

Chapter 12: Capstone Project – Designing a Prompt Toolkit

Learning Objectives

By the end of this chapter, learners will be able to:

- Apply everything learned in the course to real-world tasks
 - Design a reusable, modular, and structured prompt toolkit
 - Customize prompts for multiple domains (business, creative, technical)
 - Demonstrate mastery by building and presenting a functional prompt system
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12.1 Purpose of the Capstone Project

This capstone project helps you:

- Consolidate your knowledge of prompt design principles
- Build a real or simulated prompt system (or prompt library)
- Think like a prompt architect—focused on usability, ethics, structure, and iteration

The goal: Create a flexible **Prompt Toolkit** that solves real-world problems effectively, safely, and repeatedly.

12.2 What Is a Prompt Toolkit?

A **Prompt Toolkit** is a collection of prompt templates, formatting guides, variables, and usage instructions designed for reuse across domains or users.






It might include:

- Role-based prompt templates

- Context modules
 - Output formatting structures
 - Domain-specific tone settings
 - Testing and evaluation checklist
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12.3 Project Scope Options

You can choose one of the following capstone tracks based on your interest:

Track	Deliverables
 General AI Assistant	Toolkit for answering factual, creative, and support questions
 Business Productivity	Prompt set for generating emails, reports, analysis, and SOPs
 Education	Prompt set for quizzes, explanations, lesson plans, and tutoring
 Creative Writer	Prompt templates for stories, poems, ideas, and stylistic explorations
 Developer Tools	Prompt set for coding, debugging, documentation, and SQL generation

12.4 Project Requirements

Your final submission (or documentation) should include:

✓ Prompt Templates

- At least 5 reusable prompt templates with variables
- Each should include intent, instructions, expected format, and use case

✓ Documentation

- Explain how to use each prompt
- Include tone/style notes and ethical guidelines

✓ Evaluation Checklist

- Show how you'd test these prompts across scenarios
- Include at least 2 improved versions based on iteration

✓ Domain Adaptability

- Show how prompts can be adapted for at least 2 different contexts

12.5 Prompt Template Example

Name: Technical Code Explainer

Intent: Help beginners understand programming logic

Template:

plaintext

CopyEdit

Act as a coding tutor. Explain the following [language] code to a beginner.

Code:

"""

[code_snippet]

"""

Keep the tone friendly and provide line-by-line explanation.

Expected Output:


- Bullet points
- Simplified explanation
- No jargon

12.6 Evaluation and Testing Guidelines

Use these evaluation questions:

- Does the output match the expected format?
- Is the tone appropriate for the intended audience?
- Are results repeatable across different but similar inputs?
- Are outputs free from hallucinations or misleading data?
- Have you included ethical safeguards?

12.7 Optional Enhancements

 Bonus ideas:

- Build your Prompt Toolkit into a **Google Sheet** or **Notion page**
- Create a **Gradio interface** to demo it live
- Use **LangChain** to chain prompts dynamically
- Share on GitHub as an open-source prompt repo

Summary

This capstone project brings everything together: clarity, structure, evaluation, ethics, and flexibility. Your Prompt Toolkit should be usable by anyone—even those with no AI background—and adaptable for future needs. Think of it as your portfolio piece, ready for real-world deployment.