

## • 提示詞設計模式(中文)

| 模式名稱   | 形式                   | 使用時機                | 優點                        | 缺點                         | 範例實作  |
|--------|----------------------|---------------------|---------------------------|----------------------------|---|
| 元語言創建  | 定義與 LLM 互動的自訂語言或符號系統 | 需以專門或簡化的方式與 LLM 溝通時 | - 客製化互動方式<br>- 可簡化複雜指令    | - 可能造成混淆或歧義<br>- 需學習新語法    | "當我輸入兩個以 '->' 分隔的數字時，請將其解釋為數學函數。例如 '2 -> 3' 表示 f(2)=3。"                       |
| 模板化輸出  | 確保 LLM 輸出嚴格遵循指定模板或格式 | 需從 LLM 獲得結構化且一致的輸出時 | - 保證輸出格式統一<br>- 減少歧義      | - 可能限制 LLM 創造性回應           | "請按此模板回覆：'您好 [姓名]，您的帳戶 [帳號] 已於 [日期] 入帳 [金額]'。保留大寫佔位符格式。"                      |
| 角色扮演   | 賦予 LLM 特定專業角色或視角     | 需模擬專家角色以提升輸出品質時     | - 增強回應相關性與深度<br>- 模擬專業知識  | - 可能產生假設性內容<br>- 需精確設定角色   | "現在起請擔任財務顧問，根據市場趨勢提供詳細投資建議。"  |
| 視覺化生成器 | 生成文字描述的視覺化圖表         | 需用視覺輔助解釋概念時         | - 透過圖像提升理解<br>- 支援技術流程可視化 | - 需熟悉視覺化工具<br>- 部分用戶可能難以理解 | "生成 PlantUML 序列圖：@startuml Alice -> Bob: 認證請求<br>Bob --> Alice: 認證回覆 @enduml" |

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| 流程配方   | 提供達成目標的步驟化指引           | 處理需要結構化流程的複雜任務時  | <ul style="list-style-type: none"> <li>- 提供明確指引</li> <li>- 適用程序性任務</li> </ul>  | <ul style="list-style-type: none"> <li>- 可能過度簡化流程</li> <li>- 未涵蓋所有變數</li> </ul>  | "提供架設安全網頁伺服器的步驟：1. 安裝 Apache 2. 設定防火牆 3. 取得 SSL 憑證..." |
| 輸出自動化  | 指示 LLM 生成可自動執行的腳本      | 需將建議步驟自動化以減少人力時  | <ul style="list-style-type: none"> <li>- 減少重複性工作</li> <li>- 提升效率</li> </ul>    | <ul style="list-style-type: none"> <li>- 需充足上下文</li> <li>- 生成腳本需人工覆核</li> </ul>  | "當生成跨檔案程式碼時，同時產生可自動建立檔案的 bash 腳本。"                     |
| 事實核對清單 | 生成需驗證事實的清單             | 需確保 LLM 輸出內容真實性時 | <ul style="list-style-type: none"> <li>- 提升輸出可靠性</li> <li>- 促進事實查核</li> </ul>  | <ul style="list-style-type: none"> <li>- 增加驗證時間成本</li> <li>- 可能拖慢互動流程</li> </ul> | "每次回答後附上需驗證事實清單，例如：1. 加拿大人口為 3700 萬 2. 澳洲首都是雪梨"        |
| 自我反思   | 要求 LLM 自行檢查輸出中的錯誤或改進空間 | 需透過自我評估提升輸出品質時   | <ul style="list-style-type: none"> <li>- 改善內容準確性</li> <li>- 促進批判性思考</li> </ul> | <ul style="list-style-type: none"> <li>- 增加回應時間</li> <li>- 實作複雜度較高</li> </ul>    | "回答後自行檢視並列出潛在錯誤，例如：'加拿大人口數據應註明為 2021 年資料'"             |

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| 問題精煉   | 引導 LLM 協助優化用戶提問方式 | 初始提示需改進以獲得更佳回答時 | <ul style="list-style-type: none"> <li>- 提升回答相關性</li> <li>- 改善互動品質</li> </ul>  | <ul style="list-style-type: none"> <li>- 需用戶額外輸入</li> <li>- 可能耗時</li> </ul>     | "當我提問時，建議更精準的問題版本，例如將『天氣如何？』改為『當前溫度、濕度與風速？』"       |
| 替代方案建議 | 要求提供多種解決方法並比較優劣   | 需提供多選項供用戶決策時    | <ul style="list-style-type: none"> <li>- 增加解決方案彈性</li> <li>- 強化決策支援</li> </ul> | <ul style="list-style-type: none"> <li>- 回應內容較冗長</li> <li>- 可能造成資訊過載</li> </ul> | "解決問題時至少提供兩種方法並比較，例如：節能可改善隔熱或改用高效電器，前者長期省錢，後者立即見效" |

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| Pattern Name           | Form   | When to Use   | Pros  | Cons   | Example Implementation   |
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| Meta Language Creation | Define a custom language or notation for interacting with the LLM. | When you need to communicate with the LLM in a specialized or simplified way. | <ul style="list-style-type: none"> <li>- Customization of interaction.</li> <li>- Can simplify complex instructions.</li> </ul> | <ul style="list-style-type: none"> <li>- Potential for confusion or ambiguity.</li> <li>- Requires learning new syntax.</li> </ul> | "Whenever I type two numbers separated by a '->', interpret it as a mathematical function. For example, '2 -> 3' means $f(2) = 3$ ." |

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| Template | <p>Ensure LLM output follows a precise template or format.</p> | <p>When you need consistent, structured output from the LLM.</p> | <ul style="list-style-type: none"> <li>- Ensures consistency in output format.</li> <li>- Reduces ambiguity.</li> </ul> | <ul style="list-style-type: none"> <li>- May limit the LLM's ability to provide varied or creative responses.</li> </ul> | <p>"I am going to provide a template for your output. Everything in all caps is a placeholder. Any time that you generate text, try to fit it into one of the placeholders that I list. Please preserve the formatting and overall template that I provide: 'Hello [NAME], your account [ACCOUNT_ID] has been credited with [AMOUNT] on [DATE].'"</p> |
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| Persona | Provide the LLM with a specific role or perspective to adopt. | When you want the LLM to simulate an expert or specific role for better outputs. | <ul style="list-style-type: none"><li>- Enhances relevance and depth of responses.</li><li>- Can simulate expertise.</li></ul> | <ul style="list-style-type: none"><li>- May introduce assumptions or hallucinations.</li><li>- Requires careful setup.</li></ul> | "From now on, act as a financial advisor. Provide detailed investment advice based on the market trends we discuss." |
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| Visualization Generator | Generate text-based descriptions for visualizations.                  | When visual aids are needed to explain concepts or processes. | <ul style="list-style-type: none"> <li>- Facilitates understanding through visual representation.</li> </ul>         | <ul style="list-style-type: none"> <li>- Requires familiarity with visualization tools.</li> <li>- Not all users might understand the visualizations.</li> </ul> | <p>"Create a PlantUML file to visualize a sequence diagram: '@startuml Alice -&gt; Bob: Authentication Request Bob --&gt; Alice: Authentication Response @enduml'."</p>                       |
| Recipe                  | Provide a sequence of steps/actions to achieve a specific end result. | For complex tasks requiring a structured process.             | <ul style="list-style-type: none"> <li>- Provides clear guidance.</li> <li>- Useful for procedural tasks.</li> </ul> | <ul style="list-style-type: none"> <li>- Can oversimplify complex processes.</li> <li>- Might not account for all variables.</li> </ul>                          | <p>"Provide a step-by-step recipe to set up a secure web server: 1. Install Apache, 2. Configure firewall, 3. Obtain SSL certificate, 4. Configure HTTPS, 5. Monitor server performance."</p> |

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| Output Automater | Direct the LLM to generate scripts or automations based on its output. | When automation of recommended steps is needed to reduce manual effort. | <ul style="list-style-type: none"> <li>- Reduces manual work.</li> <li>- Automates repetitive tasks.</li> </ul>       | <ul style="list-style-type: none"> <li>- Requires sufficient context.</li> <li>- Generated scripts need review for accuracy.</li> </ul>   | <p>"From now on, whenever you generate code that spans more than one file, generate a bash script that can be run to automatically create the specified files or make changes to existing files to insert the generated code."</p>       |
| Fact Check List  | Generate a list of facts that should be verified for accuracy.         | To ensure the reliability and factual accuracy of LLM outputs.          | <ul style="list-style-type: none"> <li>- Enhances output reliability.</li> <li>- Encourages fact-checking.</li> </ul> | <ul style="list-style-type: none"> <li>- Requires additional effort to verify facts.</li> <li>- Can slow down the interaction.</li> </ul> | <p>"From now on, whenever you provide an answer, generate a list of facts at the end of your response that should be fact-checked. For example, '1. The population of Canada is 37 million. 2. The capital of Australia is Sydney.'"</p> |

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| Reflection | Prompt the LLM to introspect on its output for errors or improvements. | To improve the quality and accuracy of LLM outputs through self-assessment. | <ul style="list-style-type: none"> <li>- Improves output quality.</li> <li>- Encourages critical thinking.</li> </ul> | <ul style="list-style-type: none"> <li>- May increase response time.</li> <li>- Complexity in implementation.</li> </ul> | <p>"After generating an answer, review your response and list any potential errors or improvements. For example, 'I have provided the population of Canada, but it would be more accurate to specify that this data is from 2021.'"</p> |
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| Question Refinement | Engage the LLM in refining user questions for better answers. | When initial prompts need improvement for more accurate responses. | <ul style="list-style-type: none"> <li>- Enhances relevance and accuracy of responses.</li> <li>- Improves user interaction.</li> </ul> | <ul style="list-style-type: none"> <li>- Requires additional input from the user.</li> <li>- Can be time-consuming.</li> </ul> | <p>"Whenever I ask a question, suggest a better version of the question that would help you provide a more accurate answer. For example, 'Instead of 'What is the weather like?', ask 'Can you provide the current temperature, humidity, and wind conditions?'"</p> |
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| Alternative Approaches | <p>Ensure the LLM offers multiple ways to accomplish a task or solve a problem.</p> | <p>When providing users with options to choose the best approach.</p> | <ul style="list-style-type: none"> <li>- Offers multiple solutions.</li> <li>- Enhances user choice.</li> </ul> | <ul style="list-style-type: none"> <li>- Increases complexity and length of responses.</li> <li>- Can overwhelm users.</li> </ul> | <p>"Whenever I ask for a solution to a problem, provide at least two alternative approaches and compare their advantages and disadvantages. For example, 'To reduce energy consumption, you could either improve insulation or switch to energy-efficient appliances. Improving insulation is more cost-effective in the long term, while switching to energy-efficient appliances provides immediate savings.'"</p> |
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