

Worksheet: Building a Schema-Validated Prompt Engine

This worksheet guides you through implementing a robust prompt template engine using ChatOpenAI with gpt-4o-mini.

Step 1: Environment Setup

Ensure you have `langchain-openai` installed. Initialize your environment variables (`OPENAI_API_KEY`).

Step 2: Defining the Schema

Create a Pydantic model to define the expected structure of your output data. This enforces validation before the data hits your downstream application.

Step 3: Configuring the Engine

Instantiate the model with `temperature=0.2` to minimize creative variance:

```
llm = ChatOpenAI(model="gpt-4o-mini", temperature=0.2)
```

Step 4: Prompt Template Construction

Use a template that explicitly requests the schema structure and instructs the LLM to ignore conversational chatter.

Step 5: Execution & Parsing

Run the chain and utilize the output parser to convert the raw string into a typed object.