

# Prompt Engineering 101

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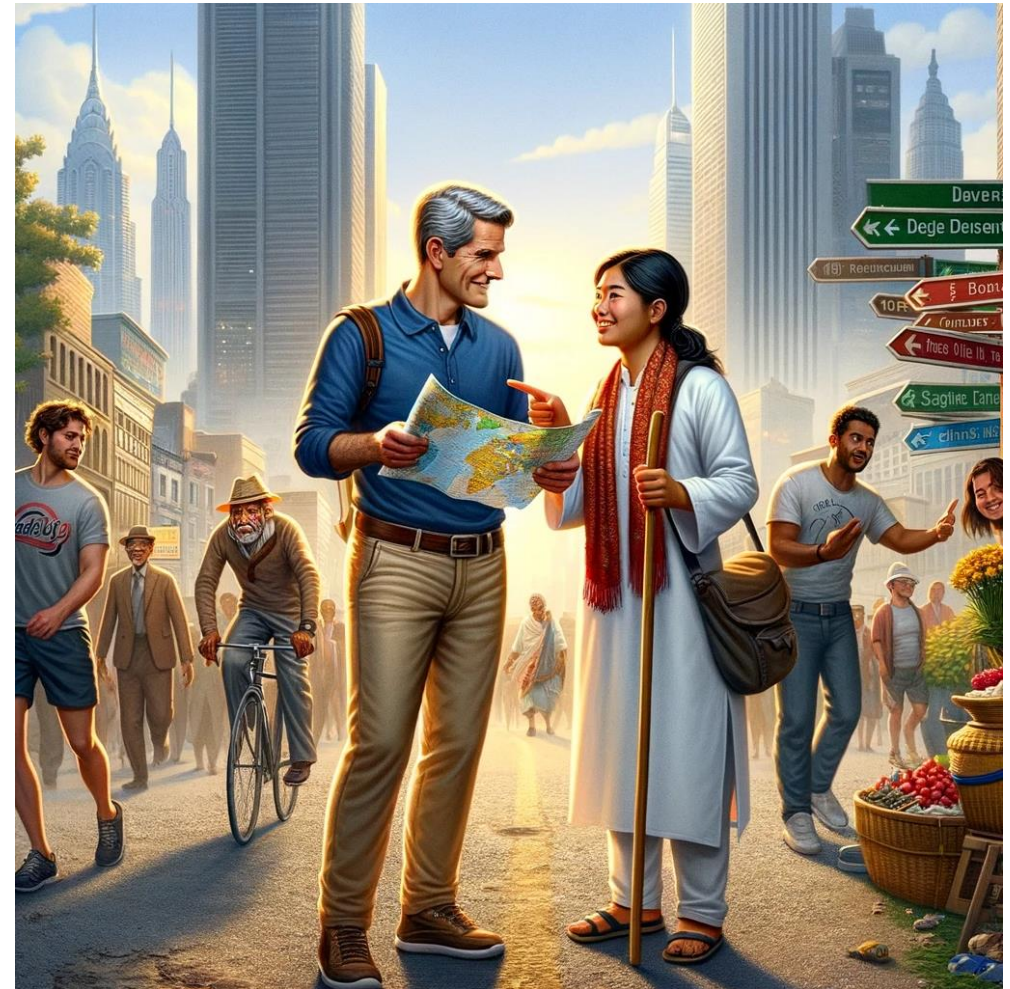
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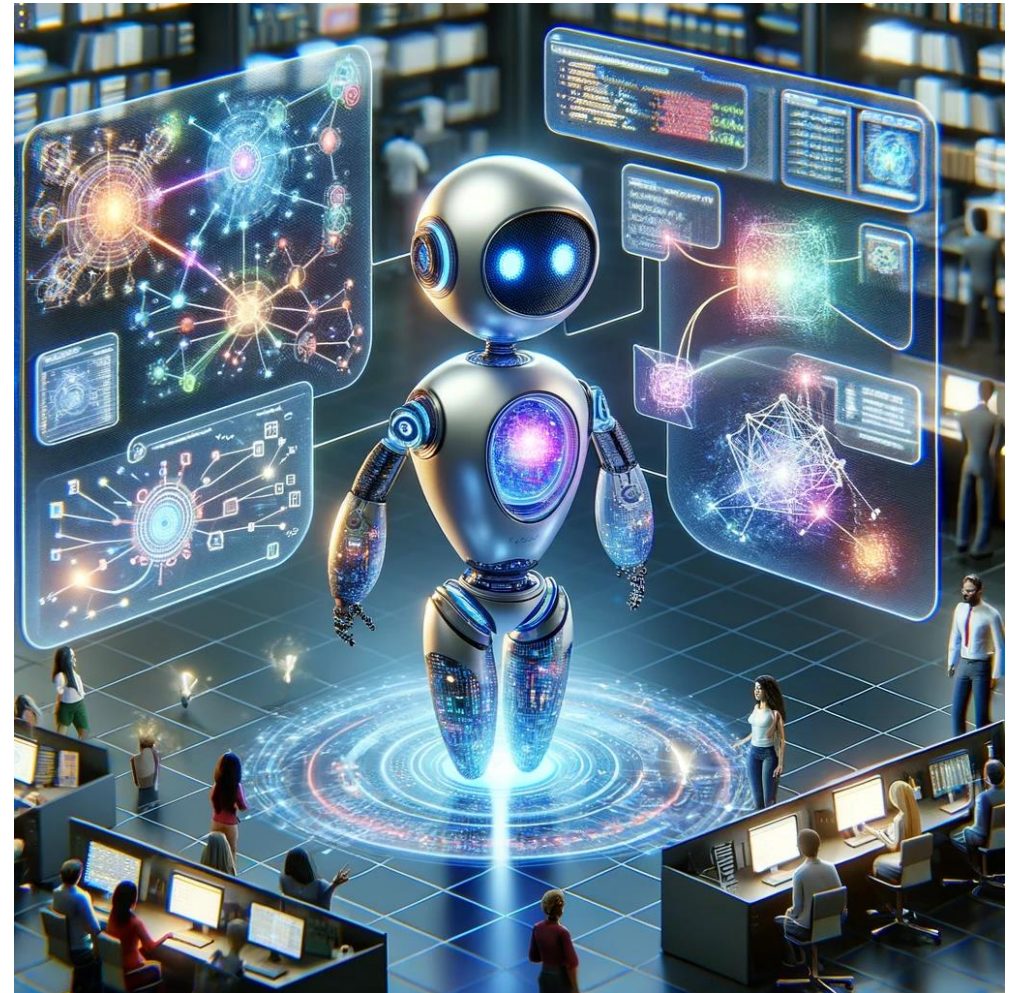
# Times and world constantly evolving

- Travel in the past often involved asking people for directions, especially in cities.
- Nowadays, Google Maps or GPS are commonly used, eliminating the need to ask others.
- Relying on the old method of asking for directions is considered outdated.
- The approach to reaching destinations has evolved significantly.



# Must also adapt, evolve, change

- Previously, finding the right answers involved struggling or seeking expert help.
- With the advent of ChatGPT, **obtaining answers** has become much **easier**.
- Not utilizing ChatGPT effectively is now seen as being behind the times.
- The method of searching for answers has undergone a significant change.





# Prompt Engineering

- Keep in mind that the **quality of the results** you receive is directly proportional to the **quality of the prompt** you provide.
- The process of **meticulously designing a prompt** by incorporating all essential information and relevant elements is termed '**prompt engineering**'.
- This involves not only the inclusion of specific instructions and questions but also carefully considering the **context, intended tone**, and any examples that might guide the model more effectively.
- Effective prompt engineering also requires **anticipating potential ambiguities** and refining the prompt to be as clear and concise as possible.

# Enhancing Results Through Detailed Prompt Design

- Simple prompts can achieve a lot. But, result quality depends on information amount and **prompt crafting**.
- Prompts should contain instructions or questions. We need to Include details like context, inputs, examples.
- Utilizing these elements improves model instruction.
- Remember “Correctly crafted prompts leads to better results.”

# Systematic Approaches for Optimal Results

- We can utilize a systematic approach to optimize our use of ChatGPT, ensuring the best possible outcomes.
- Let's delve into various **techniques, scientific strategies, and some lesser-known technical nuances** of prompt crafting.



# Typical and standard method

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You

## How to become a data scientist?



### ChatGPT

Becoming a data scientist involves a mix of formal education, skill development, and practical experience. Here's a step-by-step guide to help you embark on this career path:

#### 1. Educational Background:

- **Bachelor's Degree:** Ideally in a related field like computer science, statistics, mathematics, or engineering.
- **Postgraduate Education** (Optional but beneficial): A Master's or Ph.D. in Data Science, Statistics, Machine Learning, or a related field can be very helpful.

#### 2. Learn Key Skills:

- **Programming Languages:** Proficiency in Python or R is essential. SQL is also important for database management.
- **Statistics and Mathematics:** Understanding probability, statistics, and linear algebra is crucial for data modeling and analysis.
- **Machine Learning:** Familiarize yourself with basic ML algorithms and concepts.
- **Data Wrangling:** Learn to clean and preprocess data efficiently.
- **Data Visualization:** Skills in tools like Tableau, Matplotlib, or Seaborn for communicating data insights.

#### 3. Practical Experience:

- **Projects:** Work on real-world projects or datasets. Kaggle competitions are a good place to start.
- **Internships:** Gain practical experience and industry knowledge through internships.

#### 4. Specialize:

- Data science is a broad field. You might want to specialize in areas like machine learning, deep learning, natural language processing, or big data technologies.

#### 5. Soft Skills:

- **Communication:** Ability to explain complex results to non-technical stakeholders.
- **Problem-Solving:** Skills in identifying, analyzing, and solving problems.
- **Business Acumen:** Understanding the business context for data-driven decision making.

#### 6. Build a Portfolio:

- Showcase your skills and projects on platforms like GitHub. This portfolio is crucial for job applications.

#### 7. Networking and Community Involvement:

- Join data science communities, attend webinars, and participate in hackathons and meetups.

#### 8. Job Applications:

- Start applying for data science positions. Tailor your resume and cover letter for each application, highlighting relevant skills and experiences.

#### 9. Continuous Learning:

- The field of data science is ever-evolving. Stay updated with the latest tools, technologies, and trends in the industry.

#### 10. Ethics in Data Science:

- Understand and adhere to ethical practices in data handling and analysis.

Remember, there's no single path to becoming a data scientist. The field values skills and practical experience highly, so even non-traditional educational backgrounds can lead to successful careers in data science, provided you have the requisite skills and experience.



You

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- This is known as **zero-shot prompting**
- Asking the model directly, without examples or structure

on platforms like GitHub. This portfolio is crucial

ment:

tend webinars, and participate in hackathons

- Start applying for data science positions. Tailor your resume and cover letter for each application, highlighting relevant skills and experiences.

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Remember, there's no single path to becoming a data scientist. Continuous learning and practical experience highly lead to successful careers in data science.

Usually results in a very generic output

# Zero-Shot prompt - Examples

- E-Learning
  - Explain to me - NLP?
  - How to learn Generative AI?
- Coding
  - Python basic examples
- Personal Finance
  - How to earn money in the stock market?
- Health
  - What is a good diet plan?
- Business
  - Write a deadline extension mail to my client.
- Literature
  - Write a poem for my teacher

# Zero-Shot prompt - Issues

- E-Learning
  - Explain to me - NLP? - ChatGPT doesn't know whether you are a beginner or an expert
  - How to learn Generative AI?
- Coding
  - Python basic examples -is it for a developer and data scientist?
- Personal Finance
  - How to earn money in the stock market? - Very generic request
- Health
  - What is a good diet plan? - Depends on Gender, Location, Age
- Business
  - Write a deadline extension mail to my client.
- Literature
  - Write a poem for my teacher



# Zero-Shot prompt - Issues

- With the Zero-Shot prompt, there's an absence of **context, examples, or a specified tone**.
- This typically leads to responses that are
  - Quite broad
  - Unspecific
  - Generic
  - Repetitive output
- In many cases, the outcomes are not particularly useful

# Improvement from zero-shot prompting

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# Important Note

- “Chat-GPT Prompt” is NOT same as “Google Search String”
- Consider the prompt not merely as a query but more as a conversation with Chat GPT.
- Instead of treating it like a Google search, think of it as a robotic assistant that needs clear, specific information to assist you effectively.
- Avoid the brief, small queries or phrases typically used in Google searches
- You need to structure your prompt

# Structuring the prompt – 5 Elements

1. **Roleplaying** : Character Insight/ Persona/ Field Expert!
  - Ask Chat GPT to take the role as an expert
2. **Examples** : Exceptions / Inclusions and Exclusions!
  - Give some examples of what need to be included and excluded
3. **Domain and the Context** : Background / Setup/ Context!
  - Explain the context in depth, set the background carefully
4. **Display of the output**: Size, Structure, and Format of the output!
  - Do you want the output in a tabular format or bullet points or code format
5. **Y-axis-Parameters**: (Optional) - Temperature and Token limit!
  - If you want to adjust some of the ChatGPT parameters. This is an optional step.



# 1. Role Playing

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# Roleplaying : Character Insight/ Personal Analytics Field Expert!

- Instruct ChatGPT to step into the shoes of an expert.
- For instance, if your query pertains to coding, request that ChatGPT immerse itself in the role of a seasoned software engineer with a decade of experience.
- Similarly, if you seek advice on a diet plan, prompt ChatGPT to embody the expertise of a certified nutritionist.

# Roleplaying : Character Insight/ Personal Analytics

## Field Expert!

Basic Prompts	After adding Roleplaying part
Explain to me - NLP?	<b>Put yourself in the shoes of an NLP expert</b> with extensive experience and provide me with an explanation of NLP.
How to learn Generative AI?	<b>Imagine you are an expert in Generative AI and related fields</b> with extensive knowledge. Share insights on how one can effectively learn Generative AI.
Python basic examples	<b>Put yourself in the shoes of a seasoned Python developer with extensive knowledge.</b> Share some foundational Python examples that are essential for beginners to grasp the language effectively.
How to earn money in the stock market?	<b>Imagine you are an experienced stock market expert with a proven track record.</b> Provide valuable insights and strategies on how individuals can effectively earn money in the stock market.

# Roleplaying : Character Insight/ Personalized Field Expert!

Basic Prompts	After adding Roleplaying part
What is a good diet plan?	<b>Imagine you are a certified nutritionist with extensive expertise.</b> Provide personalized guidance on what constitutes a highly effective and tailored diet plan
Write a deadline extension mail to my client.	<b>Imagine you are a seasoned business communication expert with years of experience.</b> Craft a professional and persuasive email to request a deadline extension from your client
Write a poem for my teacher	<b>Imagine you are a skilled poet</b> and wish to compose a heartfelt poem dedicated to a respected teacher.



# Roleplaying – More Examples

- Education

- Imagine you are a seasoned professor with 20 years of experience.
- Picture yourself as an educational consultant specializing in curriculum development.
- Envision being a veteran school principal, well-versed in educational leadership.

- Medicine

- Visualize yourself as a respected neurologist known for diagnosing rare disorders.
- Imagine you are a senior surgeon renowned for performing complex heart surgeries.
- Picture being a medical researcher with expertise in vaccine development.

- Technology

- Pretend to be a cybersecurity expert who has protected Fortune 500 companies.
- Imagine you are a data scientist known for groundbreaking insights in AI.
- Visualize being a software architect behind widely used applications

# Roleplaying – More Examples

- Finance:
  - Picture yourself as a seasoned financial analyst with a track record of accurate predictions.
  - Envision being a respected investment banker known for successful mergers.
  - Imagine you are a tax consultant who has saved clients millions in deductions.
- Engineering:
  - Visualize being a civil engineer celebrated for designing iconic bridges.
  - Picture yourself as a mechanical engineer known for inventing efficient machinery.
  - Imagine you are a chemical engineer renowned for groundbreaking innovations.
- Marketing:
  - Pretend to be a marketing guru behind viral advertising campaigns.
  - Imagine you are a branding expert known for redefining company identities.
  - Picture yourself as a digital marketing strategist with a string of successful campaigns.

# Roleplaying – More Examples

- Legal:
  - Envision being a renowned defense attorney with a high-profile case history.
  - Visualize being a constitutional law expert who has argued before the Supreme Court.
  - Imagine you are an international law consultant for diplomatic negotiations.
- Entertainment:
  - Picture yourself as a celebrated film director with award-winning productions.
  - Pretend to be a music producer known for discovering chart-topping talent.
  - Imagine you are a fashion designer whose creations grace runways worldwide.
- Agriculture:
  - Envision being a respected agronomist known for increasing crop yields.
  - Visualize being a dairy farming expert renowned for sustainable practices.
  - Imagine you are an agricultural scientist with breakthroughs in pest control.

## **2.Examples : Exceptions / Inclusions and Exclusions!**

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# Include some Examples

- Demonstrate to the ChatGPT a few examples as inputs and instruct it to use these examples as a guide to respond to questions.
- This process, known as **few-shot prompting**, involves supplying the AI with a limited number of examples or "shots" that illustrate the task you want it to perform.
- Through this approach, the AI learns and adapts based on these examples.
- For example, if we give two examples of the customer feedback and classify them as positive or negative, the third example will be automatically classified by ChatGPT

# Include some Examples = few-shot prompting

Input- Overall okay. Biryani was not as good. The rest of the items were good.  
Kadai paneer we found it to be too high a price for the quantity served.  
Ambiance is nice

Output - Positive - High Price

Two examples(shots) are  
given to chatGPT

Input- There's no menu card. staff to say the menu card so that the customer feels uncomfortable asking for everything. Overall taste wise just average and overhyped and on overpriced.

Output - Negative - Menu Card issue

Input- I never leave this place disappointed. All the dishes are good and well served. The staff is attentive and suggests good menu options

What is the Output ?

# Include some Examples



You

Overall okay. Biryani was not as good. The rest of the items were good. Kadai paneer we found it to be too high a price for the quantity served. Ambience is nice ---> Positive  
- High Price

There's no menu card. staff to say the menucard so that the customer feels uncomfortable asking for everything. Overall taste wise just average and overhyped and on overpriced. ---> Negative - Menu Card issue

Inever leave this place disappointed. All the dishes are good and well served. Staff is attentive and suggest good menu options --->



ChatGPT

Positive - Excellent Service and Food Quality

# Include some Examples

## French Fries

// High in unhealthy trans fats, sodium  
365 (medium serving)

## Potato Chips

// High in unhealthy fats (saturated and  
trans fats), sodium  
150-160 (per ounce)

## Soda (e.g., Cola)

// High in added sugars  
140-150 (12 oz can)

Fill the below examples

## Candy (e.g., Gummy Bears)

//

## Burgers (Fast Food)

//

## Pizza (Fast Food)

//

### 1. French Fries:

- High in unhealthy trans fats and sodium.
- A medium serving typically contains around 365 calories.

### 2. Potato Chips:

- High in unhealthy fats (saturated and trans fats) and sodium.
- The calorie count for potato chips can vary, but it's typically around 150-160 calories per ounce.

### 3. Soda (e.g., Cola):

- High in added sugars.
- A 12 oz can of soda typically contains around 140-150 calories.

### 4. Candy (e.g., Gummy Bears):

- Gummy bears and similar candies are generally high in sugar and provide little to no nutritional value.
- The calorie count can vary depending on the serving size and brand.

### 5. Burgers (Fast Food):

- Fast food burgers can vary widely in terms of calories and nutritional content.
- They often contain high levels of saturated fat, sodium, and calories. The calorie count can range from a few hundred to over a thousand calories per burger, depending on the size and toppings.

### 6. Pizza (Fast Food):

- Fast food pizza can also vary in terms of calories and nutritional content.
- It tends to be high in calories, saturated fat, and sodium. The calorie count can vary significantly based on the size, type of crust, and toppings.

# Include some Examples

Complete the below workout plan for 6 days a week

## Day-1: Chest

Push-Ups - 2 Sets - 15 reps

Chest Flyes - 2 Sets - 15 reps

Bench Press - 2 sets - 15 reps

## Day-2: Shoulders



Certainly, here's a 6-day workout plan that you can follow, building on the initial chest and shoulder days:

### Day 1: Chest

1. Push-Ups - 3 sets of 15 reps
2. Chest Flyes - 3 sets of 12-15 reps
3. Bench Press - 3 sets of 12-15 reps

### Day 2: Shoulders

1. Seated Dumbbell Shoulder Press - 3 sets of 12-15 reps
2. Lateral Raises - 3 sets of 12-15 reps
3. Front Raises - 3 sets of 12-15 reps
4. Face Pulls - 3 sets of 12-15 reps

### Day 3: Back

1. Pull-Ups or Lat Pulldowns - 3 sets of 12-15 reps
2. Bent-Over Rows - 3 sets of 12-15 reps
3. Deadlifts (if comfortable with the exercise and using proper form) - 3 sets of 8-10 reps

### Day 4: Legs

1. Squats - 3 sets of 10-12 reps
2. Leg Press - 3 sets of 12-15 reps
3. Lunges - 3 sets of 12-15 reps (each leg)
4. Leg Curls - 3 sets of 12-15 reps

### Day 5: Arms (Biceps and Triceps)

1. Barbell Bicep Curls - 3 sets of 12-15 reps
2. Hammer Curls - 3 sets of 12-15 reps
3. Tricep Dips or Tricep Pushdowns - 3 sets of 12-15 reps
4. Skull Crushers - 3 sets of 12-15 reps

### Day 6: Core and Cardio

1. Planks - 3 sets for 30-60 seconds each
2. Russian Twists - 3 sets of 15-20 reps (each side)
3. Bicycle Crunches - 3 sets of 15-20 reps (each side)
4. Cardio of your choice (running, cycling, swimming, etc.) - 20-30 minutes

**Day 7: Rest or Active Recovery** Take a rest day to allow your body to recover fully, or engage in light activities like walking or yoga for active recovery.

# 3. Domain and Context

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# Domain and Context

Put yourself in the shoes of a seasoned Python developer with extensive knowledge. Give me the learning path for becoming a **Python developer** in five short steps



## ChatGPT

Certainly, here's a learning path for becoming a Python developer in five concise steps from the perspective of an experienced Python developer:

1. **Master the Basics:** Begin with a deep understanding of Python's fundamentals, including variables, data types, control structures (if statements, loops), and functions. Practice coding to build a solid foundation.
2. **Object-Oriented Programming (OOP):** Delve into OOP principles as Python is an object-oriented language. Learn about classes, objects, inheritance, and polymorphism to structure your code effectively.
3. **Data Structures and Algorithms:** Study essential data structures (lists, dictionaries, sets, etc.) and algorithms (sorting, searching) to write efficient and optimized Python code. Practice problem-solving on platforms like LeetCode or HackerRank.
4. **Web Development or Data Science:** Depending on your career goals, choose a specialization path. For web development, explore popular frameworks like Django or Flask. For data science, focus on libraries like NumPy, Pandas, and Matplotlib.
5. **Real-World Projects and Collaboration:** Apply your skills to real-world projects. Contribute to open-source projects, collaborate with other developers, and continuously learn by working on challenging tasks. Stay updated with Python's evolving ecosystem.





# Domain and Context

Put yourself in the shoes of a seasoned Data Scientist with extensive knowledge. Give me the learning path for Python to become a data scientist in five steps

Compare this output with the previous output



## ChatGPT

Certainly, here's a learning path for becoming a Data Scientist using Python in five steps from the perspective of an experienced Data Scientist:

### 1. Master Python Fundamentals:

- Start by becoming proficient in Python programming. Learn about variables, data types, control structures (if, loops), and functions. Python is the primary language used in data science, so a strong foundation is crucial.

### 2. Data Manipulation and Analysis:

- Dive into libraries like NumPy and Pandas for data manipulation and analysis. Learn how to load, clean, and preprocess data effectively. Practice working with data frames, arrays, and statistical operations.

### 3. Data Visualization:

- Explore data visualization tools and libraries such as Matplotlib and Seaborn. Understand how to create informative plots and charts to convey insights from your data.

### 4. Machine Learning and Statistics:

- Study machine learning concepts, algorithms, and libraries like Scikit-Learn. Learn about supervised and unsupervised learning, regression, classification, and clustering. Dive into statistical analysis to understand the data distribution and make informed decisions.

### 5. Real-World Projects and Domain Knowledge:

- Apply your knowledge to real-world data science projects. Work on personal projects or contribute to open-source ones. Additionally, gain domain-specific knowledge in the field you want to specialize in, such as healthcare, finance, or marketing.

# Domain and Context

Suggest a good diet plan



ChatGPT

I can provide you with a general framework for a healthy diet plan, but please keep in mind that individual dietary needs can vary based on factors such as age, gender, activity level, and any specific health conditions you may have. It's always a good idea to consult with a healthcare professional or registered dietitian before making significant changes to your diet. Here's a basic outline of a balanced diet:

1. **Fruits and Vegetables:** Aim to fill half your plate with a variety of colorful fruits and vegetables. They are rich in vitamins, minerals, antioxidants, and fiber. Include a wide range of options to get different nutrients.
2. **Protein:** Include lean sources of protein in your diet. This can come from sources like poultry, fish, lean meats, tofu, beans, lentils, and nuts. Fish, particularly fatty fish like salmon and mackerel, are excellent sources of omega-3 fatty acids.
3. **Whole Grains:** Choose whole grains over refined grains whenever possible. Examples of whole grains include brown rice, quinoa, whole wheat bread, oats, and barley. They provide more fiber and nutrients compared to refined grains.
4. **Dairy or Dairy Alternatives:** If you consume dairy, choose low-fat or fat-free options. If you're lactose intolerant or prefer non-dairy alternatives, options like almond milk, soy milk, and coconut yogurt are available.
5. **Healthy Fats:** Include sources of healthy fats in your diet, such as avocados, nuts, seeds, and olive oil. These fats are beneficial for heart health and overall well-being.
6. **Limit Added Sugars:** Minimize your consumption of foods and drinks high in added sugars, such as sugary beverages, candies, and desserts. Pay attention to food labels to identify hidden sugars.
7. **Portion Control:** Be mindful of portion sizes to avoid overeating. Use smaller plates, and pay attention to your body's hunger and fullness cues.

# Domain and Context

Imagine you are a certified nutritionist with extensive expertise. Provide personalized guidance on what constitutes a highly effective and tailored diet plan. I live in South India. I am a Male. My age is 39. My height is 5.8 and My weight is 73kg.

Compare this output with the previous output

As a certified nutritionist, I can provide you with some personalized guidance for a highly effective and tailored diet plan based on your age, gender, location in South India, height, and weight. However, please note that it's always best to consult with a healthcare professional or registered dietitian for a comprehensive and individualized plan. Here's a general diet plan to get you started:

## **Breakfast:**

- Start your day with a nutritious breakfast.
- Include options like idli, dosa (preferably whole-grain), poha, or upma made with minimal oil.
- Add a side of sambar or coconut chutney for flavor and added nutrients.
- Incorporate a serving of fresh fruits, like a banana or papaya.

## **Mid-Morning Snack:**

- Have a small portion of nuts or seeds for a healthy snack. Almonds or walnuts are good choices.
- You can also enjoy a cup of buttermilk or coconut water.

## **Lunch:**

- Opt for a balanced lunch that includes whole grains, lean protein, and plenty of vegetables.
- Have a serving of brown rice or millets like ragi or bajra.
- Include a source of protein like lentils (dal), fish, or lean chicken.
- Load up on vegetables, such as spinach, carrots, and cucumber.
- Use minimal oil and spices in your cooking.
- Finish your meal with a serving of yogurt or curd.

## **Afternoon Snack:**

- A light snack can help keep your energy levels steady.
- Consider having a fruit salad, a handful of roasted chickpeas, or a vegetable soup.

## **Dinner:**

- Keep your dinner relatively light.
- Include a variety of vegetables and a small portion of whole grains.
- Opt for options like vegetable curry with chapati or a simple khichdi.
- Avoid heavy or rich dishes before bedtime.

## **Before Bed:**

- If you feel hungry before bedtime, have a glass of warm milk or a herbal tea like chamomile.

# Domain and Context

Assume you're an experienced investment banker and stock analyst teaching a class on long-term investing. Could you explain the key factors or ratios that are crucial for evaluating stocks for long-term investment? List these in a short and an easy-to-understand format suitable for beginners.

Certainly! Here are the key factors and ratios for evaluating stocks for long-term investment in a concise and beginner-friendly format:

1. **Earnings Per Share (EPS):** Look for growing and consistent profits per share.
2. **Price-to-Earnings Ratio (P/E Ratio):** Lower P/E ratios can indicate better value.
3. **Dividend Yield:** Higher yields provide regular income for investors.
4. **Debt-to-Equity Ratio:** Lower debt levels suggest financial stability.
5. **Return on Equity (ROE):** Higher ROE reflects effective use of shareholder equity.
6. **Market Capitalization:** Consider companies of various sizes based on your risk tolerance.
7. **Competitive Advantage (Moat):** Seek companies with a sustainable edge in their industry.
8. **Management Quality:** Research the leadership team's track record.
9. **Industry and Market Trends:** Understand the industry's growth potential.
10. **Diversification:** Spread risk by investing in different stocks and sectors.
11. **Long-Term Prospects:** Consider a company's ability to adapt and grow.
12. **Valuation Relative to Peers:** Compare with similar companies in the industry.

# Domain and Context

Explain the philosophy of BhagwatGeeta to a 12 years old kid in 5 points

Certainly! Here's an explanation of the philosophy of the Bhagavad Gita in 5 simple points for a 12-year-old

**1.Duty and Responsibility:** The Bhagavad Gita teaches us about the importance of doing our duties and responsibilities sincerely, without worrying too much about the results. It's like doing your homework or chores because it's the right thing to do, not just for rewards or praise.

**2.Inner Peace:** The Gita tells us that finding inner peace and calmness is essential. It teaches us to control our mind and emotions, like handling your feelings when things don't go your way, and finding balance in life.

**3.Self-Discovery:** It encourages us to understand who we are and what our true self is. This means knowing your strengths, weaknesses, and values, which helps make better decisions in life.

**4.Equality and Respect:** The Gita teaches that all people are equal and should be treated with kindness and respect, regardless of their background or appearance. It's like being friendly to everyone at school.

**5.Spirituality:** Finally, the Gita talks about connecting with a higher power or inner spirituality. It's like feeling a sense of wonder about the world and understanding that there's something bigger than ourselves.

So, the Bhagavad Gita teaches us to do our best, stay calm, understand ourselves, be kind to others, and explore our inner world and spirituality. It's like a guide to living a good and meaningful life.

# To change the context – Ignore previous chats

1. "Clear previous context and start fresh."
2. "Ignore previous messages and focus on the following instructions."
3. "Begin a new conversation with the following questions:"
4. "Reset the chat and provide responses based on the following input:"
5. "Let's start from scratch with the following discussion topics:"



You

Ignore all the previous chats



ChatGPT

Of course, feel free to ask your question or provide the information you need, and I'll assist you from there.



You

Start a new conversation.



ChatGPT

Of course! I'm here to help with any questions or instructions you have. What would you like to discuss or ask about today?

# 4. Display and Format

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# Display the output

- You Can display the output in many different formats
  - Bullet Points & Numbered Lists
  - Tabular Values
  - Sections and Subsections
  - Code Blocks & Math Equations
  - Quotes or Dialogues
  - Labels and Annotations

# Display the output

## Lists and Bullet points

List the top attractions in Paris, France,. Give the list only. Do not include any explanations.

Certainly, here is a list of the top attractions in Paris, France:

- 1.Eiffel Tower
- 2.Louvre Museum
- 3.Notre-Dame Cathedral
- 4.Champs-Élysées and Arc de Triomphe
- 5.Seine River Cruises
- 6.Montmartre and Sacré-Cœur Basilica
- 7.Musée d'Orsay
- 8.Palace of Versailles
- 9.Luxembourg Gardens
- 10.Palace of Fontainebleau

# Display the output - Lists and Bullet points

Provide a bullet-point summary of the benefits of regular exercise for cardiovascular health

- **Improved Heart Health:** Regular exercise strengthens the heart muscle, making it more efficient at pumping blood and reducing the risk of heart disease.
- **Lower Blood Pressure:** Exercise helps lower high blood pressure, reducing the strain on the heart and arteries.
- **Improved Cholesterol Profile:** Exercise can raise levels of "good" HDL cholesterol and lower levels of "bad" LDL cholesterol, which decreases the risk of plaque buildup in arteries.
- **Enhanced Blood Sugar Control:** Physical activity helps regulate blood sugar levels, reducing the risk of type 2 diabetes and its impact on the cardiovascular system.
- **Weight Management:** Exercise aids in weight loss and weight maintenance, which is crucial for reducing the risk of heart disease and stroke.
- **Reduced Inflammation:** Regular physical activity can lower chronic inflammation in the body, which is a key factor in cardiovascular disease.
- **Improved Circulation:** Exercise promotes better blood flow and circulation, reducing the risk of blood clots and related cardiovascular events.
- **Stronger Blood Vessels:** Exercise helps maintain the flexibility and health of blood vessels, reducing the risk of atherosclerosis (hardening of the arteries).
- **Enhanced Cardiorespiratory Fitness:** Regular exercise improves the capacity of the heart and lungs to deliver oxygen to muscles, enhancing overall cardiovascular fitness.
- **Stress Reduction:** Physical activity helps reduce stress, which can contribute to lower blood pressure and improved cardiovascular health.
- **Better Heart Rate Control:** Exercise can help regulate heart rate and rhythm, reducing the risk of arrhythmias.
- **Improved Endothelial Function:** Regular exercise can improve the function of the endothelium, the inner lining of blood vessels, leading to better vascular health.
- **Reduced Risk of Stroke:** Regular physical activity lowers the risk of stroke by improving cardiovascular health and reducing risk factors like high blood pressure.

# Display the output

## Lists and Bullet points

- “List key personality traits that contribute to success, and present them in a concise bullet point format.”
- "List 5 effective study techniques for improving memory retention."
- "Highlight the key advantages of 5G technology in a bullet-point list."
- "Summarize the main causes of air pollution in a bullet-point list.“
- "Provide a bullet-point list of effective strategies for improving social media engagement.“
- “List the key safety features to consider when purchasing a family car.”

# Display the output

## Sections and Subsections

Create a structured essay with sections and subsections about Generative AI.  
Include applications and examples to explain a layman with very limited knowledge.

# Display the output

## Tabular Format

Create 10 MCQ questions on Python pandas.  
Arrange the questions in a table format  
with 6 columns. Question, Option A,  
Option b, Option C , Option D and the  
Answer



### ChatGPT

Here are 10 multiple-choice questions (MCQs) on Python pandas along with four options (A, B, C, D) and the correct answers:

Question	Option A	Option B	Option C
1. What is the primary data structure in pandas for storing and manipulating data?	A. List	B. Array	C. Series
2. Which function is used to read a CSV file into a pandas	A. <code>read_csv()</code>	B. <code>load_data()</code>	C. <code>read_d</code>

# Display the output Tabular Format

What's the study plan for someone who wants to be a data analyst? Note all important fields and their specific points, and organize them in a tabular format.



## ChatGPT

To become a data analyst, one needs to focus on a range of topics. Here's a structured learning path in a tabular format:

Main Topic	Subtopics
Basic Mathematics	- Statistics
	- Probability
Programming Skills	- Python/R
	- SQL
Data Processing	- Data Cleaning
	- Data Transformation
Data Analysis	- Exploratory Data Analysis
	- Data Interpretation
Data Visualization	- Using Tools like Tableau, PowerBI, or Matplotlib
Business Intelligence	- Understanding Business Metrics
	- Reporting Techniques
Communication Skills	- Presenting Findings
	- Storytelling with Data
Tools and Technologies	- Excel
	- Database Management Systems





# Display the output Mathematical equations

Write the back propagation  
theory with mathematical  
equations

## 1. Forward Pass:

- Calculate the weighted sum of inputs ( $z$ ) for each neuron in the network's hidden layers and output layer:

$$z^{(l)} = W^{(l)}a^{(l-1)} + b^{(l)}$$

- Apply an activation function ( $\sigma$ ) to the weighted sum to get the activation ( $a$ ) for each neuron:

$$a^{(l)} = \sigma(z^{(l)})$$

- Repeat this process for each layer, starting from the input layer and moving forward to the output layer.

## 2. Backward Pass (Gradient Calculation):

- Compute the error ( $\delta$ ) for the output layer:

$$\delta^{(L)} = \nabla_a C \odot \sigma'(z^{(L)})$$

Where:

- $\nabla_a C$  represents the gradient of the cost function with respect to the output.
- $\sigma'(z^{(L)})$  is the derivative of the activation function used in the output layer.
- Propagate the error backward through the layers to calculate the error for each hidden layer:

$$\delta^{(l)} = ((W^{(l+1)})^T \delta^{(l+1)}) \odot \sigma'(z^{(l)})$$

- Calculate the gradient of the cost function with respect to the weights ( $\nabla W$ ) and biases ( $\nabla b$ ) for each layer:

$$\nabla W^{(l)} = \delta^{(l)} (a^{(l-1)})^T$$

$$\nabla b^{(l)} = \delta^{(l)}$$



## 3. Weight and Bias Updates:

- Update the model's weights and biases using an optimization algorithm such as gradient descent:

$$W^{(l)} \rightarrow W^{(l)} - \eta \nabla W^{(l)}$$

$$b^{(l)} \rightarrow b^{(l)} - \eta \nabla b^{(l)}$$

Where:


- $\eta$  (eta) is the learning rate, a hyperparameter controlling the step size of the update.

4. **Repeat:** Continue iterating through the forward and backward passes for a specified number of epochs or until the error converges to a desired level.

# ChatGPT for Code

Write an SQL query to find the second-highest price from a 'sales' table. Include the relevant comments in the code.

sql

 Copy code

```
-- SQL query to find the second highest price in the 'sales' table
```

```
SELECT MAX(price) AS SecondHighestPrice  
FROM sales  
WHERE price < (SELECT MAX(price) FROM sales);
```

# ChatGPT for Code

Write Python code  
for deploying an ANN  
model using  
Streamlit. Include  
relevant comments in  
the code

python

Copy code

```
# Import necessary libraries
import streamlit as st
import tensorflow as tf
import numpy as np

# Define the Streamlit app header
st.title("Sentiment Analysis App")

# Define a function to load and use the ANN model
@st.cache(allow_output_mutation=True)
def load_model():
    model = tf.keras.models.load_model("sentiment_model.h5") # Load your model
    return model

model = load_model()

# Create a text input field for user input
user_input = st.text_input("Enter a sentence:")

# Create a button to perform sentiment analysis
if st.button("Analyze Sentiment"):
    if user_input:
```

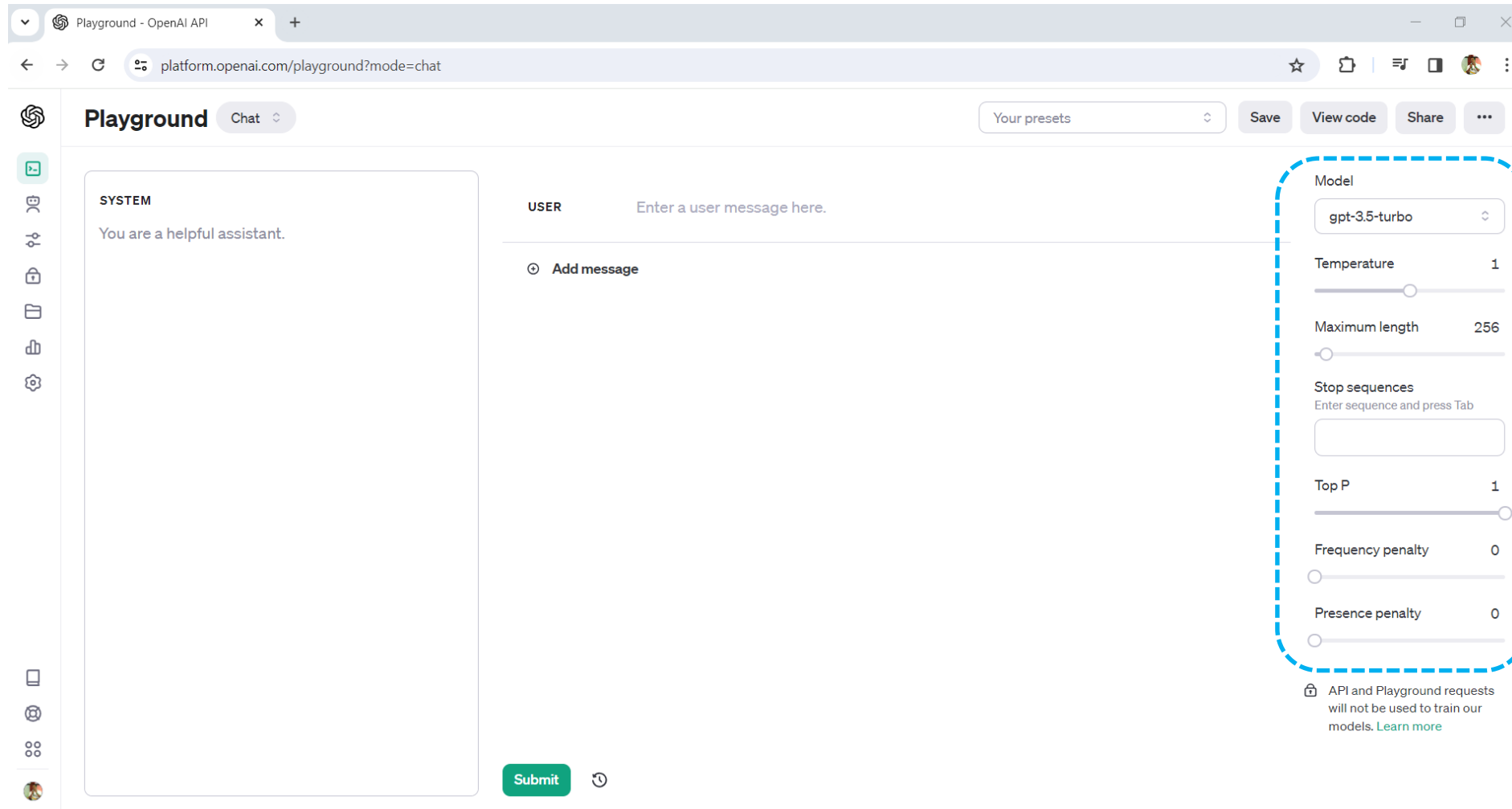
# 5.Y-Axis Parameters (Optional)

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# Y-Axis Parameters (Optional)

- So far, we've interacted with ChatGPT through text prompts alone.
- Beyond these prompts lies the Y-axis, adding another dimension to our interactions.
- We have the ability to customize ChatGPT's responses by adjusting certain settings.
- These settings include options such as the model type, response temperature, output length, and number of tokens.
- As of now, these optional parameters are available in the playground, though they can be optionally ignored.

# Y-Axis Parameters



The screenshot shows the OpenAI Playground interface. The browser address bar displays `platform.openai.com/playground?mode=chat`. The interface includes a sidebar with icons for chat, presets, and other features. The main area is divided into three sections: SYSTEM, USER, and a parameter panel on the right. The SYSTEM section contains the text "You are a helpful assistant." The USER section has a text input field with the placeholder "Enter a user message here." and a "Submit" button. The parameter panel on the right, highlighted by a blue dashed box, contains the following settings:

- Model: `gpt-3.5-turbo`
- Temperature: `1`
- Maximum length: `256`
- Stop sequences: `Enter sequence and press Tab`
- Top P: `1`
- Frequency penalty: `0`
- Presence penalty: `0`

Below the parameter panel, a note states: "API and Playground requests will not be used to train our models. [Learn more](#)"

Parameter	Explanation	Examples
<b>Model</b>	Specifies the model variant to use.	<ul style="list-style-type: none"> <li>- gpt-3.5-turbo: Versatile model suitable for various tasks</li> <li>- text-davinci-003: Creativity-focused GPT-3 variant.</li> </ul>
<b>Temperature</b>	Controls randomness and creativity in output.	<ul style="list-style-type: none"> <li>- High Temperature (e.g., 0.8): "The sky is as blue as a <b>[random word]</b>."</li> <li>- Low Temperature (e.g., 0.2): "The sky is blue, and the <b>[predictable word]</b> is shining."</li> </ul>
<b>Maximum Length</b>	Sets the maximum token limit for generated output.	<ul style="list-style-type: none"> <li>- Maximum Length of 20: "Please summarize the following text in <b>[up to 20 tokens]</b>."</li> <li>- Maximum Length of 50: "Write a story with a <b>[limited to 50 tokens]</b>."</li> </ul>
<b>Stop Sequences</b>	Specific tokens/phrases that trigger text termination.	<ul style="list-style-type: none"> <li>- Stop Sequence: "\n": "Generate a list of items:\n1. Item 1\n2. Item 2\n3. <b>[stop generating]</b>."</li> <li>- Stop Sequence: "Thank you": "Please provide information about <b>[stop generating when 'Thank you' is encountered]</b>."</li> </ul>
<b>Top P</b>	Controls word diversity by selecting top probable words.	<ul style="list-style-type: none"> <li>- Top P of 0.2: "I like to eat <b>[limited to the top 20% most probable words]</b>."</li> <li>- Top P of 0.8: "I like to eat <b>[considering a wider range of words, 80% most probable]</b>."</li> </ul>
<b>Frequency Penalty</b>	Discourages repeated word/phrase usage.	<ul style="list-style-type: none"> <li>- Frequency Penalty of 0.2: "I love to play <b>[repetition discouraged, more diverse words]</b>."</li> <li>- Frequency Penalty of 0.8: "I love to play <b>[allowing more repetition]</b>."</li> </ul>
<b>Presence Penalty</b>	Discourages inclusion of specific words/phrases.	<ul style="list-style-type: none"> <li>- Presence Penalty for "violence": "Write a story about a peaceful <b>[avoid using the word 'violence']</b>."</li> <li>- Presence Penalty for "spoilers": "Summarize the movie without giving away any <b>[avoid spoilers]</b>."</li> </ul>



# Structuring the prompt – 5 Elements

- **R** : Role-player or Expert : Persona/Roleplaying / Field Expert
- **E** : Examples : Exclusions /Exceptions / Inclusions and Exclusions
- **D** : Domain and Context : Background / Setup
- **D** : Display and Format: Size, Structure and Format of the output
- **Y** : Y-axis parameters :(Optional) - Temperature and Token limit

# Useful Tricks

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# My personal Trick for YouTube videos

- Open a YouTube link -  
<https://www.youtube.com/watch?v=8KkKuTCFvzI>
- Click on Description>>Show Transcript >> Toggle Time Steps >> Copy the transcript

Summarize the below transcript. Arrange the output into sections and subsections. Make sure that minimum 4 lines are there in each of the subsection.

# Job Search Guidance and Prompts

[https://github.com/venkatareddykonasani/GenAI/blob/main/job\\_prompts.md](https://github.com/venkatareddykonasani/GenAI/blob/main/job_prompts.md)

- Leveraging LinkedIn Networking for Job Prospects
- Crafting a Cover Letter for [Title] Position
- Resume Building Exercise: [Title] Position
- Email Submission of Resume and Cover Letter
- Interview Preparation: Generating [number] Questions
- Simulate a Mock Technical Interview
- Preparing a Personal Introduction for [Title] Interview
- Analyzing Compatibility Between My Skills and Job Requirements

# Where not to use ChatGPT

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# Where not to use ChatGPT

- Assignment Submissions: Plagiarism
  - Do not rely on ChatGPT to generate content for assignments with the intent to submit it as your own work.
  - This constitutes plagiarism and can result in academic consequences.
- Exams Clearing:
  - Cheating: Avoid using ChatGPT as a tool for cheating during exams or tests.
  - Such unethical practices undermine the educational process and can result in severe academic penalties.
- Lack of Expertise:
  - Specialized Fields: Refrain from relying solely on ChatGPT when dealing with matters in specialized fields like law, finance, engineering, or medicine.
  - It lacks domain-specific knowledge and cannot replace the expertise of professionals in these areas.

# Be careful – With ChatGPT

- Medical Help -Diagnostic Decisions:
  - Avoid using ChatGPT to make diagnostic decisions or seek medical advice for serious conditions. It lacks the expertise to provide accurate medical assessments, potentially leading to misdiagnosis or harm.
- Psychological Counseling:
  - ChatGPT is not a substitute for professional psychological counseling or therapy. Seek help from qualified mental health professionals for mental health concerns.
- Privacy and Security:
  - Be cautious about sharing sensitive personal information with ChatGPT, as it may not guarantee the same level of privacy and security as confidential discussions with trusted professionals.

# Prompt Engineering Certification Courses

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# Prompt Engineering Certification Courses

- <https://cognitiveclass.ai/courses/prompt-engineering-for-everyone>
- <https://www.coursera.org/learn/generative-ai-prompt-engineering-for-everyone>
- <https://www.coursera.org/learn/prompt-engineering>
- <https://careercatalyst.asu.edu/programs/ai-prompt-engineering/>

# Some Useful Resources

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# Useful Links

- <https://aman.ai/primers/ai/prompt-engineering/>
- [https://python.langchain.com/docs/modules/model\\_io/prompts/prompt\\_templates/few\\_shot\\_examples](https://python.langchain.com/docs/modules/model_io/prompts/prompt_templates/few_shot_examples)
- <https://www.promptingguide.ai/>
- [https://learnprompting.org/docs/basics/few\\_shot](https://learnprompting.org/docs/basics/few_shot)
- [https://www.w3schools.com/gen\\_ai/chatgpt-4/chatgpt-4\\_few\\_shot.php](https://www.w3schools.com/gen_ai/chatgpt-4/chatgpt-4_few_shot.php)
- <https://www.analyticsvidhya.com/blog/2023/09/power-of-llms-zero-shot-and-few-shot-prompting/>