Automatic Webpage Generation Using a General-Purpose Language Model (Qwen3)

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Abstract

This experiment explores the use of a general-purpose large language model (LLM), Qwen by Alibaba Cloud, to automatically generate an educational webpage introducing Natural Language Processing (NLP). Through prompt engineering, we instructed the model to produce an HTML webpage covering the basic concept of NLP and its applications including machine translation, sentiment analysis, and chatbots. The results show that LLMs like Qwen can accurately interpret user instructions, generate coherent and semantically appropriate web content, and significantly reduce the complexity of front-end prototyping for educational and demonstration purposes.

1 Introduction

Large language models (LLMs) have revolutionized the field of natural language processing by enabling machines to understand and generate human-like text. Recent developments show that these models can also perform tasks such as code generation, content creation, and multimodal synthesis when guided with appropriate prompts.

In this work, we utilize Qwen[1], an open and general-purpose LLM developed by Alibaba Cloud, to automatically generate an HTML webpage introducing NLP. This task demonstrates the model's capability to translate human instructions into structured, meaningful web content using natural language prompts alone.

2 Methodology

The experiment involves the following steps:

[1]Qwen official experience portal: `https://bailian.console.aliyun.com/?tab=model#/efm/model_experience_center/text?modelId=qwen-plus-latest`

- **Prompt Design:** We crafted a concise instruction in English asking the model to generate an HTML webpage introducing NLP and three of its applications.
- **Model Interaction:** The prompt was submitted through Qwen's free trial interface on Alibaba Cloud's Model Experience Center.
- **HTML Generation:** The model returned a complete HTML5 document with textual content and semantic structure.
- **Visual Enhancement:** We generated three illustrative images (one per application) and embedded them locally into the webpage.

Figure 1: Prompt example for using Qwen3

Prompt Used

"生成一个介绍自然语言处理（NLP）的网页，内容包括：标题、简介段落。三个应用（机器翻译、情感分析、聊天机器人）及简要说明，用HTML语言返回。" A screenshot is shown in Figure 1.

3 Results

3.1 Model-Generated Webpage

The Qwen model successfully returned a well-formatted HTML file. The webpage includes:

- A title: "Introduction to Natural Language Processing (NLP)"
- A general description of NLP

- Three structured sections describing machine translation, sentiment analysis, and chatbots
- Semantic use of HTML tags such as `<h1>`, `<p>`, and `<div>`

3.2 Illustration Integration

To enhance user experience, we generated three topic-related illustrations using a separate AI image generation tool and embedded them using local file paths in the HTML source code. For instance:

```
<img src="images/chatbot.png" alt="Chatbot illustration">
```

This ensured offline accessibility and visual clarity.

3.3 Rendered Webpage View

The final rendered webpage can be viewed in any modern browser. It displays the Qwen-generated content clearly and accurately represents the requested structure and topics. A screenshot is shown in Figure 2.

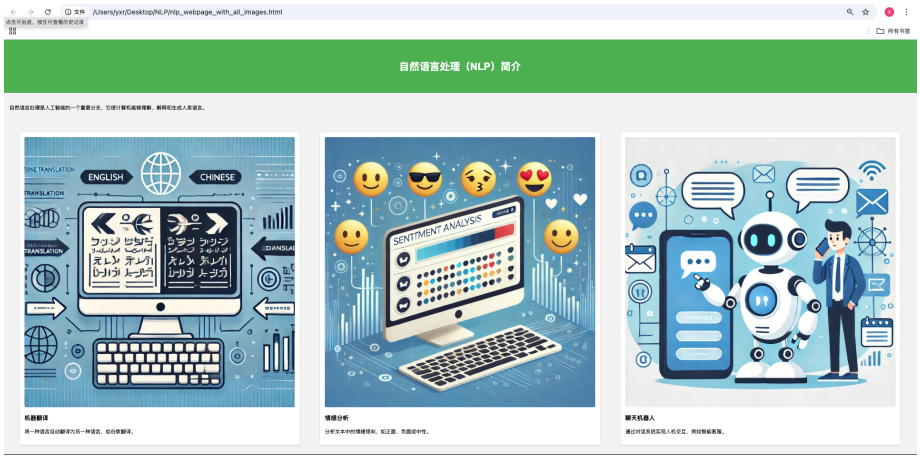

Figure 2: Rendered NLP webpage generated by Qwen

4 Discussion

This experiment highlights several capabilities of large language models:

- LLMs can generate not only natural language text but also structured code (e.g., HTML).

- With a single prompt, coherent and semantically consistent webpages can be produced without traditional coding.
- The quality of generation depends heavily on the clarity and specificity of the prompt.

Although the generated HTML did not include JavaScript or CSS, these could be added with additional prompts or post-processing.

5 Conclusion

We demonstrated the use of a general-purpose LLM, Qwen, to automatically generate an NLP-themed webpage using prompt-based interaction. This approach illustrates the potential of LLMs for low-code/no-code education tools and rapid content prototyping.

Future directions include expanding to interactive web components, automating styling (CSS), and connecting with live NLP APIs for demonstration.

6 References

References

[1] Yang, An, et al. "Qwen2. 5-1M Technical Report." arXiv preprint arXiv:2501.15383 (2025).

[2] Brown, T., Mann, B., Ryder, N., et al. (2020). Language Models are Few-Shot Learners. *NeurIPS*, 33.

[3] Sanderson, Katharine. "GPT-4 is here: what scientists think." Nature 615.7954 (2023): 773.