



Goals & Roles

Goal

"Write a tweet that explains ChatGPT"

Defines the main content of the generated result

Role

"You are an expert, engaging twitter user"

Controls the perspective and type of response

Constraints & Extra Information

Goal

"Write a tweet that explains ChatGPT"

Defines the main content of the generated result

Constraints & Extra Information

"Target a tech-savvy audience, avoid emojis"

Fine-tunes the result content, structure & format

Special Constraint: **Output Format**

"Return the result formatted as JSON"

Role

"You are an expert, engaging twitter user"

Controls the perspective and type of response

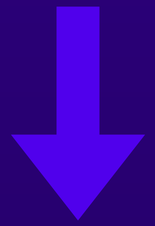
Keep In Mind

ChatGPT Output Is A Starting Point

Fine-tune & adjust as needed

Refine Results Over Time

It’s a chat!



Tell ChatGPT which parts need adjustments

“Add a personal touch or note to the tweet and also encourage readers to share their hiking stories”

Adding Meaningful Context

Prefer **short**, focused **sentences**

Add important **keywords** & avoid unnecessary information

Define the **target audience**

Control **tone, style & length** of the output

Control the **output format** (text, JSON, unformatted markdown, ...)

Examples & Exercises

1. Create a short product announcement text for a new AI-powered website generator
2. Create a Python code snippet that searches & deletes all .png & .jpg files in a given folder
3. Write an email to a colleague that you need feedback on your submitted prototype until end of the week.

Zero-, One- & Few-Shot Prompting

Providing examples can help fine-tune the result tone, style & content

0	1	N
Zero-Shot	**One-Shot**	**Few-Shot**
Provide no examples	Provide one example	Provide multiple examples
“Write a tweet that explains the core idea behind ChatGPT.”	“Write a tweet that explains the core idea behind ChatGPT. Use a similar tone & structure as I do in my regular tweets. But don’t use the content. Here’s **an example**: …”	“Write a tweet that explains the core idea behind ChatGPT. Use a similar tone & structure as I do in my regular tweets. But don’t use the content. Here are **two example tweets**: …”

Enhance Your Prompts!

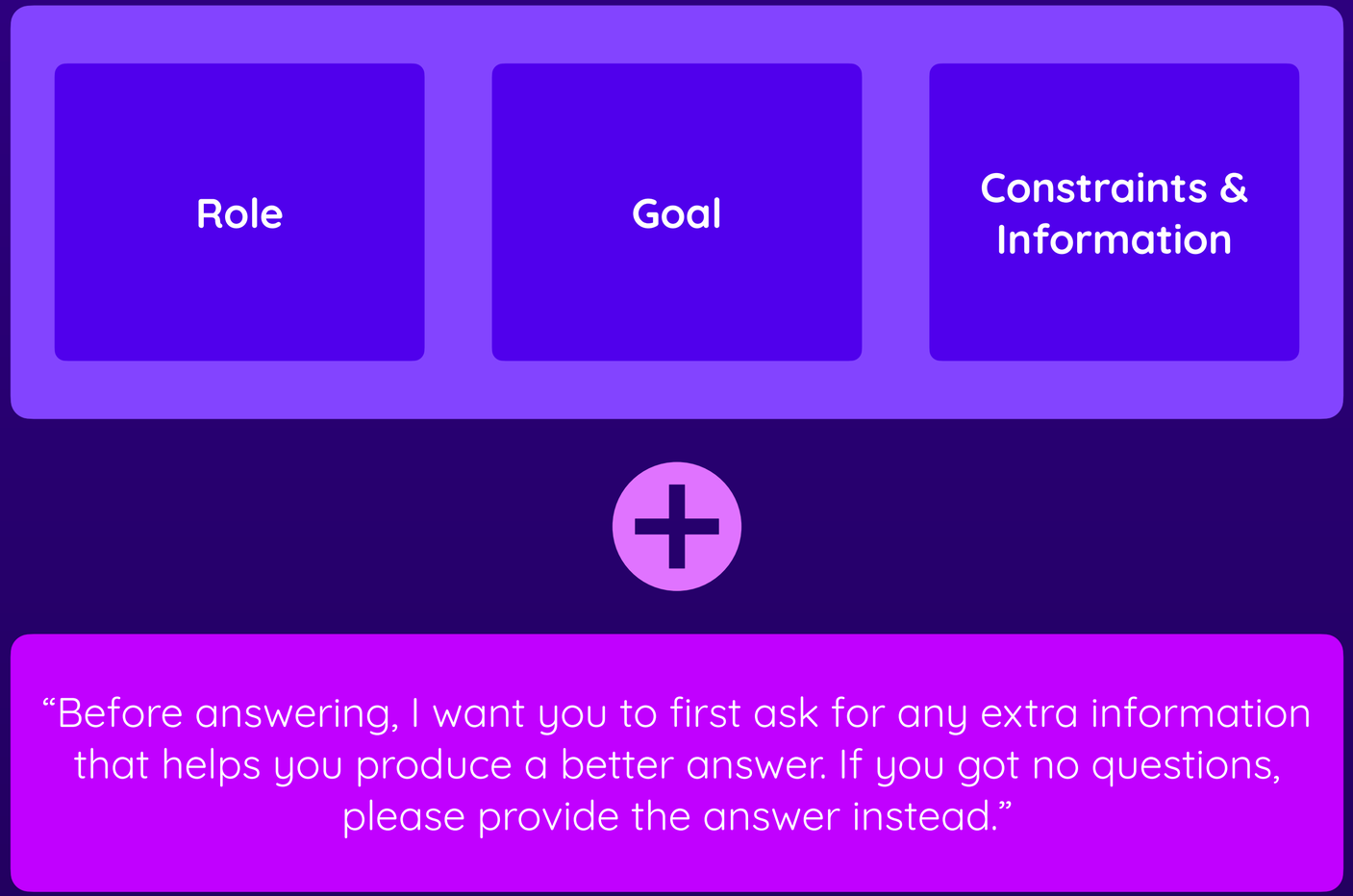
Foundation

Goal + Context

Advanced

More techniques & tricks

Ask-Before-Answer Prompting



Perspective Prompting

Let ChatGPT Assume Different Perspectives

No Perspective	Single Perspective	Multiple Perspectives
Default	Assumed via Prompt Engineering	Assumed via Prompt Engineering
“Create a travel itinerary for a 2-weeks yoga retreat in Austria.”	“Create a travel itinerary for a 2-weeks yoga retreat in Austria from the perspective of the yoga trainer.”	“Create a travel itinerary for a 2-weeks yoga retreat in Austria from the perspectives of a yoga proponent and opponent.”

Examples & Exercises

1	Create a modern, minimal CV website showing your image and below that a list of your working experience & skills	Define structure & target output (HTML + CSS)
2	Write a newsletter email that mentions two new posts on your website	Use Ask-Before-Answer Prompting
3	Use Python & JavaScript to encode input text (and output that text) by shifting every character one character to the left	Perspective Prompting

More Prompting Techniques

Contextual Prompting

Emotional Prompting

Laddering Prompting

Many more!

Contextual Prompting

Context

Extra information on **cultural, historical**, or **situational** factors

Summarize the evolution of the combustion engine over the years since its inception.
Also evaluate its impact on society and the environment.

Consider the current shift towards renewable energy and electric vehicles in your response.

Emotional Prompting

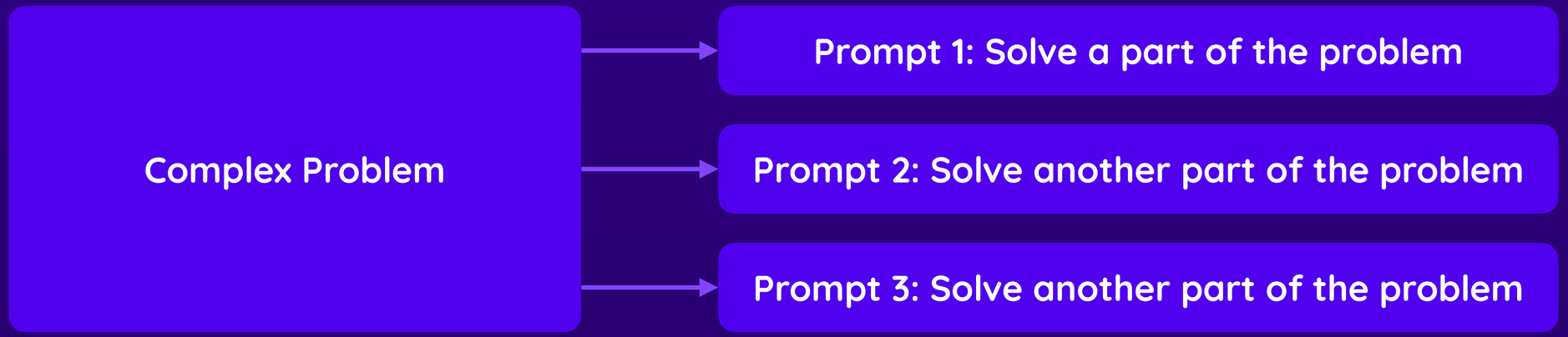
Context

Consider the **emotional state or tone** of the user's query

Write an email response to the following customer complaint:
"Your products are garbage. The new chair broke 1 day after it was shipped. You'll hear from my lawyer."

When drafting the response, take the sentiment and tone of the customer into account.

Laddering Prompting



We need a complete NodeJS REST API that handles user authentication and then supports different routes for creating events, reading events, deleting events and updating events. All routes except for the “read events” route should be protected and only accessible by authenticated users.
Data must be exchanged formatted as JSON and stored in a MongoDB database on the backend.

Set up a basic NodeJS API with the following endpoints ...

Connect a MongoDB database and set up Event & User models

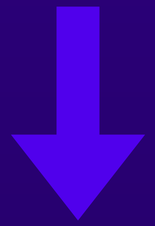
Add the logic for signing users up & logging users in

Add the logic for handling events

Protect the non-read event routes against unauthenticated access

Let ChatGPT Write Better Prompts

Let ChatGPT help you!

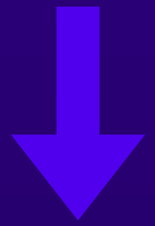


Ask ChatGPT which extra information would improve the result & the generated content

“Which extra information do you need to create a better tweet?”

Let ChatGPT Evaluate Itself

ChatGPT can criticize & improve itself

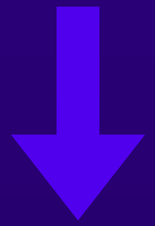


Ask ChatGPT a self-reflective question

“What could be improved about your tweet?”

Ask ChatGPT For Example Prompts

Turn things around: Let ChatGPT write prompts!



Ask ChatGPT which prompt should be used to produce an output similar to a provided output

“Given the below example output, which prompt would’ve yielded a similar output?”

“Super Prompts”

CAN
(Code Anything Now)

Prompt that “optimizes” ChatGPT for coding

DAN
(Do Anything Now)

Jailbreak ChatGPT → Respond in unintended ways

...

Experiment with such prompts but don’t focus on them!

Keep in mind: ChatGPT does not truly understand you!

Focus on general prompting techniques instead

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Using ChatGPT for Daily Tasks

Some Practical Implementations

- Researching, Summarizing & Translating Information
- Proofreading, Improving & Enhancing Text
- Creating Simple Utility Tools with ChatGPT

Research

Summarizing Information

Translation & Tone Adjustment

Proofreading & Enhancing Text

Writing Utility Tools / Scripts

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Using ChatGPT for Content Creation

Exploring a New Level of Creativity

- Creating Blog Posts, Articles & Video Scripts
- Boosting Your Social Media Posts, Writing Cover Letters & More
- Generating Sample Data with ChatGPT

Writing an article / a blogpost about...

The history of the iPhone from its first presentation until 2021.

Simplified (simple prompt)

Structured (complex prompt)

Adding Constraints

Target Audience

Topic Related Keywords

Highlight Significant Improvements

Article Length

Adding Images

Your Options are Unlimited!

Tutorials	
Technology	Unlocking the Power of Artificial Intelligence: A Beginner's Guide to Machine Learning
	The Ultimate Guide to Cybersecurity: Protecting Your Digital Life in the 21st Century
Fitness & Sports	Maximizing Your Endurance: Tips and Tricks for Long Distance Running
	The Ultimate Guide to Building Muscle Mass for Beginners
Beauty & Fashion	Mastering the Art of Contouring: Tips and Tricks for a Flawless Face
	10 Easy Hairstyles to Try at Home for a Chic and Effortless Look

Your Options are Unlimited!

Opinions	
Recent Developments	Why I Believe the Push for Renewable Energy is More Important Than Ever
	Why Mental Health Should Be a Priority in Today's Society
Pros & Cons	The Great Debate: Is College Education Really Worth the Investment?
	The Controversy Surrounding Cryptocurrencies: Should You Invest or Stay Away?
What Impacts our Lives?	The Dark Side of Social Media: How it's Destroying our Mental Health
	The Dangers of Fast Fashion: How Our Addiction to Cheap Clothing is Destroying the Planet

Your Options are Unlimited!

Deep Dives

Historical Developments	From Slavery to Freedom: A Historical Journey of the Civil Rights Movement
	The Rise and Fall of Empires: Understanding the Historical Significance of Ancient Civilizations
How Technology Evolved	From Pong to PlayStation: The Evolution of Video Game Technology
	From the Abacus to AI: Tracing the Evolution of Computing Technology
Social & Econ. Research	The Hidden Costs of Income Inequality: A Comprehensive Analysis of the Social and Economic Impacts
	The Power of Diversity in the Workplace: Examining the Research on Social and Economic Benefits

And So Much More!

Adding Constraints

Video Length

Engaging & Fast-Paced Video Style

Video Footage

Background Music

Copywriting

Writing the Written Content (“Copy”) for Marketing Materials

Understand Target Audience

Promote Product / Service

Website Content

Social Media

Emails

Signup for Newsletter

Visit Website

Buy Product

Revolutionizing Job-Related Writing

Employees

- Standout CVs
- Compelling Cover Letters

Employers

- Job Offers
- Contracts

- Emails

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Hands-On: ChatGPT Content Creation

Practicing How To Generate Content With ChatGPT

- Create & Advertise a Realistic Blog Post
- SEO
- Add Images (Midjourney)
- Creating a Video Script

Creating Content with ChatGPT

Plan a Blog Post
Keywords + Outline

Write the Blog Post

Add Images
(incl. Thumbnail)

SEO

Format as Markdown

Create YouTube Video Script
(based on Blog Post)

Create Newsletter Email

Create Marketing Tweets

Topic

Understanding ChatGPT & How It Works Behind The Scenes

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ChatGPT For Programming

Writing Code with ChatGPT

- Generating Code With & Without Programming Experience
- Debugging & Optimizing Code
- Explaining & Refactoring Code

ChatGPT Is Great For Everyone!

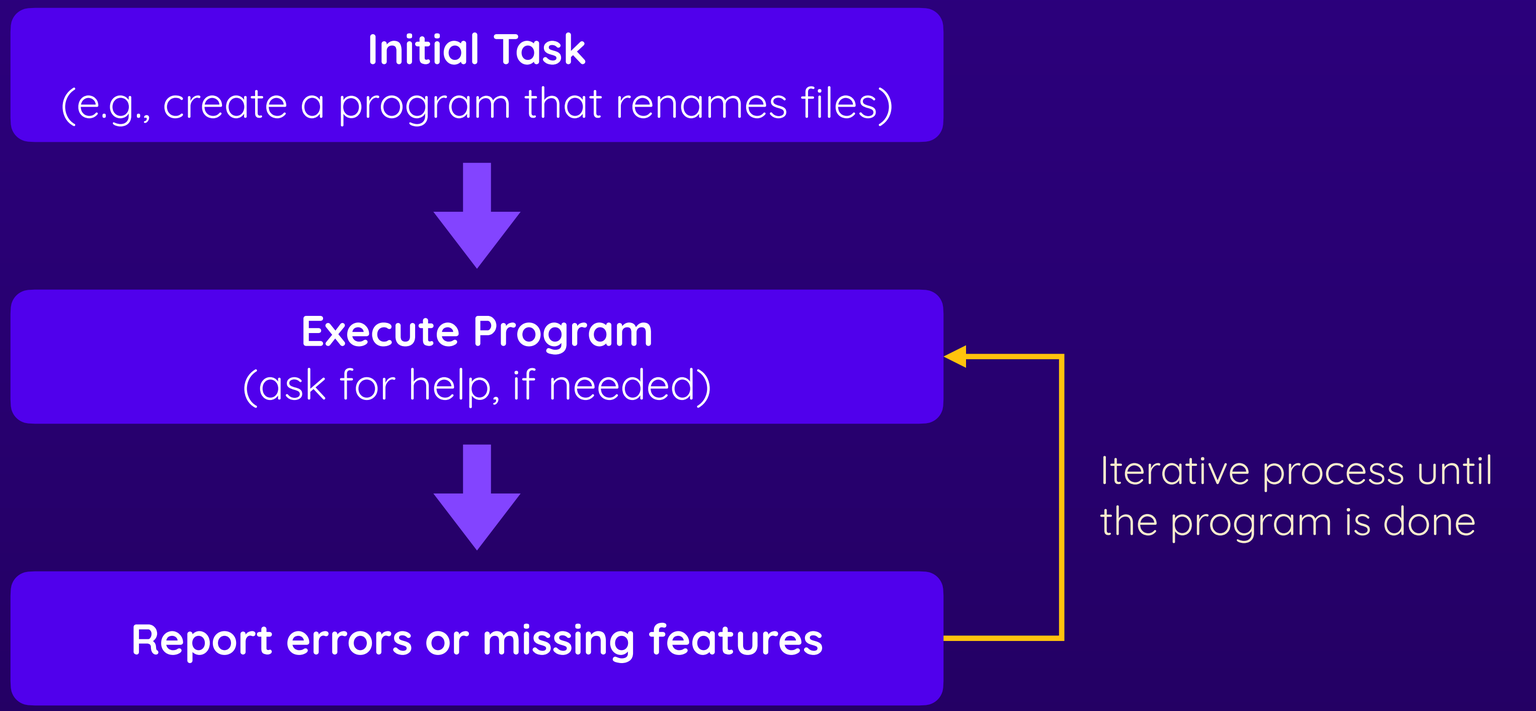
Non-Developers

Build basic programs (utility scripts) & websites with zero development experience

Developers

Boost your productivity, outsource the boring parts, generate dummy data & code faster

ChatGPT For Non-Developers



Exercise Time!

Let ChatGPT build a **basic website**!

Starting Page

- Your name
- Image
- List of hobbies

CV Page

- List with career history

Website should have a modern, clean, dark-mode styling.

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Be Careful

Code you don't know could cause harm!

Depending on your request & prompt it could delete files, erase data, crash your system etc.

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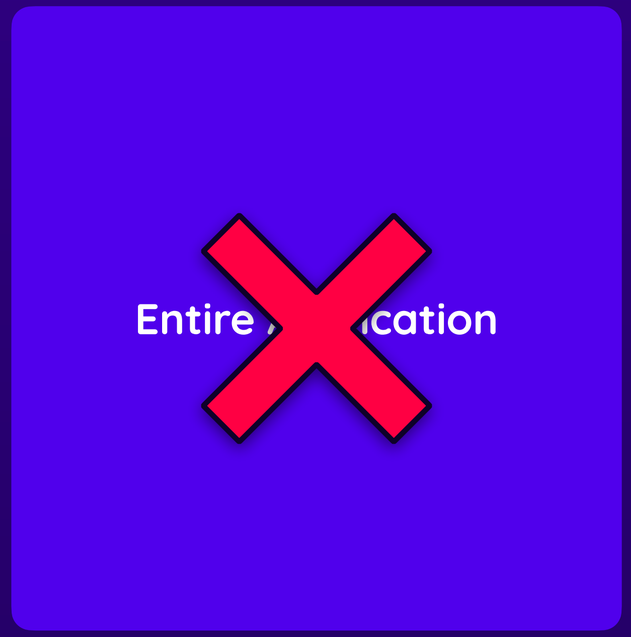
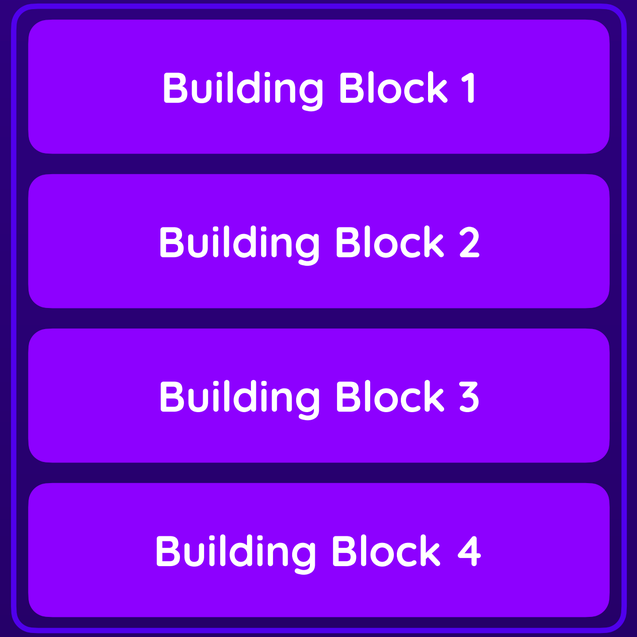
ChatGPT 🤝 Developers

As a developer, you can massively **boost your productivity** by using ChatGPT!

ChatGPT For Developers



Don’t ask ChatGPT for entire applications or websites



Combine manually (or with additional help from ChatGPT)

Instead, prefer asking for individual building blocks

ChatGPT For Developers

Building Blocks > Entire Apps

Use ChatGPT to speed up the development of the individual application building blocks

Iterative Development

Add more and more features by splitting your requests across multiple prompts

Refine Code Manually

Instead of deriving fancy prompts, consider performing fine-tuning tasks manually

Use ChatGPT For Debugging

Report errors & bugs (+ relevant code snippets) to ChatGPT to speed up debugging

Explain Code

Instruct ChatGPT to quickly explain & summarize unfamiliar code

Use ChatGPT for Refactoring

Let ChatGPT refactor code or use ChatGPT to get improvement ideas

Don’t Limit Yourself To Just ChatGPT!

ChatGPT

Great for generating entire building blocks

+

GitHub Copilot

Great for generating smaller code snippets “on the fly” & fine-tuning your code

Useful Prompting Techniques

If Code Gets Cut Off

“Output ‘Continuing’ and continue”

Skip Explanations

“Provide just the code without any extra explanations or text.”

Add Context To Errors

“The user authentication code seems to break the program with the following error message: [message]”

Let ChatGPT Improve Itself

“How could the code be improved?”

Generate Dummy Data with ChatGPT

You’re not limited to generating code

Generate dummy data with ChatGPT
(e.g., dummy users)

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Hands-On: Programming & ChatGPT

Practicing How To Write Code With ChatGPT

- Non-Developer Example: Building a “Monster Slayer” Game
- Developer Example: Building a Meetups REST API

Building a “Monster Slayer” Game

Using ChatGPT with **no / minimal** programming experience

Building a **text-based / command-line based** game: “Monster Slayer”

Description

It’s a **turn-based** game where the user (= player) fights a monster (= computer).
During every turn, the player can perform a **regular** or **strong attack** or **heal**.
The **strong attack** should only be available **every three turns**. **Healing** should only be available **every five turns**.
After each turn, the **monster attacks**.
Damage & heal values are calculated **randomly**.
The first participant to go below **0 health loses**.
Both participants **start with 100 health**.
Once the game is over, the **winner** should be **displayed on the screen** and the player should be **asked if a new game** should be started.

Enhancing The “Monster Slayer” Game

Add Username

Allow the user to choose a username when the program starts

Add Difficulty Levels

Adjust damage & heal values based on chosen level

Manage High Score

Save the number of required turns in text file

Display the current high score after every game

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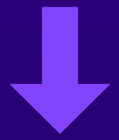
Results May Deviate

The Code You Get Will Likely Differ

Because of built-in randomness, different prompts & GPT model evolution, you will very likely not get the same results!

Building a “Meetups” REST API

Using ChatGPT **with** programming experience



Building a **NodeJS REST API**

Description

It’s a REST API with the following **endpoints**:
POST /meetups → Create a new meetup
GET /meetups → Fetch meetups
PATCH /meetups/<id> → Update existing meetup
DELETE /meetups/<id> → Delete existing meetup

Every meetup has an **id, title, summary & address**.
Meetup data should be **stored** in a **meetups.json** file, incoming data must be **validated**.
Data should be exchanged in **JSON format.**

Enhancing The “Meetups” REST API

Add Authentication

Add POST /signup & POST / login routes

Implement JWT-based authentication

Protect all routes except for GET /meetups

Handle Errors

Throw errors & use generic error handling middleware

Use appropriate error status codes (e.g., 401 if not authenticated)

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The ChatGPT APIs

Integrating ChatGPT Into Your Own Apps

- Why Would I Use an API Instead of ChatGPT?
- Understanding & Configuring the API
- Hands-On: Using the API in Your Own Applications

Application Programming Interface

Communication Between Two Applications Using Requests & Responses

New chat

Show more

Model: GPT-4

MA

Can you give me a recipe to make pizza?

Request

Certainly! Here's a simple recipe for making homemade pizza from scratch. This recipe will yield one 12-inch pizza.

Ingredients:

For the dough:

- 2 cups (240g) all-purpose flour
- 1 teaspoon sugar
- 1 teaspoon salt
- 1 teaspoon instant yeast
- 3/4 cup (180ml) warm water (around 110°F/45°C)
- 1 tablespoon olive oil

For the sauce:

- 1 can (15 oz or 425g) crushed tomatoes
- 1 teaspoon dried oregano
- 1 teaspoon dried basil
- 1/2 teaspoon garlic powder
- 1/2 teaspoon salt
- 1/4 teaspoon black pepper
- 1 tablespoon olive oil
- 1 teaspoon sugar (optional)

For the toppings:

- 2 cups (200g) shredded mozzarella cheese
- Your choice of vegetables, meats, or other toppings

Instructions:

Regenerate response

1. Prepare the dough:

Send a message.

User Interface

Response

ChatGPT API

AcademindGPT

User Interface = Your Website / Application

New Chat

Integrating ChatGPT in Custom Apps X

You

Can you use the logic powering ChatGPT to build your own custom applications?

Academind GPT

Yes, you can use the logic powering ChatGPT to build your own custom applications. OpenAI provides an API called the **OpenAI API** that allows developers to integrate ChatGPT into their applications, products, or services.

To get started, follow these steps:

1. **Sign up for an API key**: You need to sign up for an API key from OpenAI. Visit the OpenAI website to get started.
2. **Read the documentation**: Familiarize yourself with the OpenAI API documentation to understand how to make API calls and interact with ChatGPT.
3. **Choose a programming language**: Select a programming language that you are comfortable with and that supports making HTTP requests. Most modern programming languages have libraries or built-in functionality for this purpose.
4. **Integrate the API**: Use the API key and the knowledge from the documentation to integrate ChatGPT into your custom application. Make sure to handle errors and edge cases appropriately.

Here's a simple example of how to make an API call using Python:

```python
import openai

openai.api_key = "your_api_key_here"

response = openai.Completion.create(
  engine="text-davinci-002",
  prompt="Can you use the logic powering ChatGPT to build your own custom ap
  max_tokens=150,
  n=1,
  stop=None,
  temperature=0.5,
)

print(response.choices[0].text.strip())
```

Remember to replace `"your_api_key_here"` with your actual API key. This example uses the `openai` Python library, which you can install using `pip install openai`.

Submit

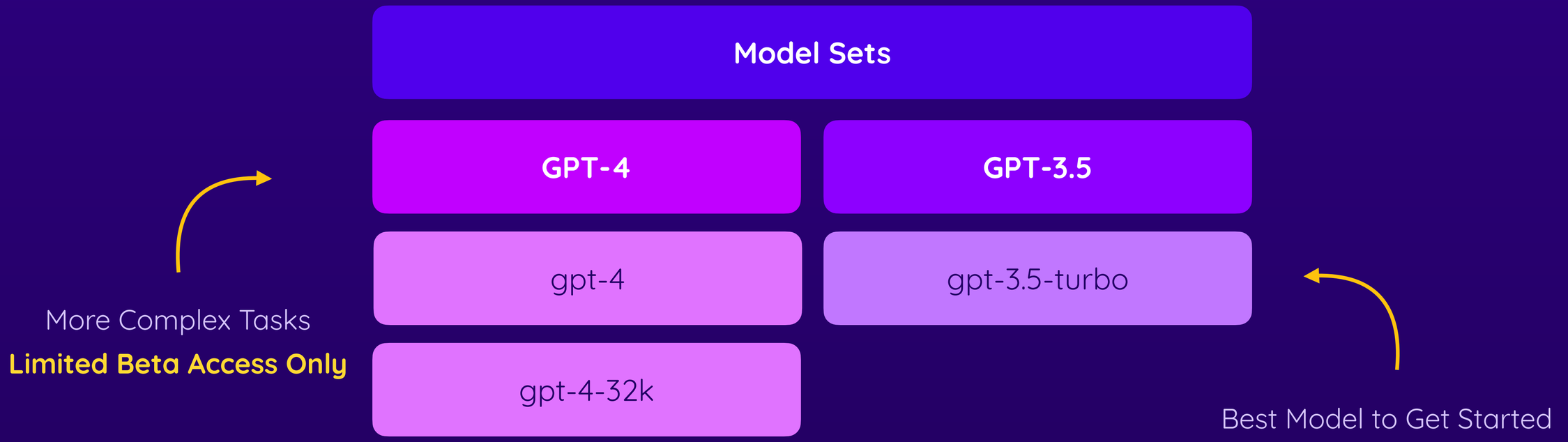
Request

Response

ChatGPT API

Recommended API Models

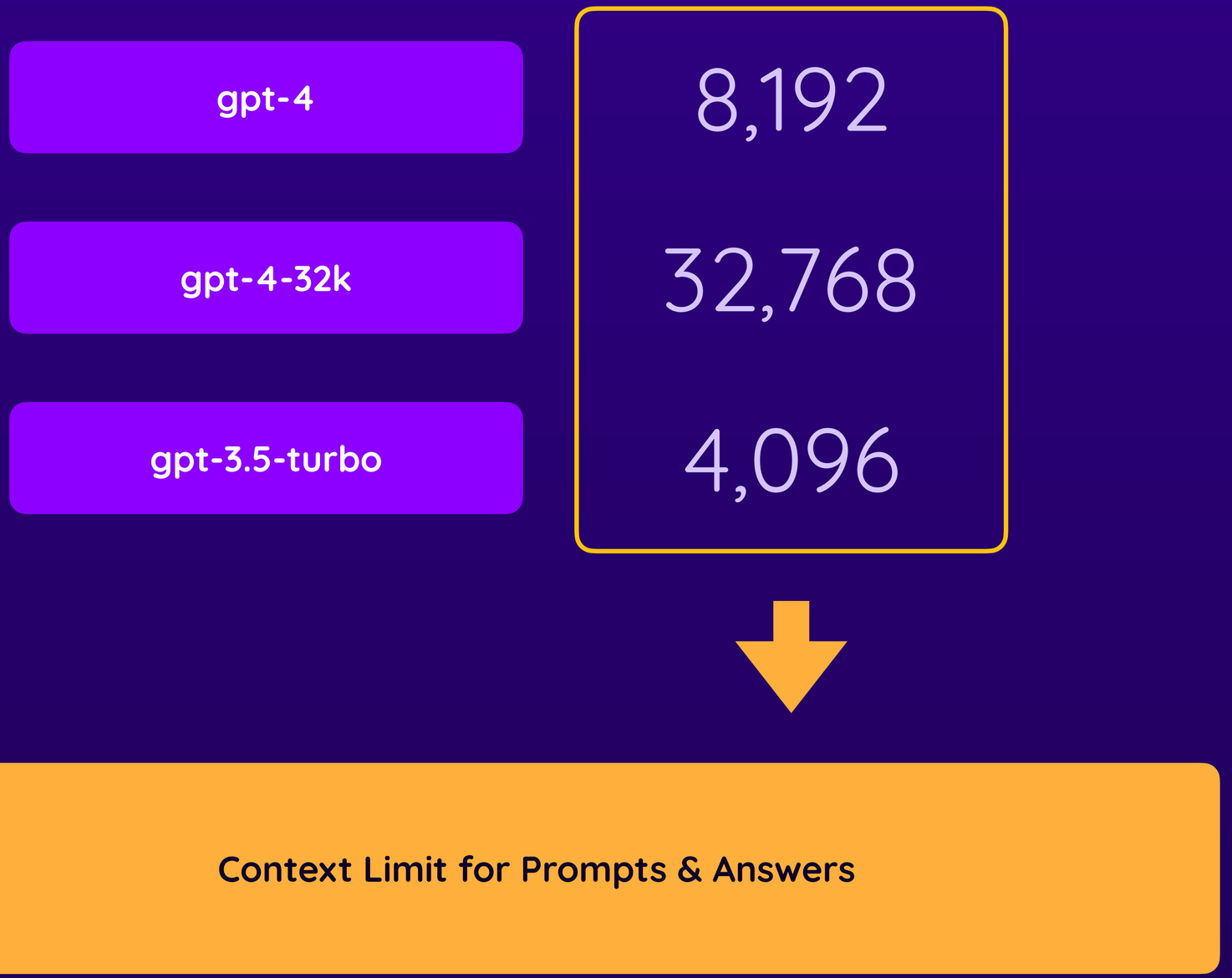
Understand & Generate Natural Language or Code



Token

1 Token ~ 0.75 Words
or 4 Characters

https://platform.openai.com/tokenizer


gpt-4
gpt-4-32k
gpt-3.5-turbo
8,192
32,768
4,096
Context Limit for Prompts & Answers

Prerequisites to Use the API with Python

Python

Package Manager
e.g. pip

Open AI Library
pip install openai

API Endpoints

Completion

```
openai.Completion.create(
    model =“text-davinci-003”,
    prompt=“My Prompt”,
    ...
)
```

Chat Completion

```
openai.ChatCompletion.create(
    model =“gpt-3.5-turbo”,
    messages= [
        {“role”: “user”, “content: “My Prompt”}
    ],
    ...
)
```

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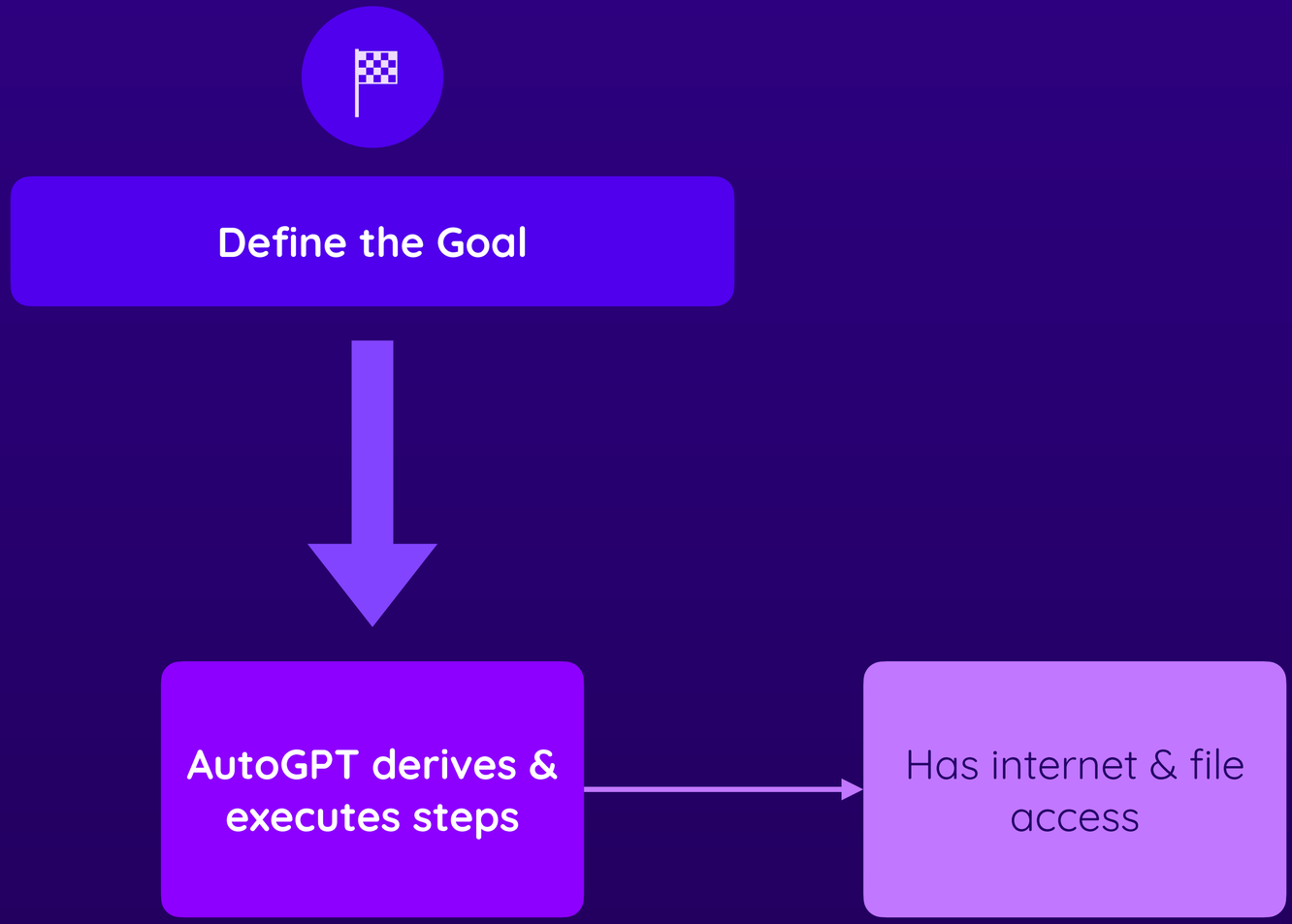
Building Automated AI Workflows

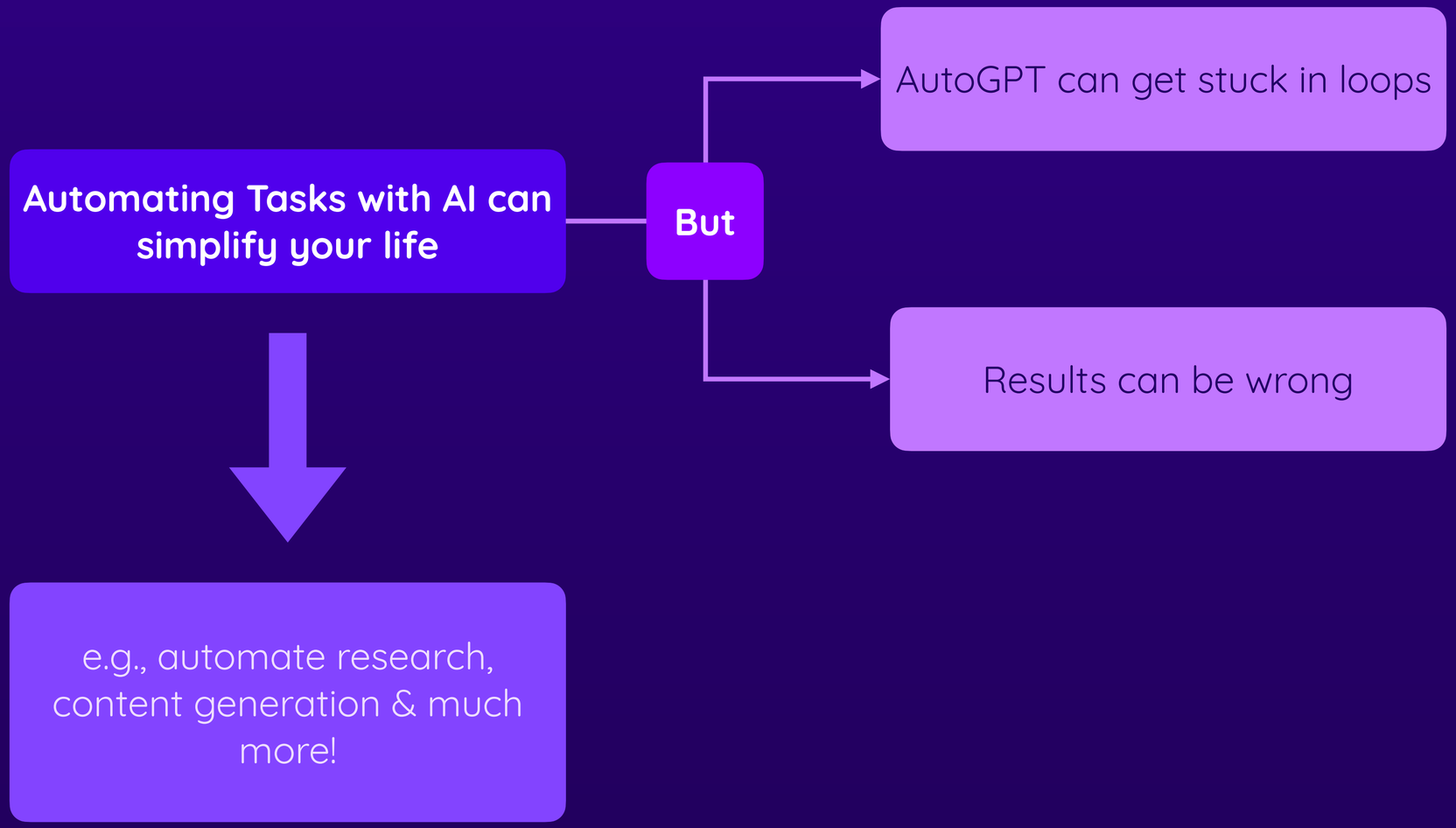
Just Define The Goal, Not The Steps

- Get Started with AutoGPT
- Explore LangChain For Custom AI Workflows

What Is AutoGPT?



AutoGPT Can Be Awesome



What Is LangChain?

A Framework For Building Your Own Automated AI Workflows

Requires coding skills!

Create any kind of AI workflow

- Build an email generator
- Build a web research tool
- Build anything!