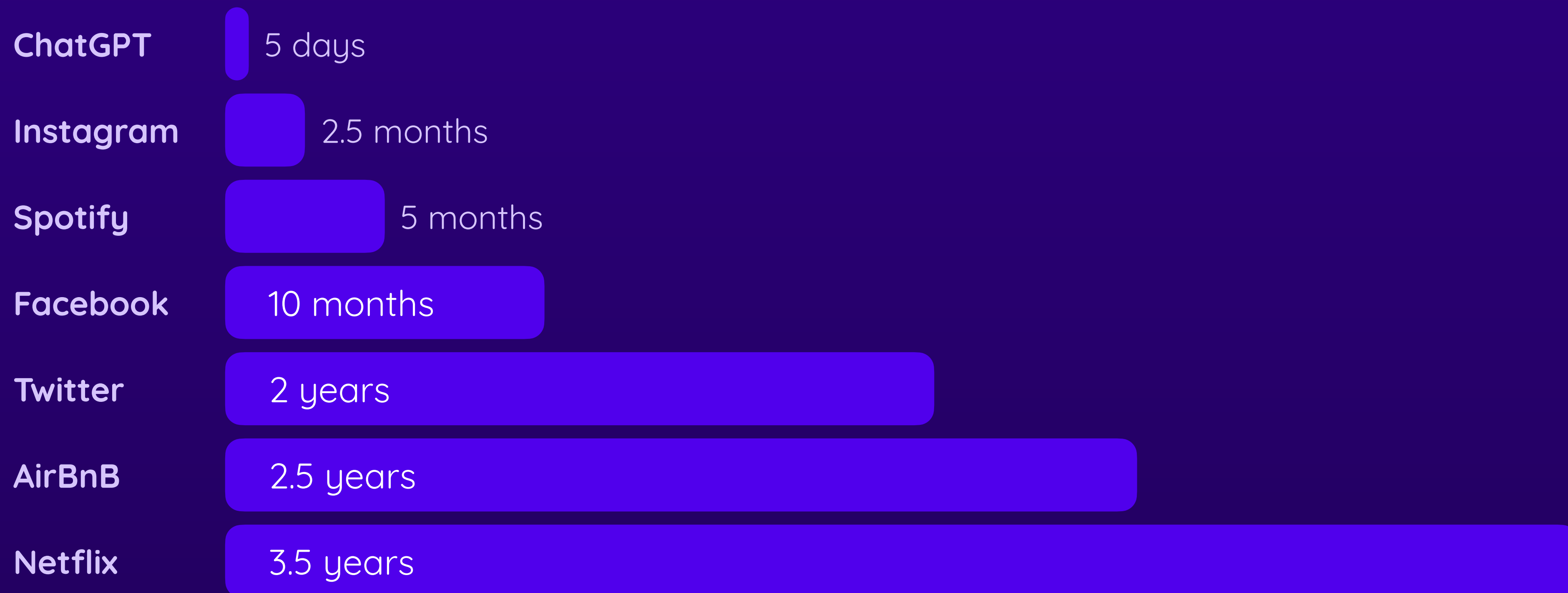
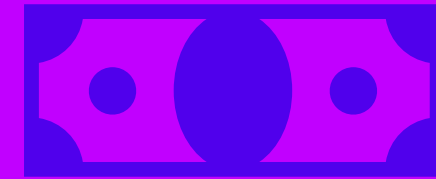


The Fastest Growing App Ever

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



ChatGPT PLUS Price & Features



USD 20 / Month



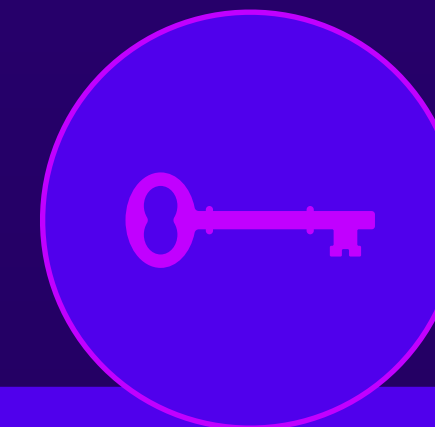
Priority ChatGPT Access



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

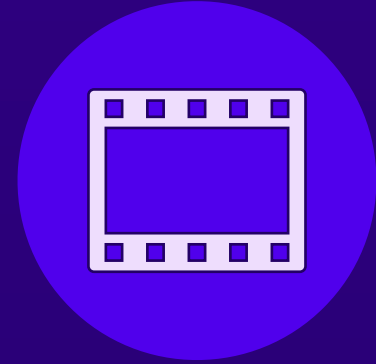
Foundation

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!

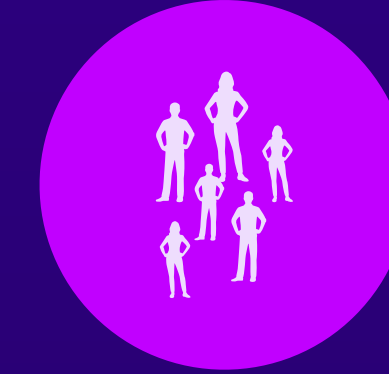
Course Prerequisites



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!

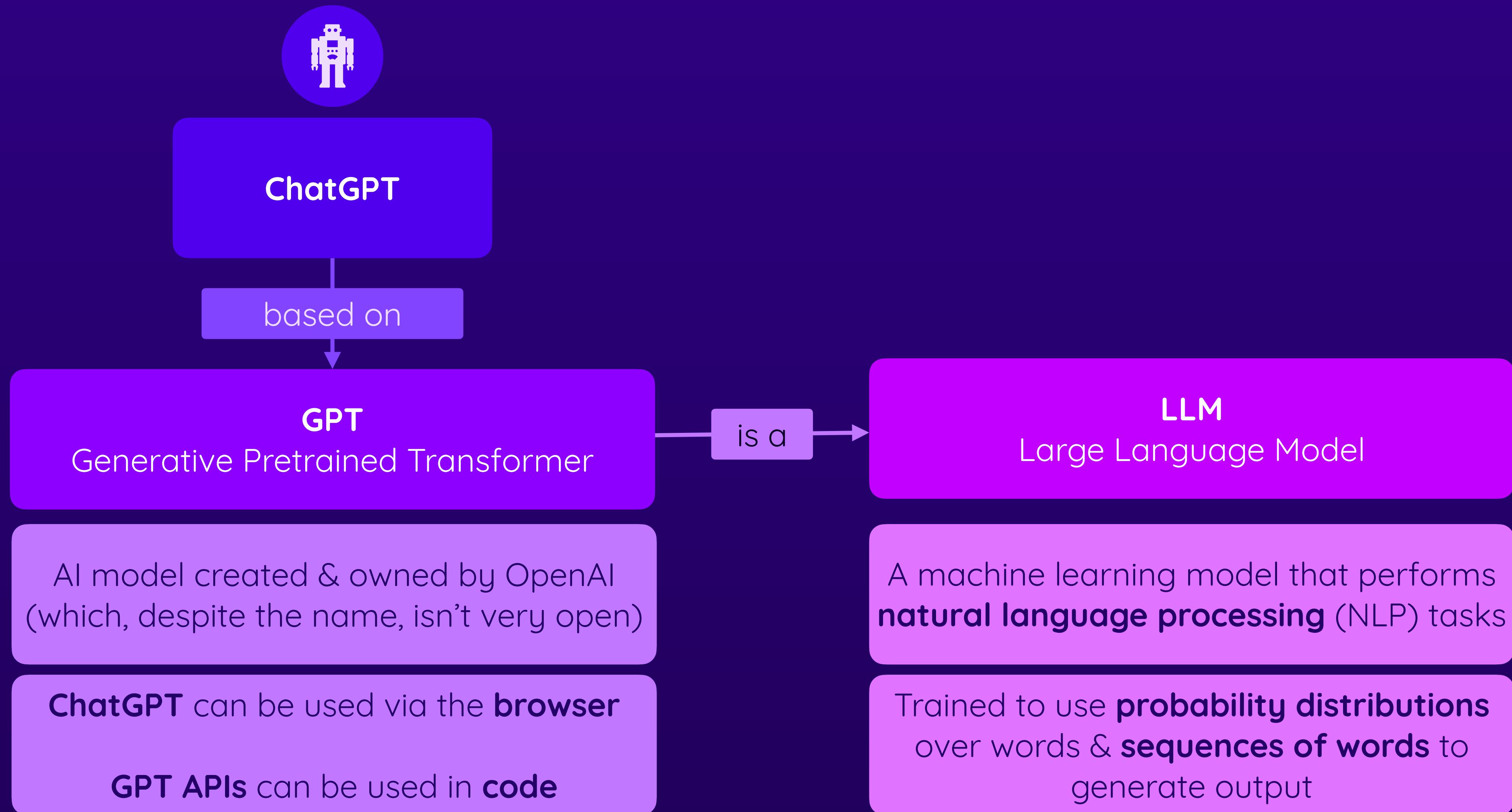
Even when using the exact same prompts. ChatGPT has a certain degree of “randomness” & the underlying models will evolve and change.

Understanding ChatGPT

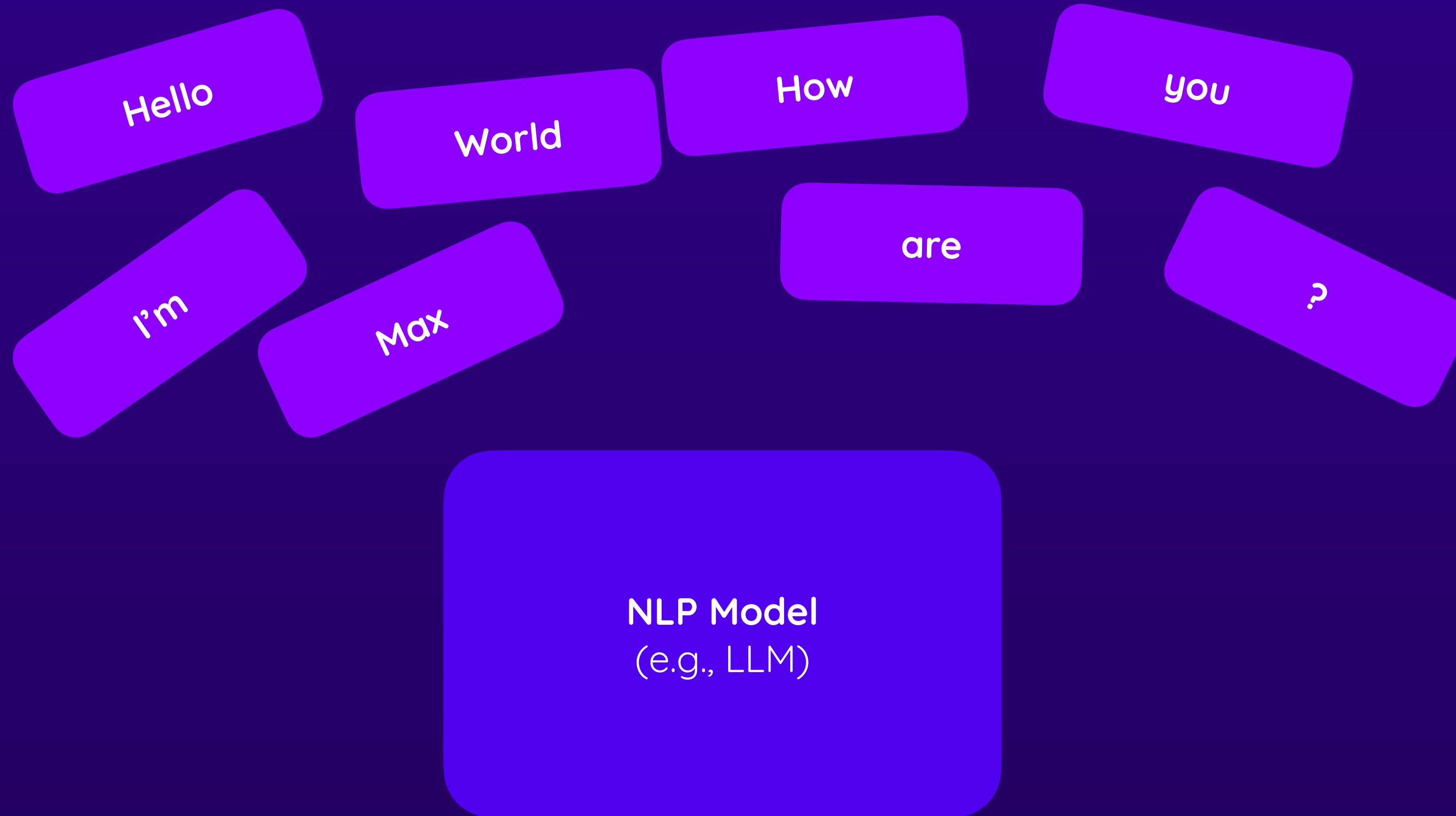
How It Works Under The Hood

- ▶ How It Works
- ▶ Features & Limitations

ChatGPT Under The Hood



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.

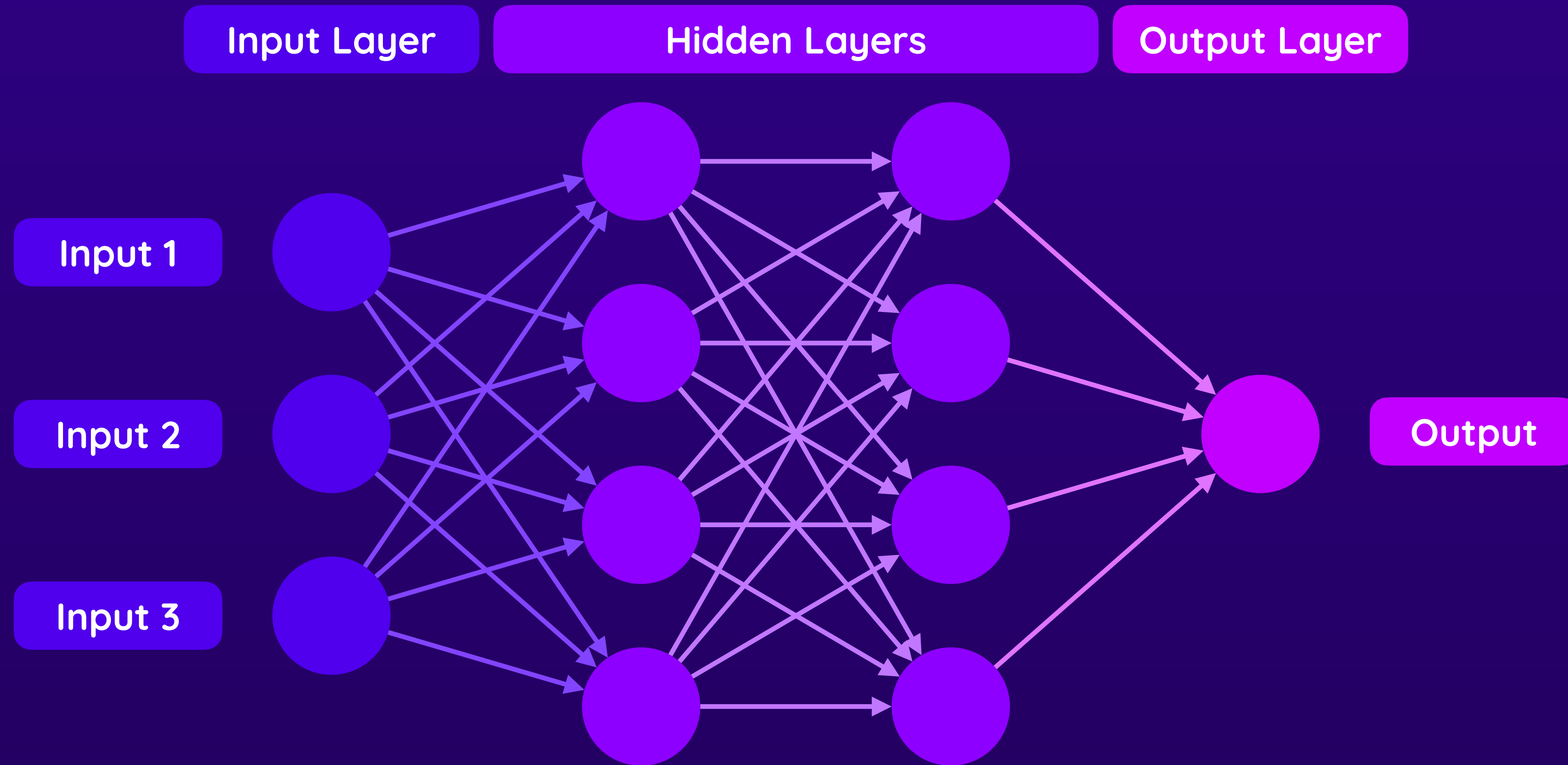
Output

Adaptive, Informative, Responsive

Might not look like a sequence

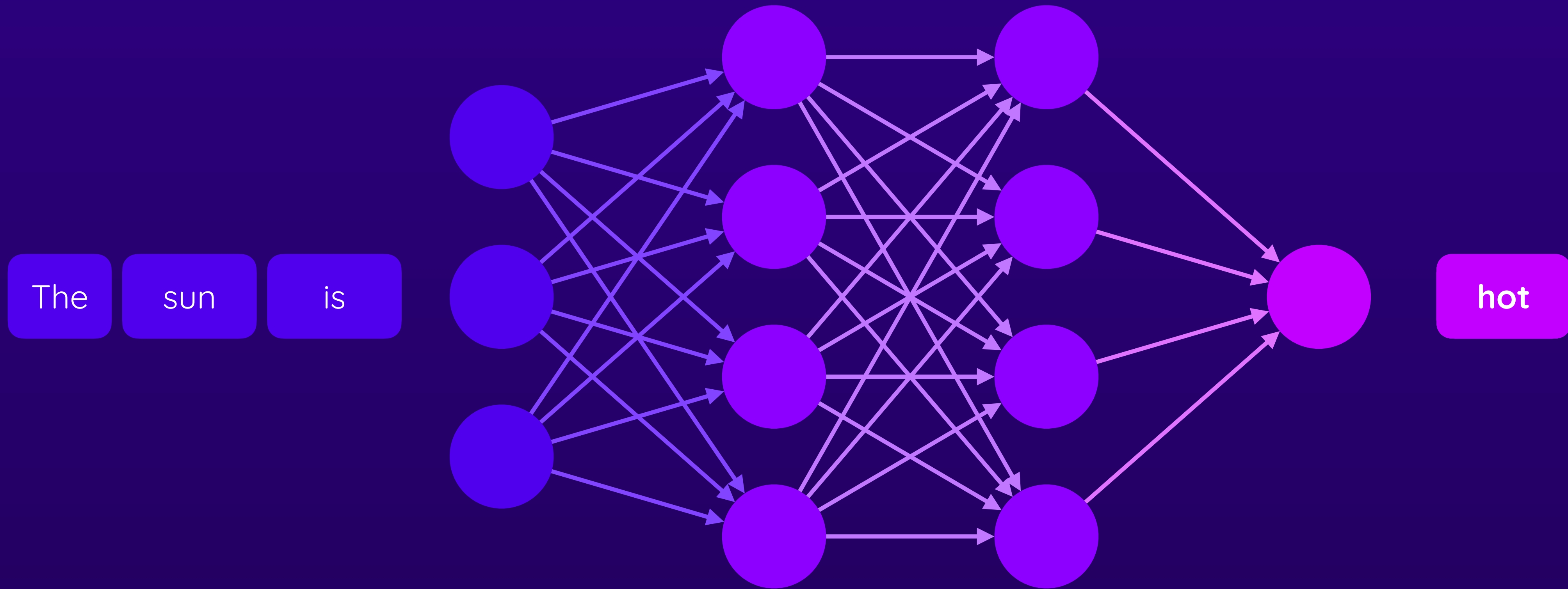
But it is one, once you think about it

LLMs Are Neural Networks



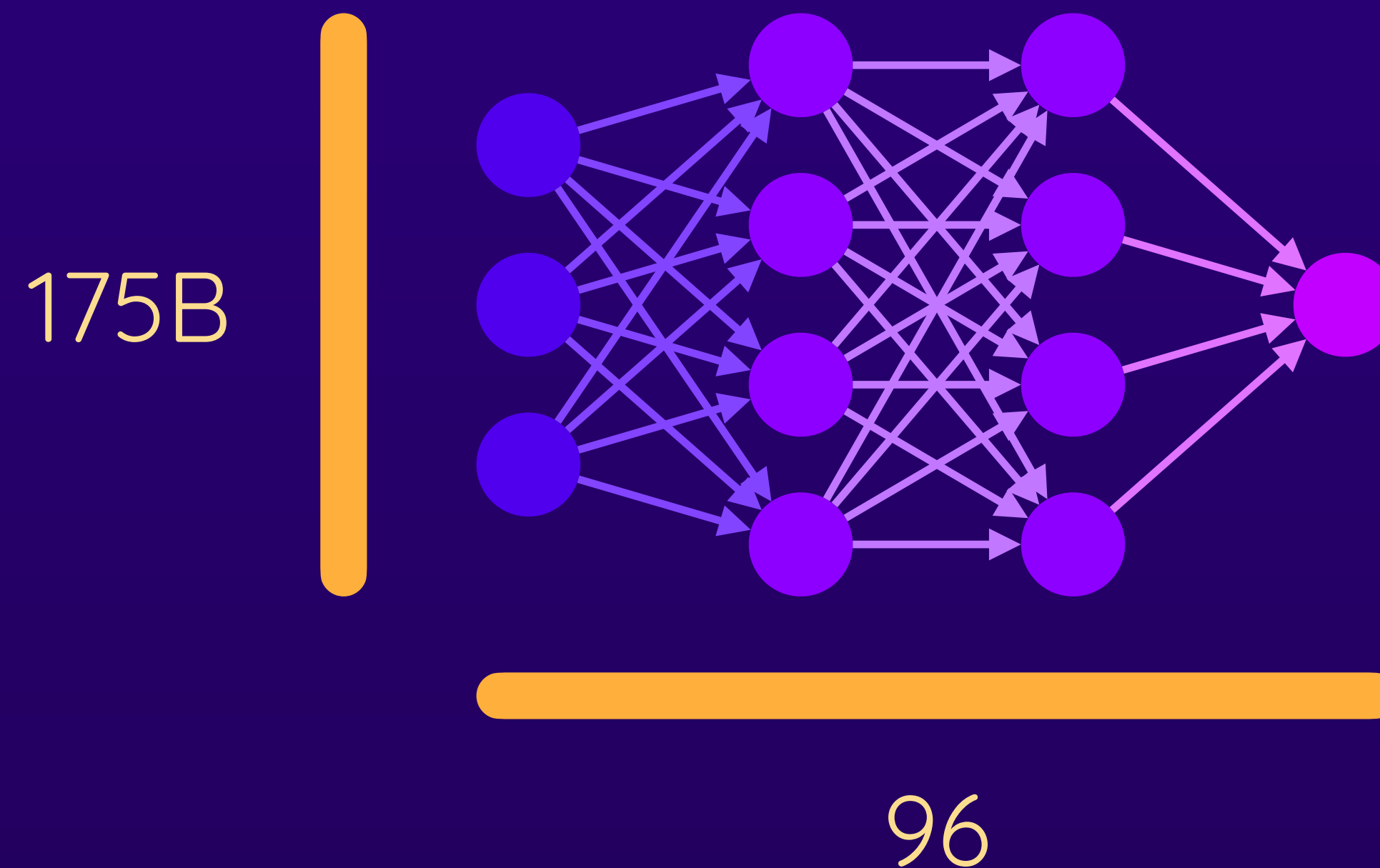
There are **different kinds** of neural networks for **different purposes**.
For example, models focused on analyzing images use so-called “Convolutional Neural Networks”.
Large language models use “**Transformers**” (or “Transformer Neural Networks”)

LLMs Are Neural Networks



Large Language Models Are ... Large

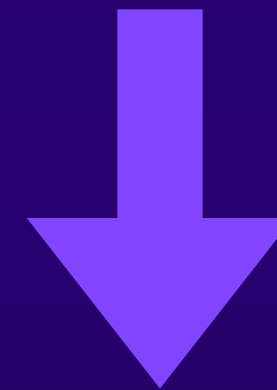
GPT 3.5 was trained via a Transformer neural network with **175B** parameters across **96** layers



Training Data? Everything!



Publicly available text
data from the internet



GPT

Tokens Instead Of Words

Human-readable Words

My

favorite

color

is

Red

.

Token IDs

3666

4004

3124

318

2266

13

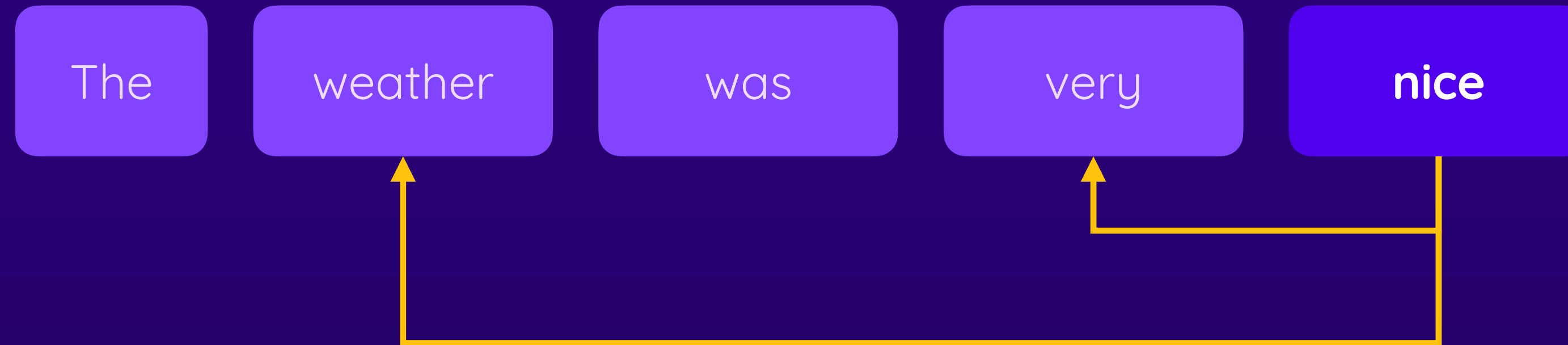
Tokens are not necessarily always entire words!

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	

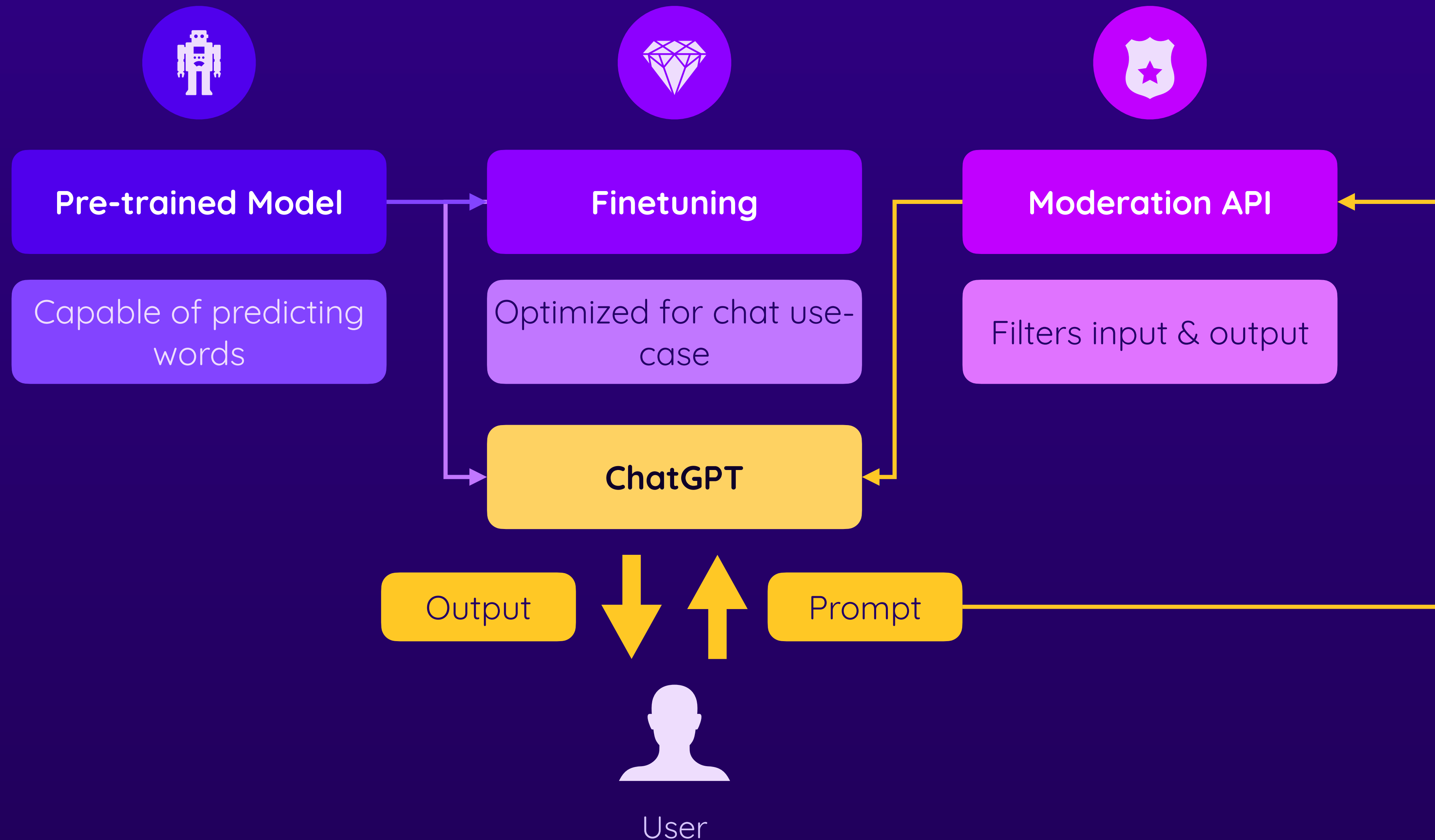
LLMs Detect Patterns & Relations



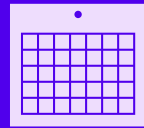
LLMs Detect Patterns & Relations



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

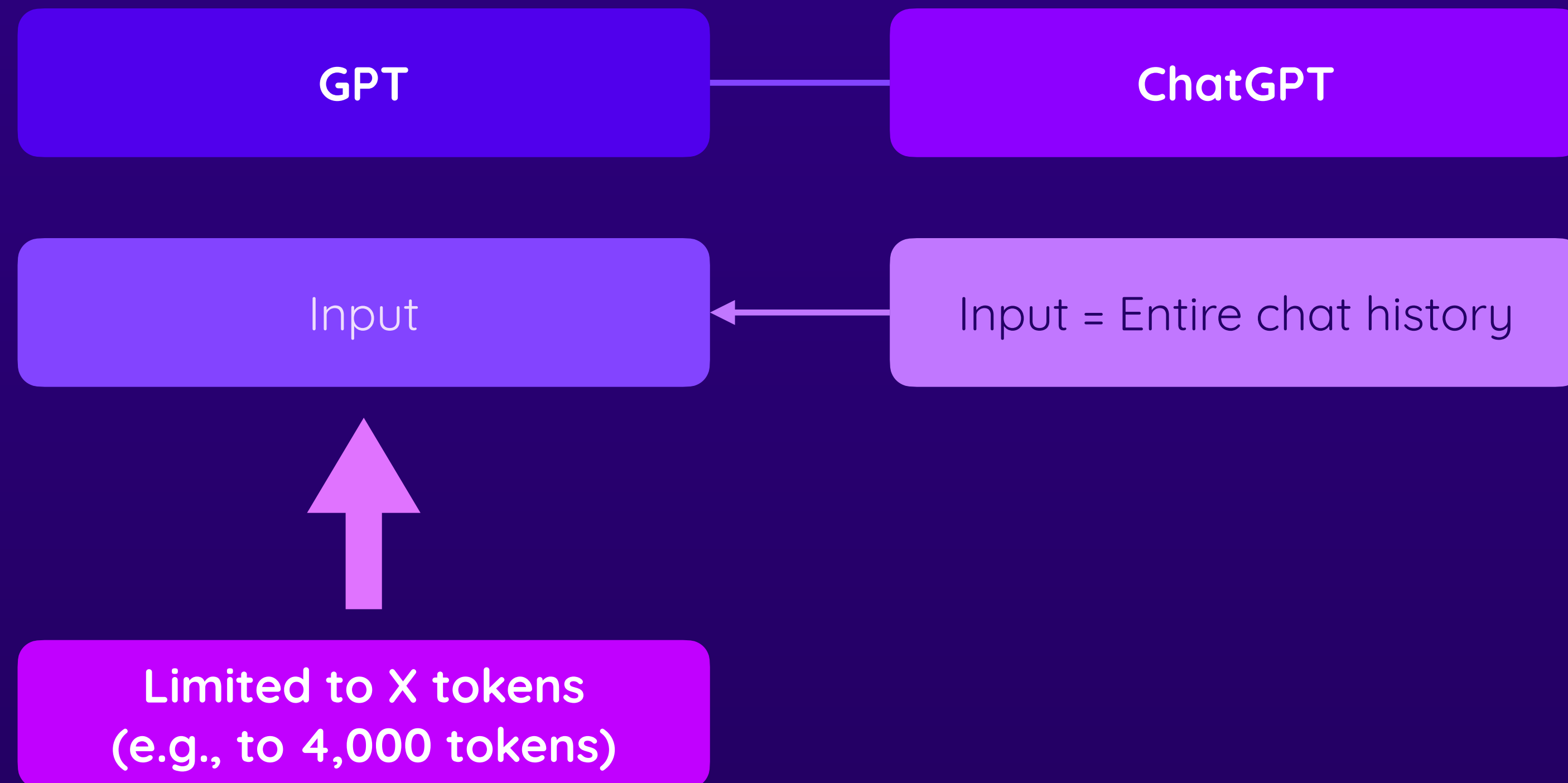


It Can Only Handle & Output Text*

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



Introduction & General Usage

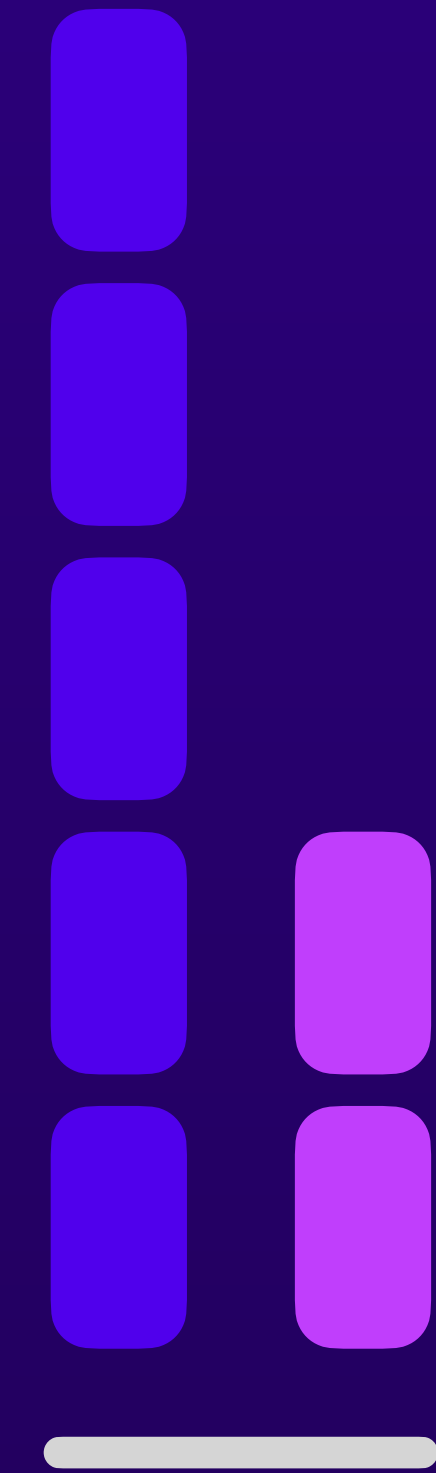
Getting Started with ChatGPT

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

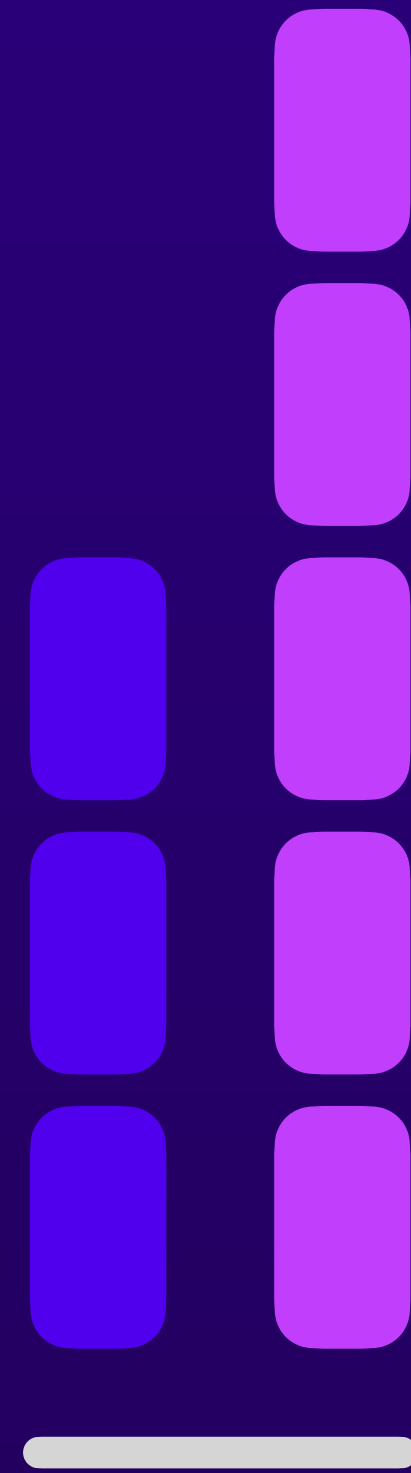
Comparing ChatGPT 3.5 & ChatGPT 4

GPT 3.5
(Default)

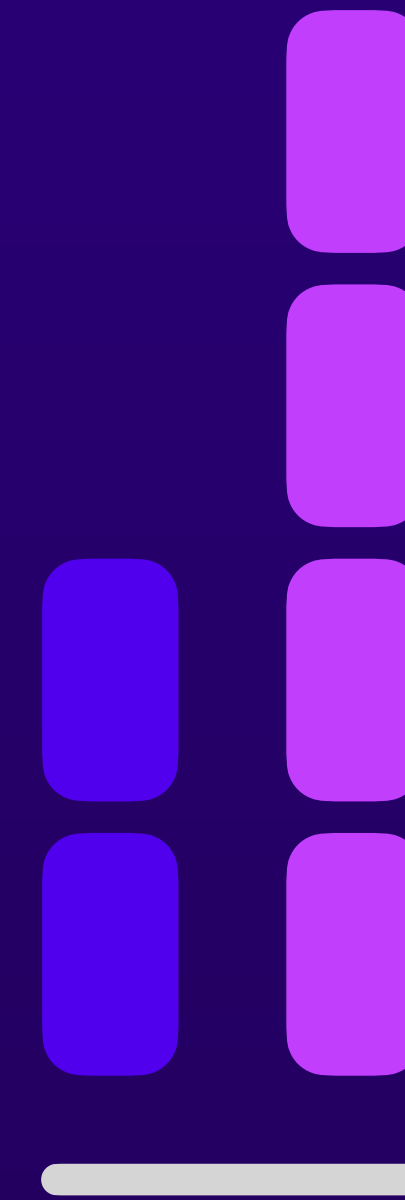
GPT 4



 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.

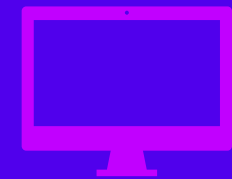
I need a shopping list with all ingredients for the recipe, but I bought the meat already.

* “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.

Prompt Engineering

Writing Good Prompts & Getting What You Want

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

Why Prompt Engineering?

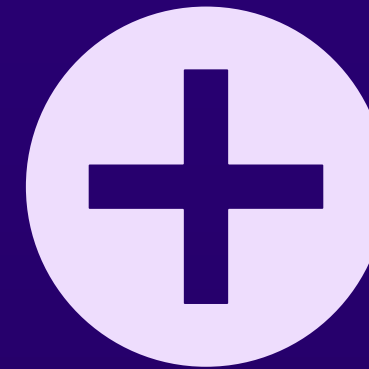
Good Prompts

=

Good Results

Core Prompt Elements

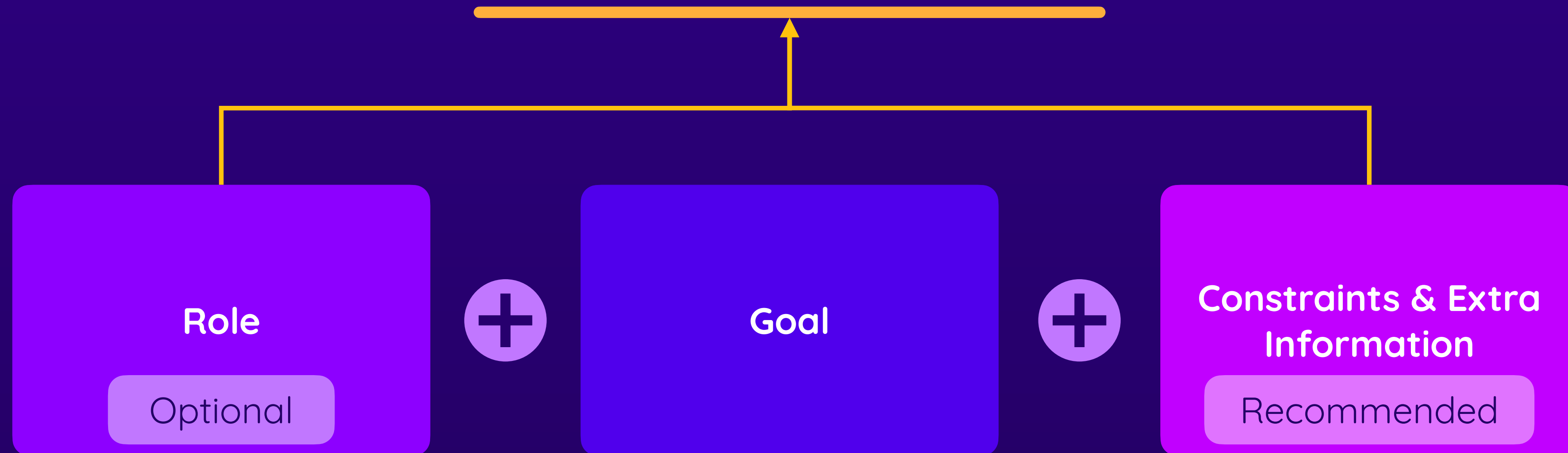
Goal



Context
(Additional Information)

Prompt Elements - A Closer Look

It's all about providing (helpful) **context**



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



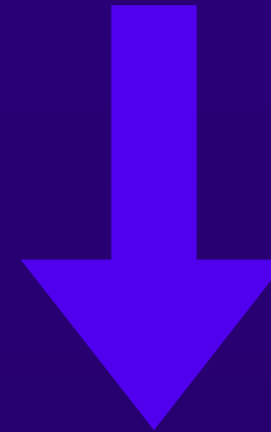
Keep In Mind

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”

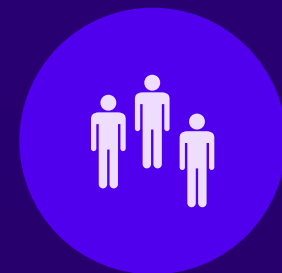
Adding Meaningful Context



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

Zero-Shot

Provide no examples

“Write a tweet that explains the core idea behind ChatGPT.”

1

One-Shot

Provide one 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’s **an example**: ...”

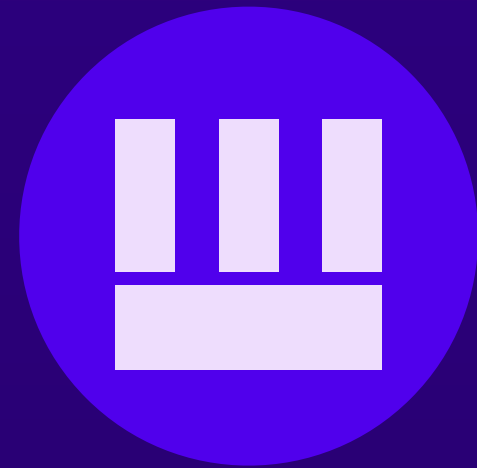
N

Few-Shot

Provide multiple examples

“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

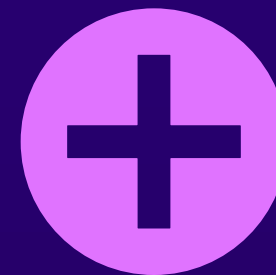
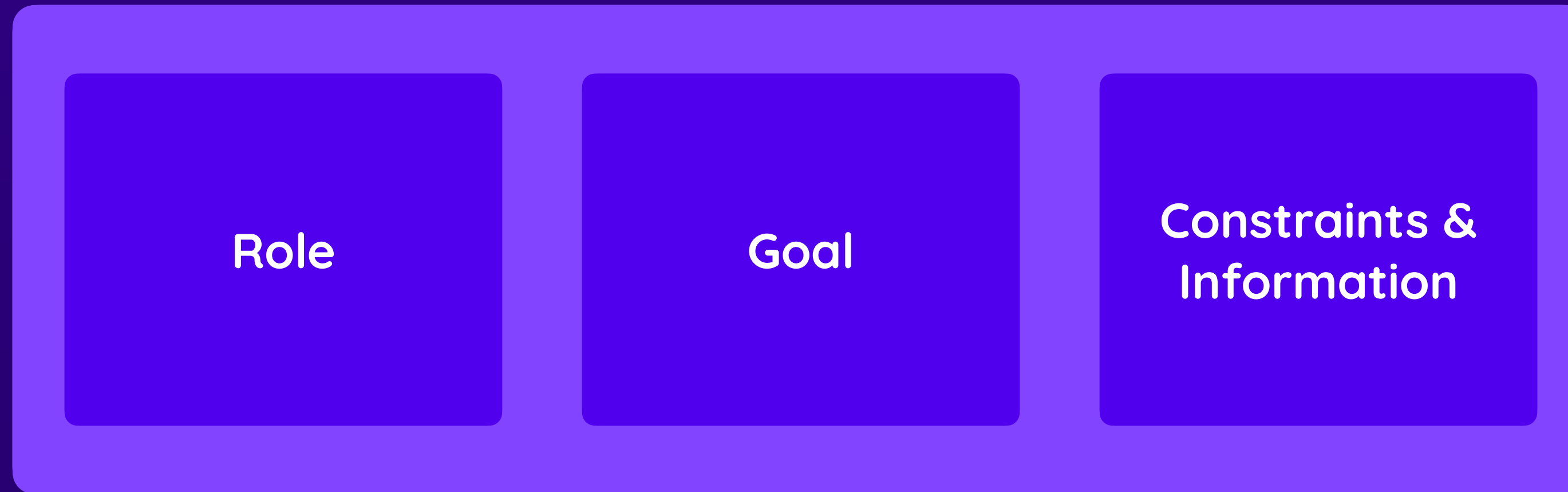
Goal + Context



Advanced

More techniques & tricks

Ask-Before-Answer Prompting



“Before answering, I want you to first ask for any extra information that helps you produce a better answer. If you got no questions, please provide the answer instead.”

Perspective Prompting

Let ChatGPT Assume Different Perspectives

No Perspective

Default

“Create a travel itinerary for a 2-weeks yoga retreat in Austria.”

Single Perspective

Assumed via Prompt Engineering

“Create a travel itinerary for a 2-weeks yoga retreat in Austria from the perspective of the yoga trainer.”

Multiple Perspectives

Assumed via Prompt Engineering

“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

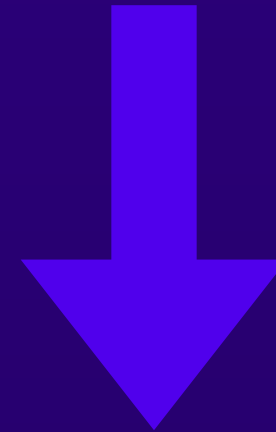
Add the logic for signing users up & logging users in

Add the logic for handling events

Protect the non-read event routes against unauthenticated access

Let ChatGPT Write Better Prompts

Let ChatGPT help you!

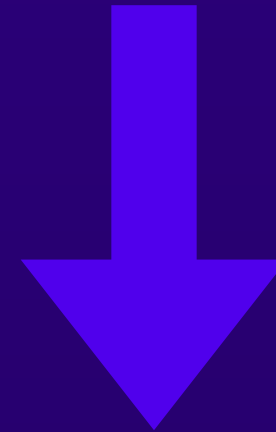


Ask ChatGPT which extra information would improve the result & the generated content

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

Let ChatGPT Evaluate Itself

ChatGPT can criticize & improve
itself

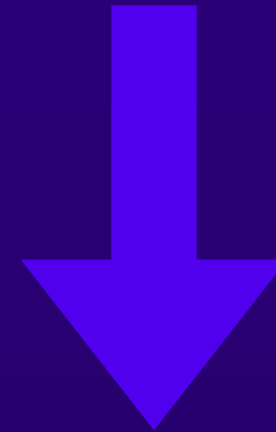


Ask ChatGPT a self-reflective question

“What could be improved about your tweet?”

Ask ChatGPT For Example Prompts

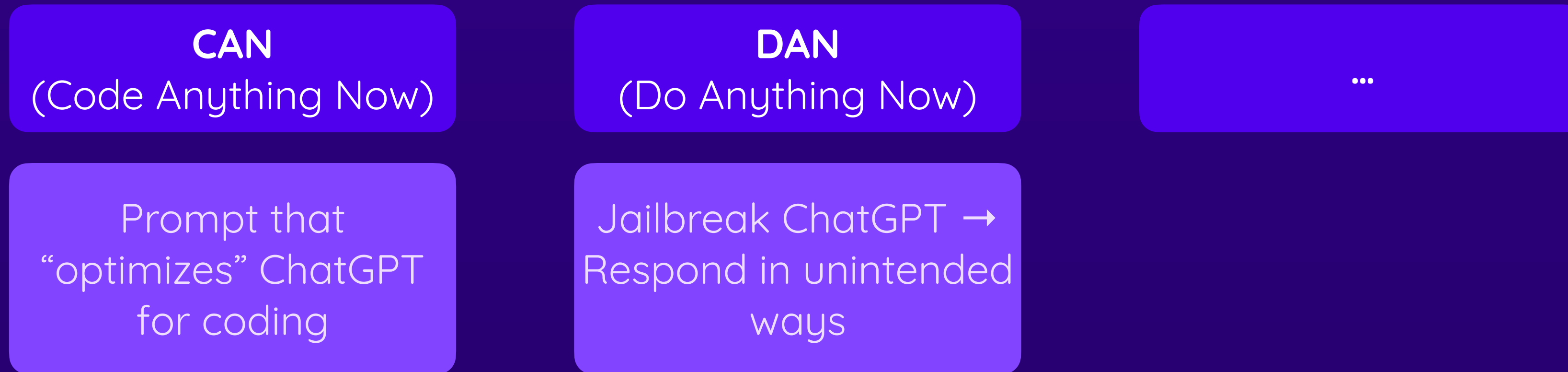
Turn things around: Let ChatGPT write prompts!



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”



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

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

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



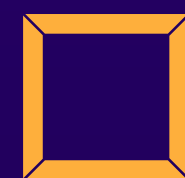
Topic Related Keywords



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

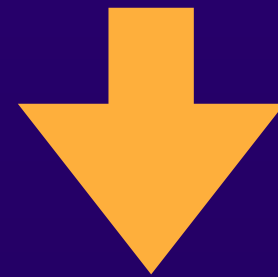
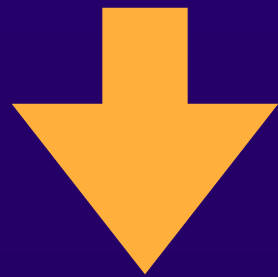
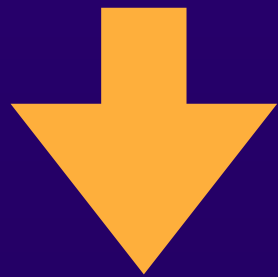


Promote Product / Service

Website Content

Social Media

Emails

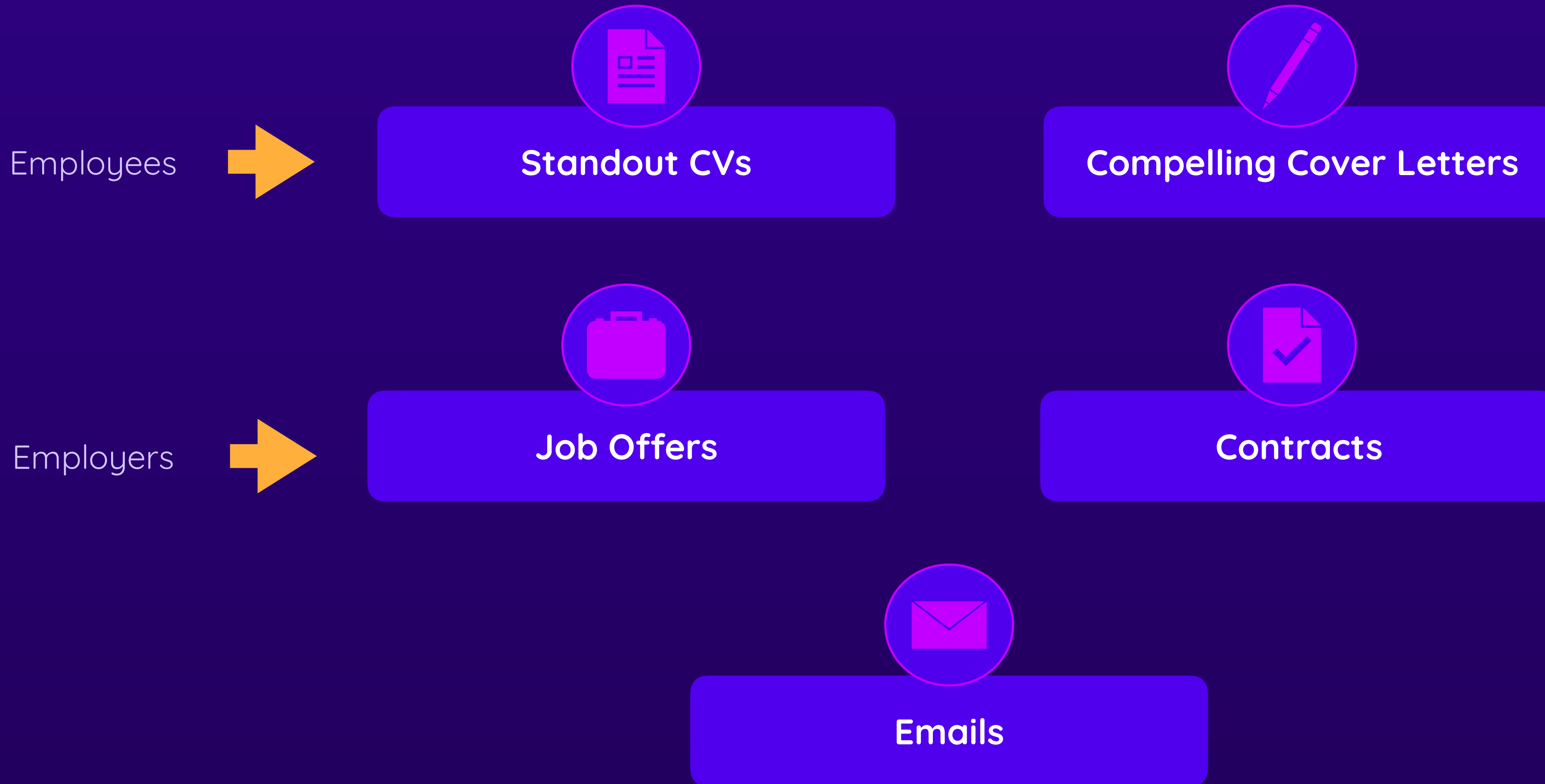


Signup for Newsletter

Visit Website

Buy Product

Revolutionizing Job-Related Writing

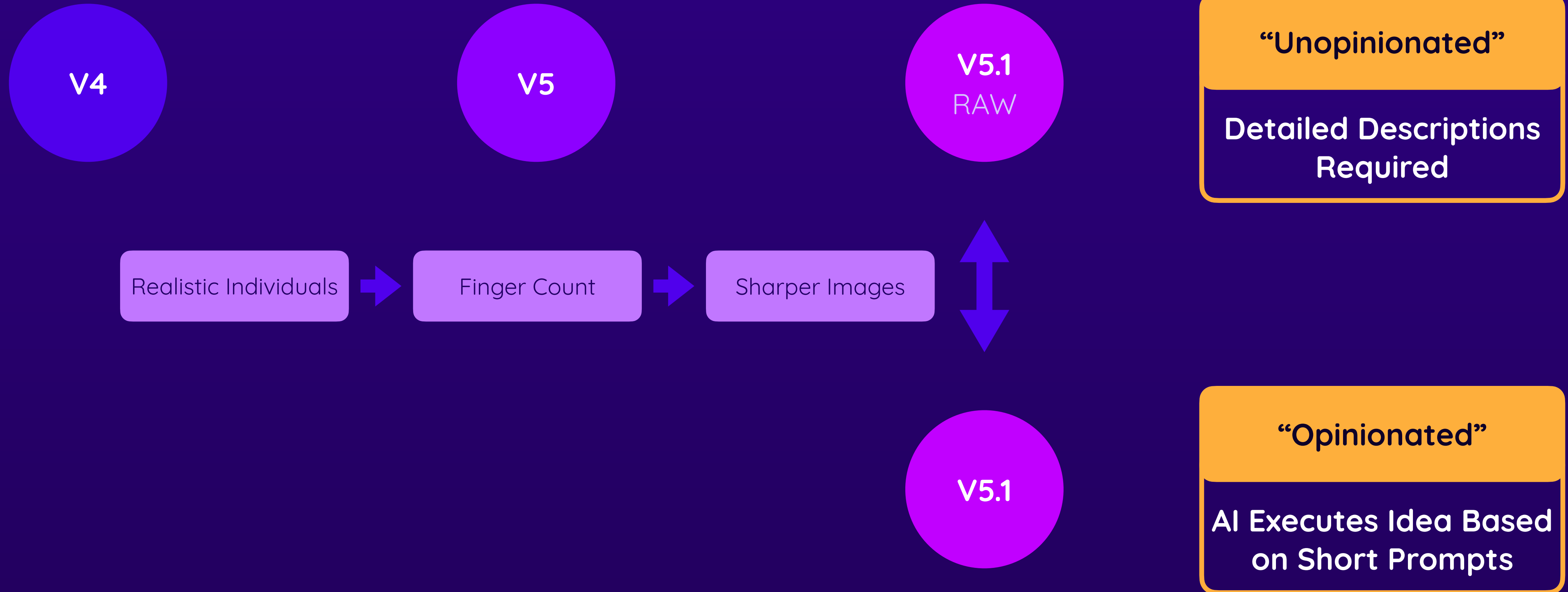


Diving Into Midjourney Prompts

Getting Full Control of the Images Created

- ▶ Creating a Prompting Template
- ▶ Using Midjourney to Create & Control Different Image Styles
- ▶ Creating Reusable Styles with /prefer

Midjourney Versions



V4

V5

V5.1
RAW

Realistic Individuals

Finger Count

Sharper Images

“Unopinionated”

Detailed Descriptions
Required

“Opinionated”

AI Executes Idea Based
on Short Prompts

V5.1

`/imagine prompt`

photo of an elephant walking through the desert

Define the **Basics** &
Control the **Details** of the Output
that Should be Generated

5 Key Areas to Generate Amazing Output

/imagine prompt

Medium /
Art Style

a photo

Subject

of a pirate

Setting

close-up

Background

the ocean
in the
background

Atmosphere

cinematic
lighting

Main Content

Details

Defining the Main Content

Medium / Art Style

photo of
oil painting of
watercolored painting of
illustration of
flat illustration of
acrylic painting of

sketch of
3d animation of
cartoon of
film noir of
manga of
8 bit pixel art

Subject

an old smiling pirate standing on his boat

Defining the Details

Setting

Perspective

close-up
mid-range
fullbody
portrait

selfie
fish-eye
panorama
bird-eye view

Style

simpsons style
disney style
pixar style
game of thrones style
depth of field style

gtav style
paw patrol style
canon style
35mm style
cyberpunk style

Background

the stormy ocean with high waves in the background

Describing the Details

Atmosphere

sunrise
twilight
natural lighting
cinematic lighting
neon lighting
studio lighting
global illumination

golden colours
vibrant colors
black and white
spring
snowfall
sunshine
energetic

Adding Parameters

/imagine

prompt

a tiger running through the jungle, close-up, colourful

—ar 16:9

—style raw

Text Prompt

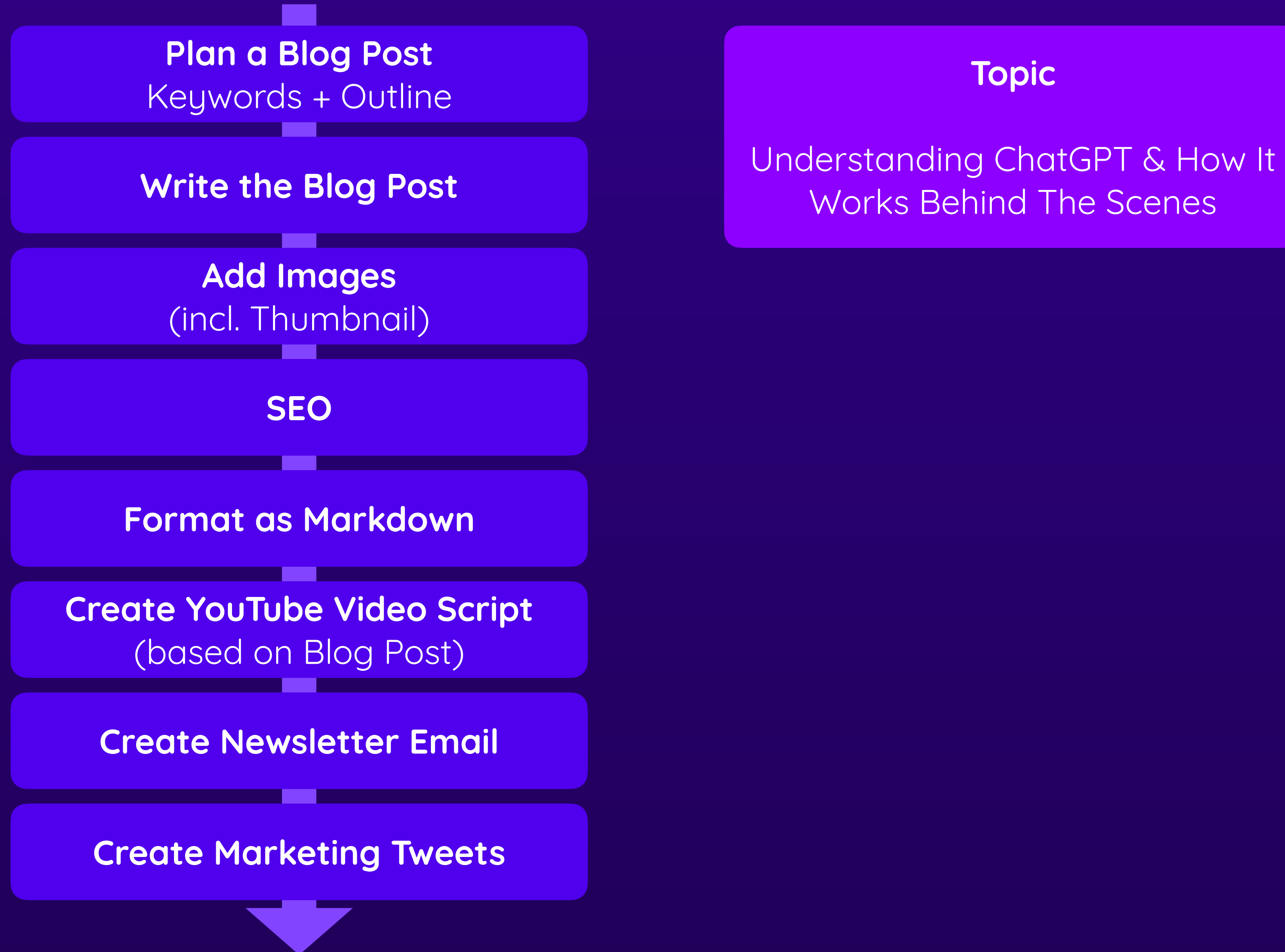
Parameters

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

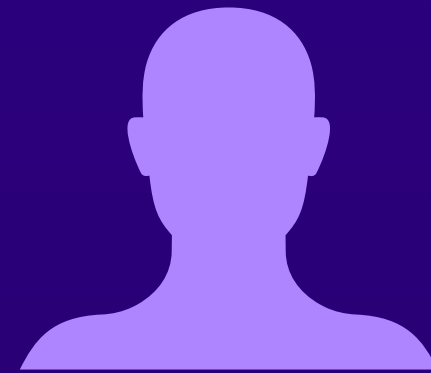


ChatGPT For Programming

Writing Code with ChatGPT

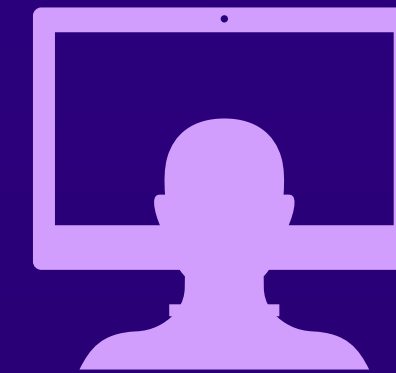
- ▶ Generating Code With & Without Programming Experience
- ▶ Debugging & Optimizing Code
- ▶ Explaining & Refactoring Code

ChatGPT Is Great For Everyone!



Non-Developers

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

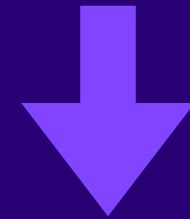


Developers

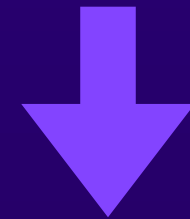
Boost your productivity, outsource the boring parts, generate dummy data & code faster

ChatGPT For Non-Developers

Initial Task
(e.g., create a program that renames files)



Execute Program
(ask for help, if needed)



Report errors or missing features



Iterative process until
the program is done

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.



Be Careful

Code you don't know **could cause harm!**

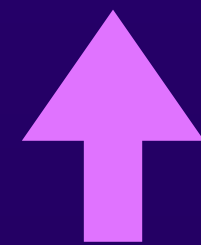
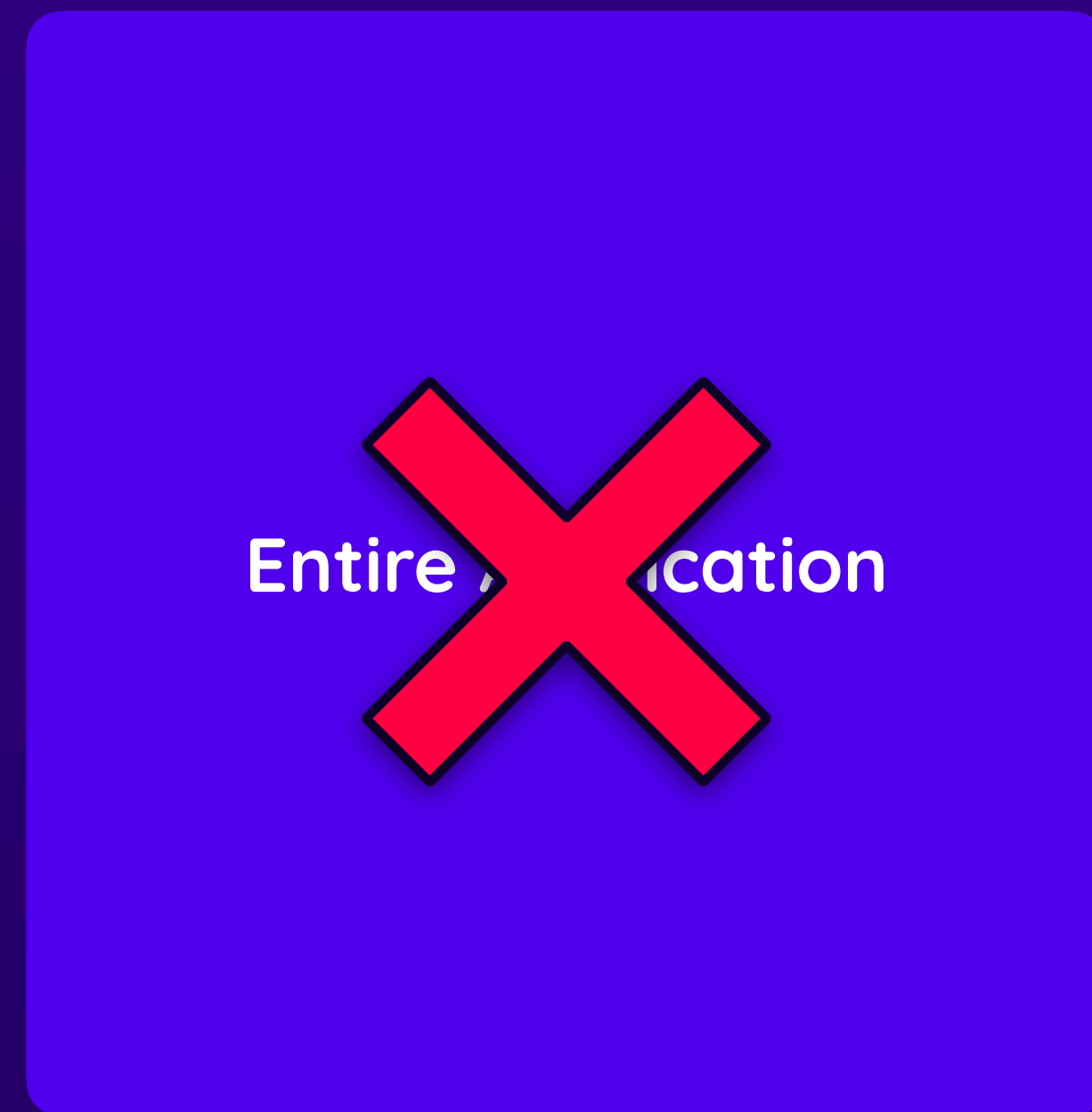
Depending on your request & prompt it could delete files, erase data, crash your system etc.



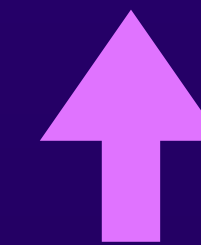
ChatGPT 🤝 Developers

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

ChatGPT For Developers



Don't ask ChatGPT for entire applications or websites



Instead, prefer asking for individual building blocks

Combine manually
(or with additional
help from
ChatGPT)

ChatGPT For Developers

Building Blocks > Entire Apps

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

Refine Code Manually

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

Explain Code

Instruct ChatGPT to quickly explain & summarize unfamiliar code

Iterative Development

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

Use ChatGPT For Debugging

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

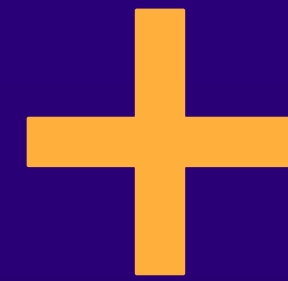
Use ChatGPT for Refactoring

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”

Add Context To Errors

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

Skip Explanations

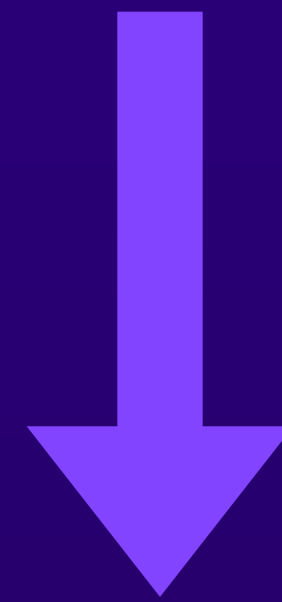
“Provide just the code without any extra explanations or text.”

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)

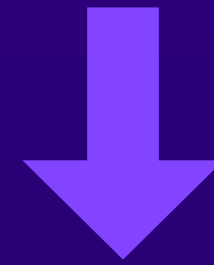
Hands-On: Programming & ChatGPT

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



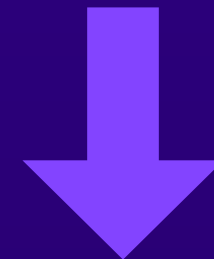
Results May Deviate

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)

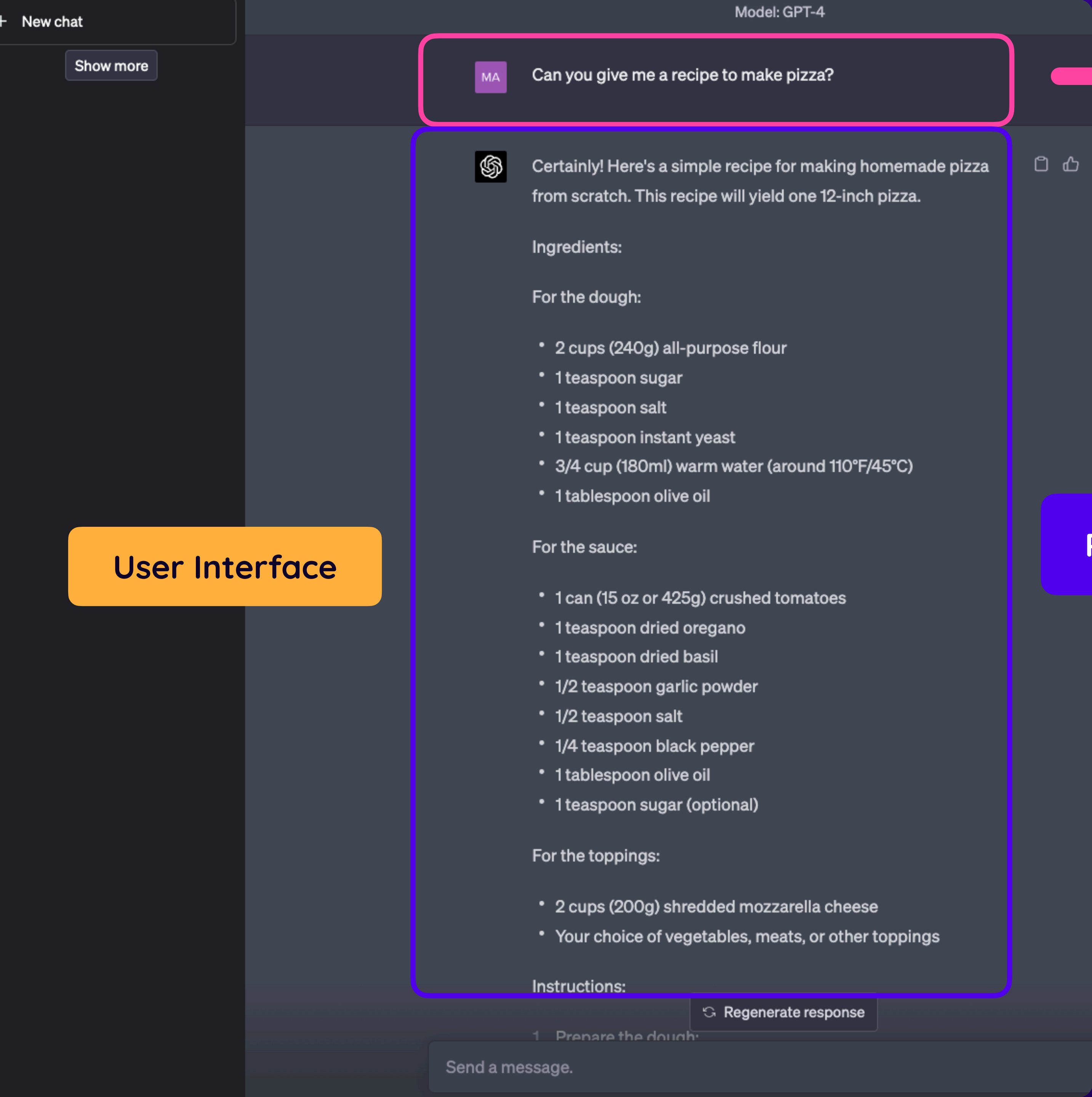
The ChatGPT APIs

Integrating ChatGPT Into Your Own Apps

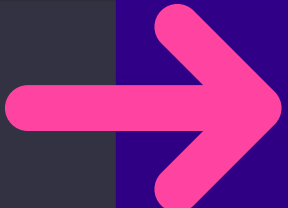
- ▶ Why Would I Use an API Instead of ChatGPT?
- ▶ Understanding & Configuring the API
- ▶ Hands-On: Using the API in Your Own Applications

Application Programming Interface

Communication Between Two Applications
Using Requests & Responses

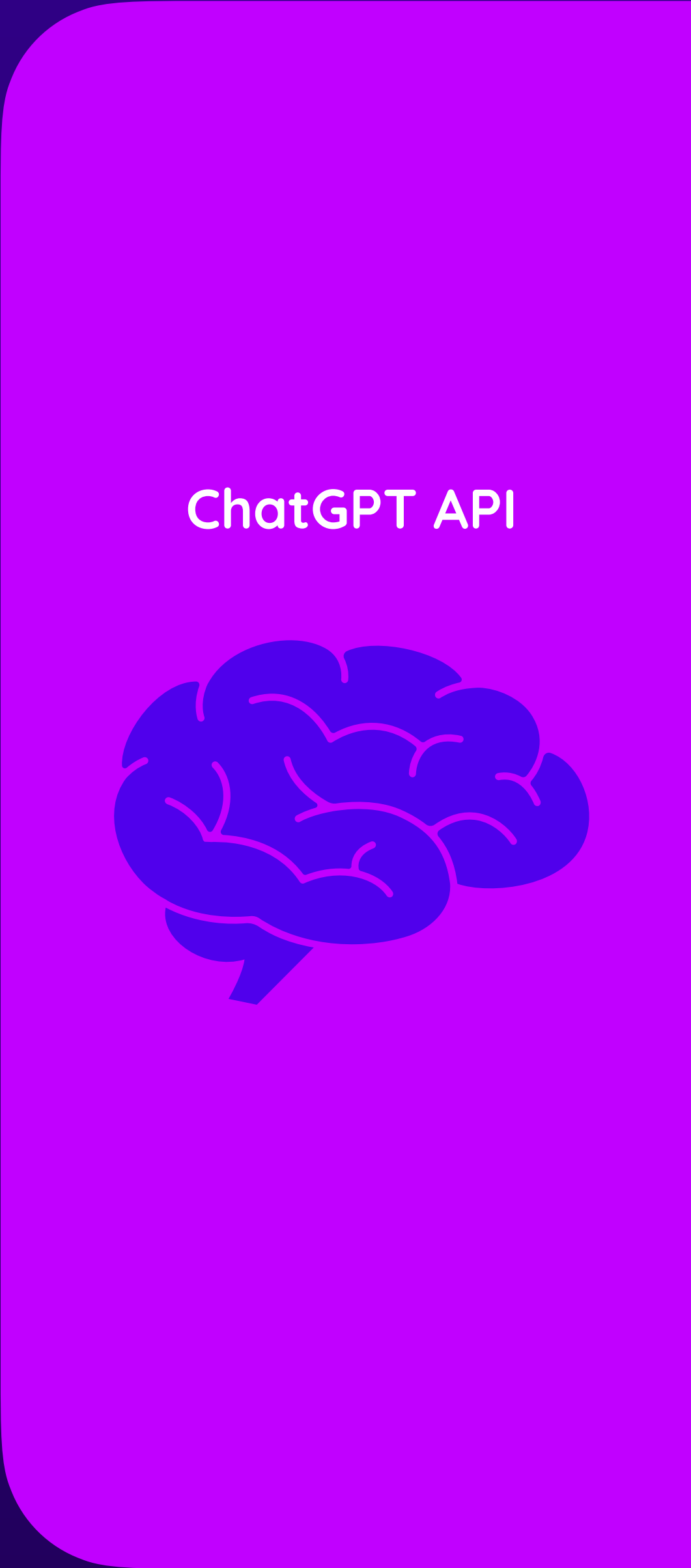
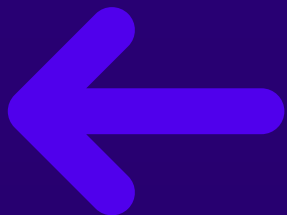


User Interface



Request

Response





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:

```
import openai

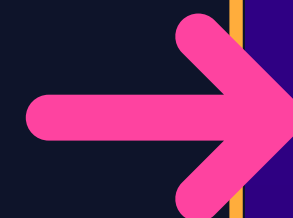
openai.api_key = "your_api_key_here"

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())
```

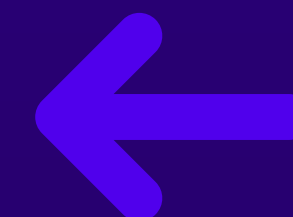
Remember to replace "your_api_key_here" with your actual API key. This example uses the `openai` Python library, which you can install using `pip install openai`.

Submit



Request

Response



ChatGPT API



Recommended API Models

Understand & Generate Natural Language or Code

Model Sets

GPT-4

GPT-3.5

gpt-4

gpt-3.5-turbo

gpt-4-32k

More Complex Tasks

Limited Beta Access Only

Best Model to Get Started

Token

1 Token ~ 0.75 Words
or 4 Characters

<https://platform.openai.com/tokenizer>

gpt-4

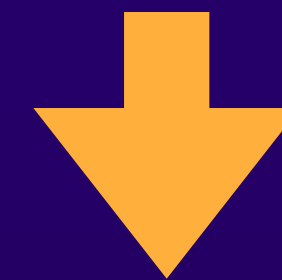
8,192

gpt-4-32k

32,768

gpt-3.5-turbo

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

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"}  
  ],  
  ...  
)
```

Building Automated AI Workflows

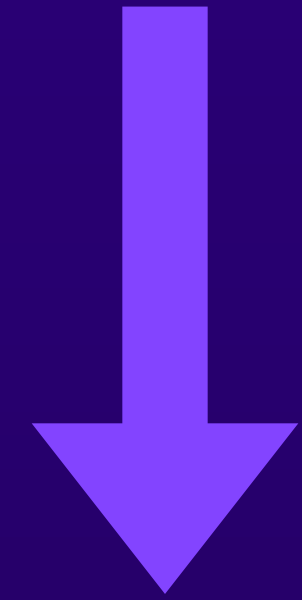
Just Define The Goal, Not The Steps

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

What Is AutoGPT?



Define the Goal

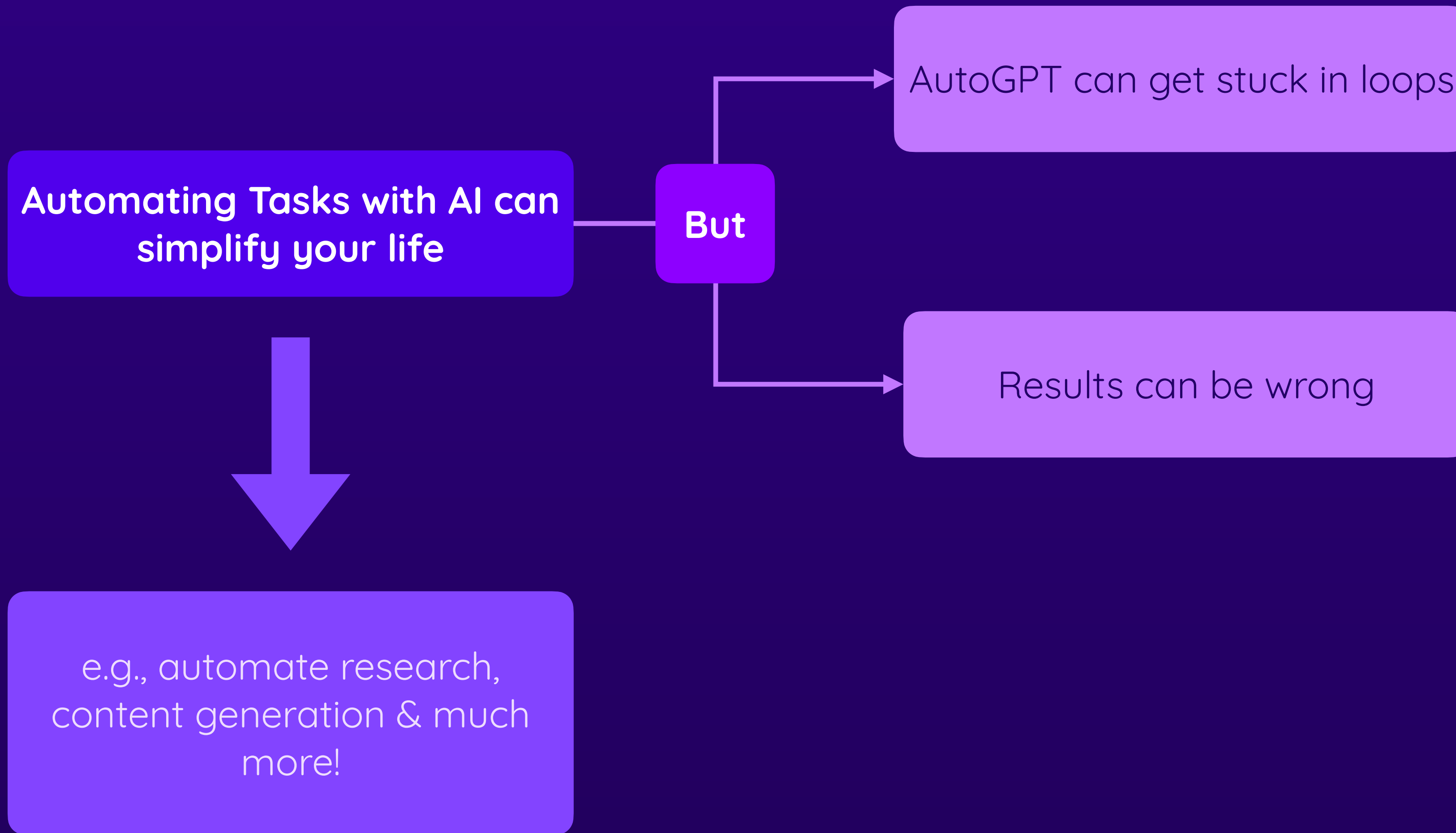


AutoGPT derives &
executes steps



Has internet & file
access

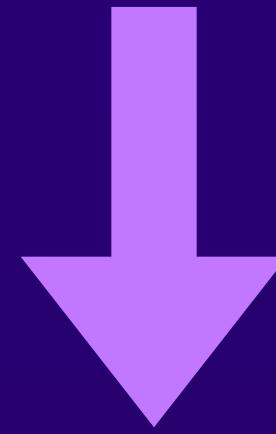
AutoGPT Can Be Awesome



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!