

# Developing a Shakespeare-Specific Chatbot

## Prompt Engineering, Validation, and System Design

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## 1 Introduction

Briefly describe the project objective, scope (150–200 words), and how LLMs assist your investigation.

## 2 Prompt Engineering Workflow

### 2.1 Strategy

Explain your overall prompting strategy and how you iteratively refined questions to drill down into model size, data pipelines, and deployment constraints.

### 2.2 Prompt / Response Log

For each interaction that materially changed your understanding, include:

#### Student Prompt

How can I fine-tune a distilled transformer on a domain-specific corpus containing Early Modern English (Shakespeare) with limited GPU memory?

#### ChatGPT Response

ChatGPT (excerpt): You can start with DistilGPT-2 and use parameter-efficient tuning such as LoRA... [trimmed for brevity]

#### Insight / Reflection

**Action taken:** Switched search focus to LoRA + 8-bit quantisation strategies; formulated next prompt on LoRA rank choice.

Repeat the triad (prompt / response / insight) as needed. **Important:** redact any irrelevant conversational fluff.

## 3 Critical Appraisal of ChatGPT Outputs

Assess accuracy and completeness of the model's answers. Organise by theme (model architecture, data preparation, generation tasks, tools). Reference literature to support or contest specific claims.

## 4 Literature Cross-Validation

1. **Model Architectures:** summarise 2–3 peer-reviewed papers on lightweight transformers or RNNs for niche domains.
2. **Data Preparation:** cite studies on cleaning Shakespearean or Early Modern English corpora.
3. **Generation and Summarisation:** discuss methods for controllable text generation and scene-based summarisation.
4. **Deployment Tools:** reference official documentation or conference papers on HuggingFace, LangChain, RAG pipelines, etc.

## 5 Proposed System Design (Part Two)

Present an end-to-end architecture diagram and explain each component: data ingestion, fine-tuning, retrieval augmentation, inference API, UI. Highlight resource constraints and how choices were informed by ChatGPT dialogue and literature.

Figure 1: High-level system design for a Shakespeare-specific chatbot.

## 6 Conclusion

Summarise key takeaways about prompt-driven inquiry, insights gained, and next steps.

## References