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1. What is ChatGPT?

- ChatGPT is a large language model developed by OpenAI that uses GPT (Generative Pre-trained Transformer) to generate human-like text.
- Use Cases:
    - Answering questions
    - Writing articles, code, emails, etc.
    - Brainstorming ideas

- Translation and summarization
- Debugging code and technical assistance

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2. How to Access ChatGPT

1. Web Interface (Easiest):

- Visit https://chat.openai.com
- Sign up/login to start using ChatGPT.

2. API Access (For Developers):

- Requires an OpenAI account and API key.
- Use the OpenAI API for custom integrations.

3. Mobile App (iOS/Android):

- Download from the App Store or Google Play.

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3. Basic Commands and Prompts

1. Ask Questions:

```
What is the capital of France?
```

2. Write Content:

```
Write a blog post about the benefits of meditation.
```

3. Translate Text:

```
Translate "Hello, how are you?" to French.
```

4. Summarize Text:

```
Summarize the following article: [paste text]
```

5. Generate Code:

```
Write a Python script to reverse a string.
```

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4. Key Features

- Memory (Pro Version): Remembers information across sessions (opt-in feature).
- Multimodal (GPT-4): Supports text and image inputs.
- Plugins: Extend functionality by connecting to external services.
- Web Browsing (GPT-4): Access up-to-date information beyond training data.

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5. Crafting Effective Prompts

Tips for Better Responses:

- Be Specific:

  ```
  Explain quantum physics in simple terms for a 10-year-old.
  ```

- Provide Context:

  ```
  Write a formal email requesting a meeting with a client.
  ```

- Break it Down:

  ```
  Step 1: Explain the basics of machine learning.
  Step 2: List common machine learning algorithms.
  ```

- Role Assignment:

  ```
  Act as a history professor and explain World War II causes.
  ```

- Iterative Refinement:

  ```
  Expand this text with more detail.
  Shorten the following paragraph.
  ```

6. Code Examples

Python (Fibonacci Generator):

```python
def fibonacci(n):
    a, b = 0, 1
    for _ in range(n):
        print(a, end=' ')
        a, b = b, a + b
fibonacci(10)
```

HTML (Simple Web Page):

```html
<!DOCTYPE html>
<html>
<head><title>My Web Page</title></head>
<body>
    <h1>Welcome to My Website</h1>
    <p>This is a simple HTML page.</p>
</body>
</html>
```

7. Troubleshooting and Debugging

- Explain Errors:

  I got this error in Python: IndexError: list index out of range. What does it mean?

- Code Debugging:

  Debug the following JavaScript code: [paste code]

- Performance Optimization:

  How can I optimize this SQL query for faster execution?

8. Common Use Cases

- Content Creation: Blog posts, essays, emails, reports.
- Coding Help: Write, debug, and explain code in various languages.
- Learning Assistant: Get explanations on complex topics.
- Productivity: Generate ideas, to-do lists, schedules.
- Creative Writing: Poetry, stories, jokes, song lyrics.

9. Limitations

- Training Cut-off: May lack information on events or topics after the model's knowledge cut-off date.
- Accuracy: May generate incorrect or nonsensical answers. Always verify critical information.
- Bias: Responses may reflect biases in the training data.

10. Keyboard Shortcuts (Web Interface)

- Ctrl + Enter – Submit prompt.
- Shift + Enter – Add a new line without submitting.
- Up Arrow – Edit last prompt.
- Tab – Autocomplete in code blocks.

11. ChatGPT Pro (GPT-4 Access)

- GPT-4 Benefits:
  - More accurate and creative responses.
  - Handles complex prompts better.
  - Multimodal (image + text).

- Pricing:
  - Free (GPT-3.5)
  - Pro (GPT-4) – Subscription model.

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12. API Usage (For Developers)

```
npm install openai
```

Basic API Example (Node.js):

```javascript
const { Configuration, OpenAIApi } = require("openai");

const configuration = new Configuration({
  apiKey: 'your-api-key',
});
const openai = new OpenAIApi(configuration);

async function run() {
  const response = await openai.createCompletion({
    model: "gpt-4",
    prompt: "Write a poem about space.",
    max_tokens: 100
  });
  console.log(response.data.choices[0].text);
}
run();
```

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13. Best Practices

- Iterate and Refine: Keep refining prompts for better responses.
- Ask Follow-ups: Continue the conversation to extract more information.
- Clarify Ambiguity: Rephrase or add context if the answer isn't precise.

14. Advanced Techniques

- Chain of Thought (COT):

  ```
  Solve this math problem step by step: 2x + 5 = 15
  ```

- Prompt Engineering:

  ```
  Simulate a debate between AI and a scientist on climate change.
  ```

- Temperature Control:

  ```
  Set temperature=0.2 for factual responses, 0.8 for creative
  writing.
  ```