

# Build a Data Pipeline with AI

## Execution Path

A structured route from idea to working output - the steps, outcomes, workflows, resources, and tools, in order.

Category: Data Systems Steps: 6 Phases: 3  
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### PATH SUMMARY

#### 6 steps across 3 phases.

Use this document as a portable execution guide. Each step lists the expected outcome and the workflow, resource, and tool used in NewPrompt.

## PHASE 1 · Design

Design the right solution before building.

### Step 1 · Design the ingestion and transforms

Map where the data comes from and how it moves - the sources, the ingestion, and the transformation stages from raw input to target shape - as a designed pipeline, not one opaque script.

OUTCOME  
Sources, ingestion, and transformation stages designed.

USED IN THIS STEP

|          |                                 |
|----------|---------------------------------|
| Workflow | AI Data Pipeline & ETL Workflow |
| Resource | Data Analyst Role Prompt        |
| Tool     | Role Prompt Generator           |

### Step 4 · Design the storage schema

Model where the processed data lands - the tables, relationships, and indexes the pipeline writes to and downstream consumers read from - so storage fits the data instead of forcing it.

OUTCOME  
A target storage schema designed for the pipeline's output.

USED IN THIS STEP

|          |                                                                |
|----------|----------------------------------------------------------------|
| Workflow | AI Database Design Workflow                                    |
| Resource | Schema Design & ERD Prompt - Entities, Relationships, and Keys |
| Tool     | SQL Optimization Prompt                                        |

## PHASE 2 · Build & Refine

Build, test, secure, and make it production-ready.

### Step 2 · Extract and structure the sources

Turn the raw source data - documents, exports, API payloads - into the structured shape the pipeline works on, so every downstream stage runs on clean, predictable input.

#### OUTCOME

Raw sources extracted into a clean, structured shape.

#### USED IN THIS STEP

|                 |                                |
|-----------------|--------------------------------|
| <b>Workflow</b> | AI Data Extraction Workflow    |
| <b>Resource</b> | Extract Data From Text with AI |
| <b>Tool</b>     | Extraction Prompt Generator    |

### Step 3 · Gate the data with validation

Decide what a valid record looks like and check it at a gate - schema conformance, ranges, required fields, duplicates - so bad data is caught and quarantined before it reaches storage and becomes a wrong number downstream.

#### OUTCOME

Validation gates that stop bad data before it's stored.

#### USED IN THIS STEP

|                 |                                    |
|-----------------|------------------------------------|
| <b>Workflow</b> | AI Reliable JSON Output Workflow   |
| <b>Resource</b> | Validate Structured Output from AI |
| <b>Tool</b>     | AI Output Validator                |

### Step 5 · Deliver the data via an API

Expose the processed data to its consumers through a delivery API - the contract downstream services and dashboards read from - so the pipeline's output is usable, not just stored.

#### OUTCOME

A delivery API contract for the pipeline's consumers.

#### USED IN THIS STEP

|                 |                                  |
|-----------------|----------------------------------|
| <b>Workflow</b> | AI API Design Workflow           |
| <b>Resource</b> | Turn a JSON Schema into a Prompt |
| <b>Tool</b>     | JSON Output Prompt Builder       |

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## PHASE 3 · Ship & Validate

Ship with confidence and validate results.

### Step 6 · Ship and monitor the pipeline

Deploy the pipeline with the monitoring a silent-failure system demands - signals on volume, freshness, and quality - because a pipeline you can't observe is one you'll only fix after the bad data has spread.

#### OUTCOME

The pipeline shipped with monitoring on volume, freshness, and quality.

#### USED IN THIS STEP

|                 |                                    |
|-----------------|------------------------------------|
| <b>Workflow</b> | AI Deployment & Release Workflow   |
| <b>Resource</b> | Production Readiness Review Prompt |
| <b>Tool</b>     | Markdown Output Builder            |

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