

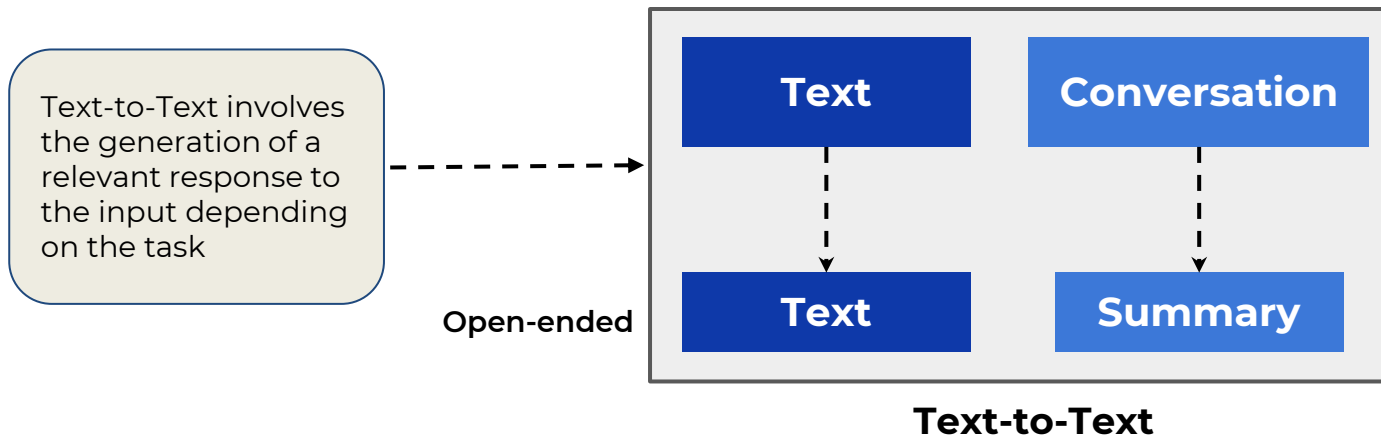
Content Generation and Summarization with Generative AI

Agenda

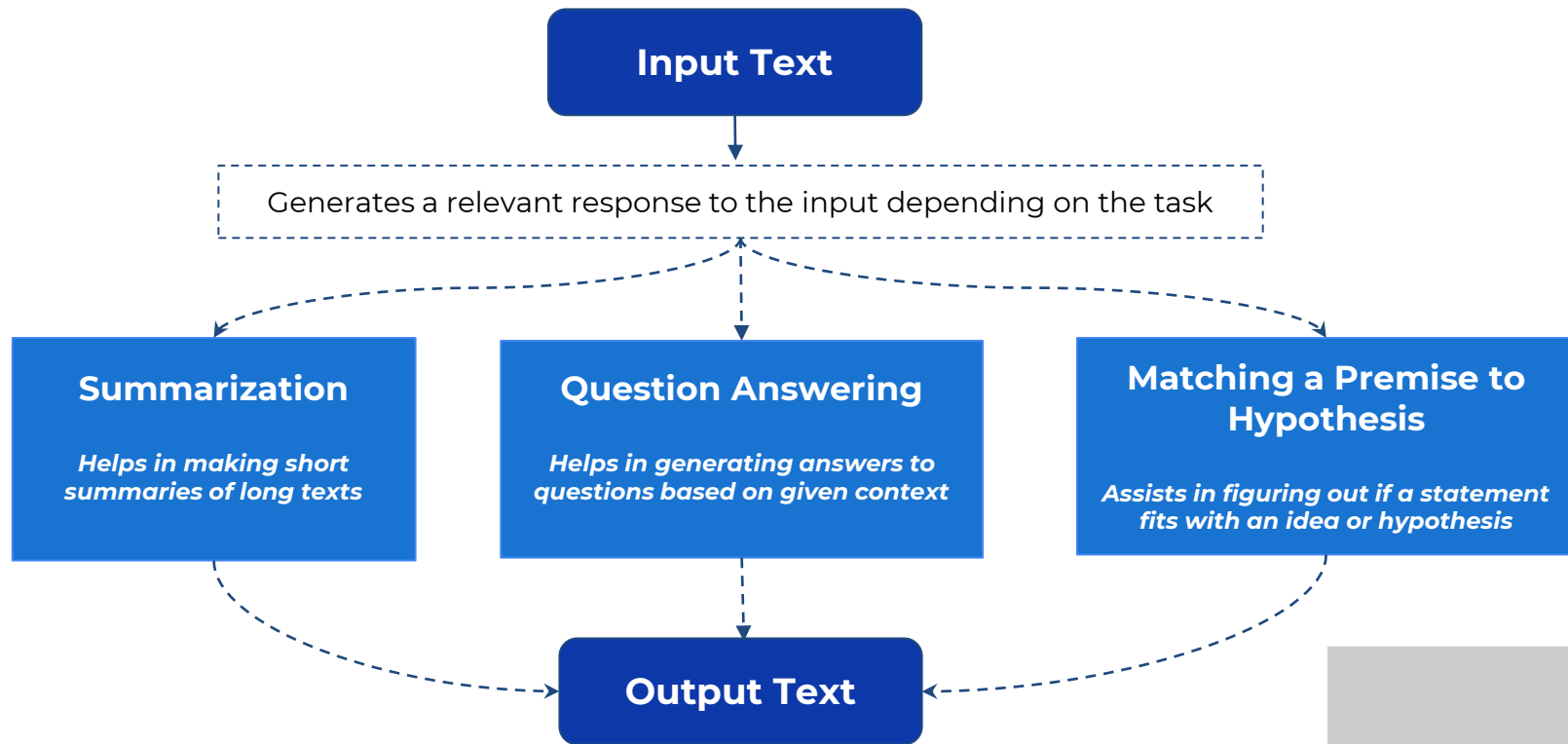
In this session, we will :

- Overview of Text-to-Text Generation
- Structure of Text Generation Tasks (Summarization) in Generative AI
- Data Preparation with respect to Text Generation Task
- Prompt Structure with respect to Text Generation Task
- Evaluation with respect to Bert and Rouge Score in Text Generation Task

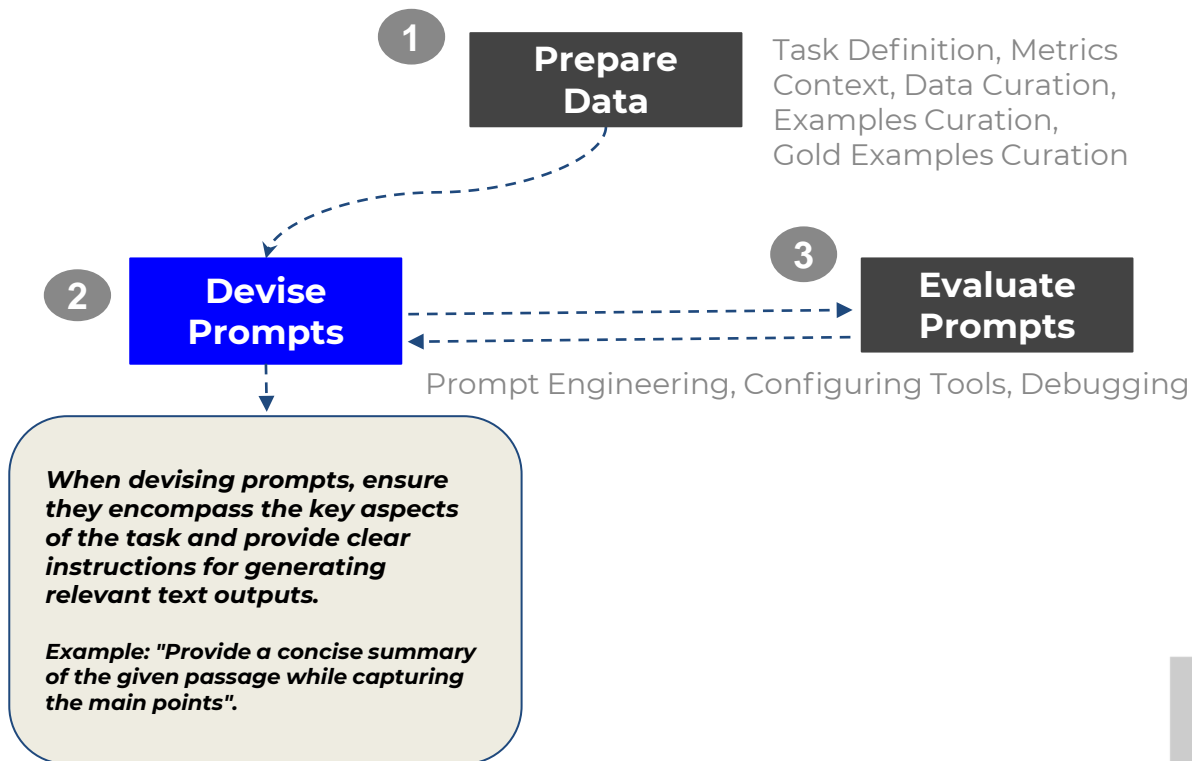
Text-to-Text Generation



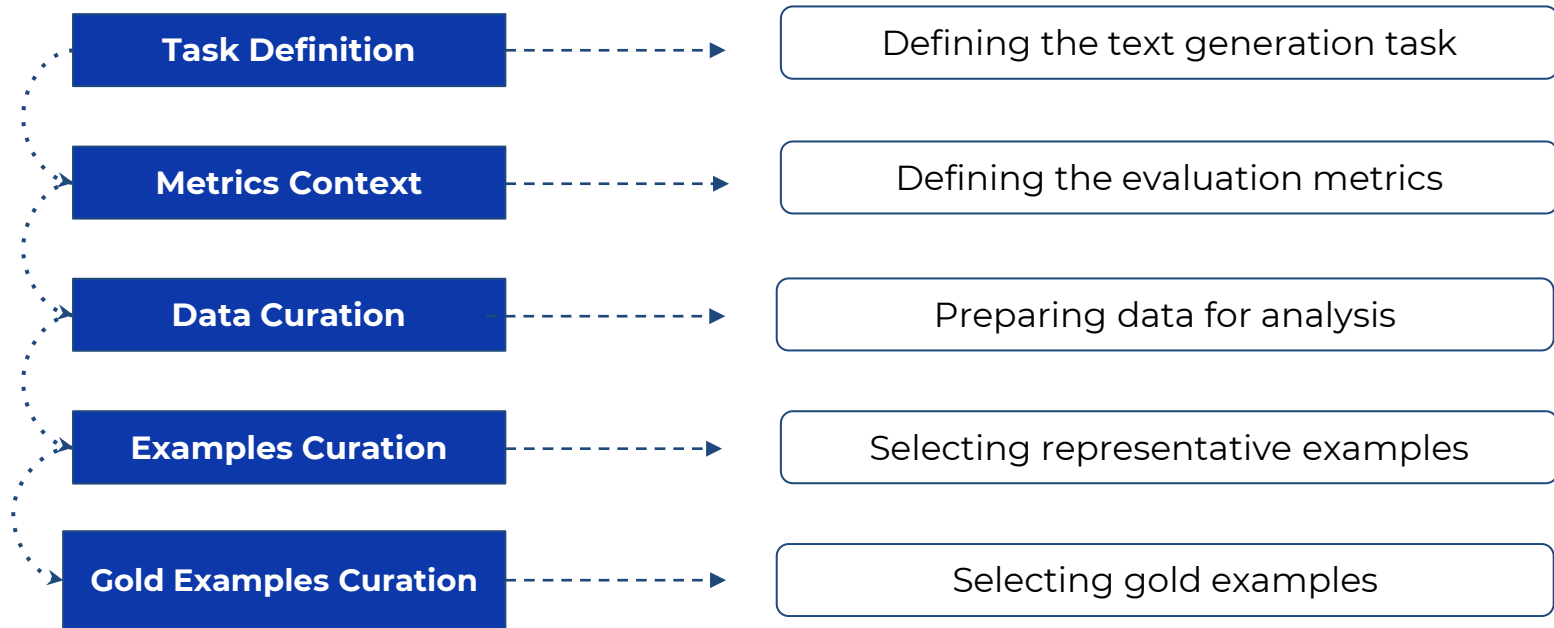
Text-to-Text Generation



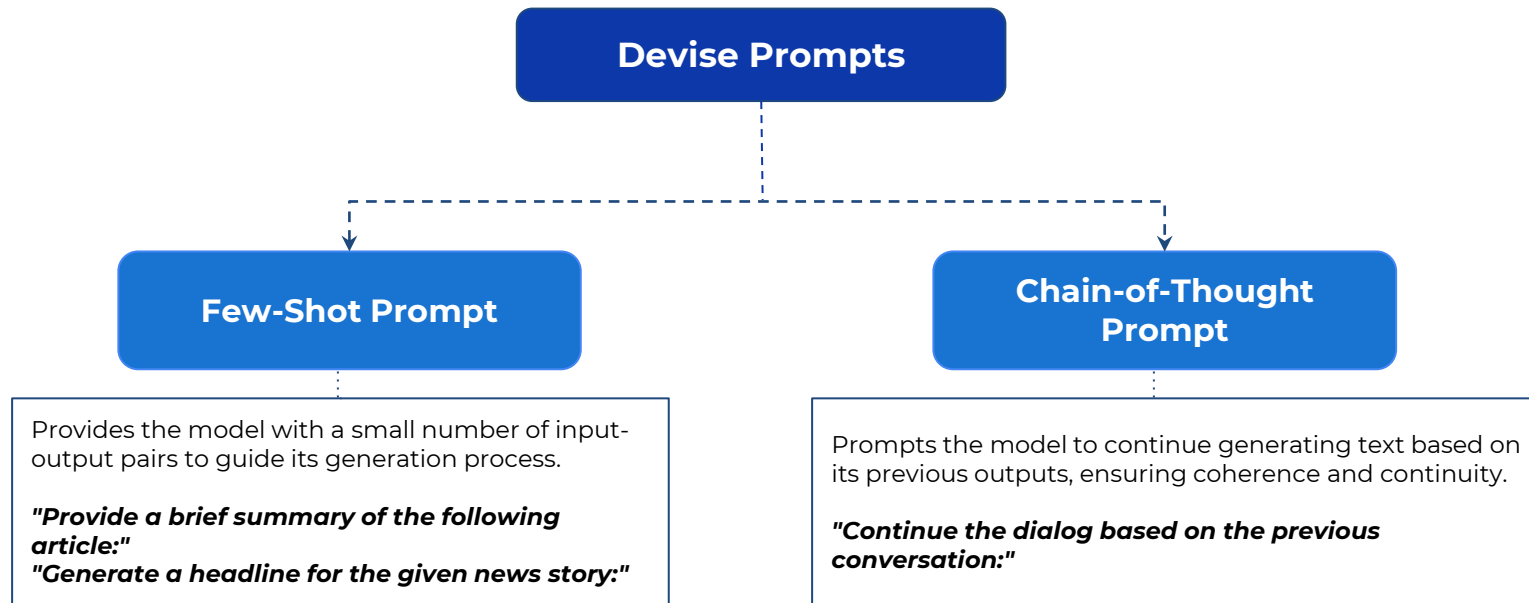
Structure of Text Generation Tasks



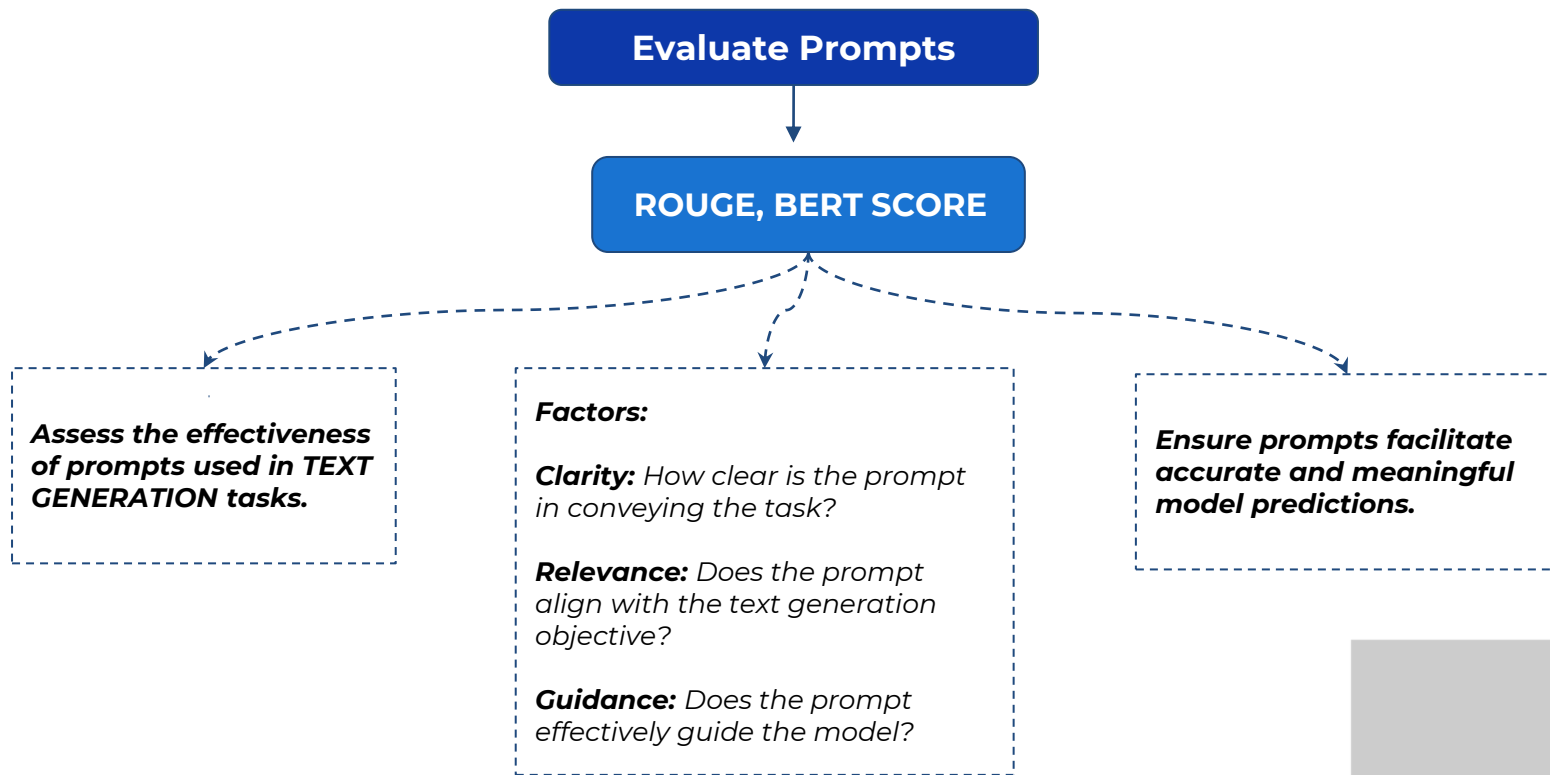
Preparing Data in Text Generation Task



Devise Prompts in Text Generation Task



Evaluate Prompts in Text Generation Task



Step 1: Defining Objectives & Metrics in Summarization

Defining Objectives in Summarization

I recently purchased a new camera and unfortunately, my experience has been marred by major issues, primarily stemming from a malfunctioning camera. This purchase has been nothing short of disappointing.

From the moment I started using the camera, I noticed severe problems with its functionality. The most significant problem is the camera's malfunctioning lens. It frequently gets stuck, making it almost impossible to capture the shots I intended to. This has not only ruined many photo opportunities but also been incredibly frustrating.

Review

Major issues, malfunctioning camera.

Abstractive Summary

My experience has been marred by major issues, primarily stemming from a malfunctioning camera.

Extractive Summary

Defining Metrics: ROUGE: n-grams

Length of Matches

AI-Generated Summary

Colossal disappointment with constant glitches, defects, and a malfunctioning camera.

Human-Generated Summary

Incredibly let down by the never-ending issues – glitches, defects, and a camera that just won't cooperate.

Unigram (1-gram) Matches

glitches, defects, and, a, camera.

5

Bigram (2-gram) Matches

(glitches, defects), (defects, and),
(and, a).

3

Trigram (3-gram) Matches

(glitches, defects, and), (defects,
and, a).

2

4-gram Matches

(glitches, defects, and, a).

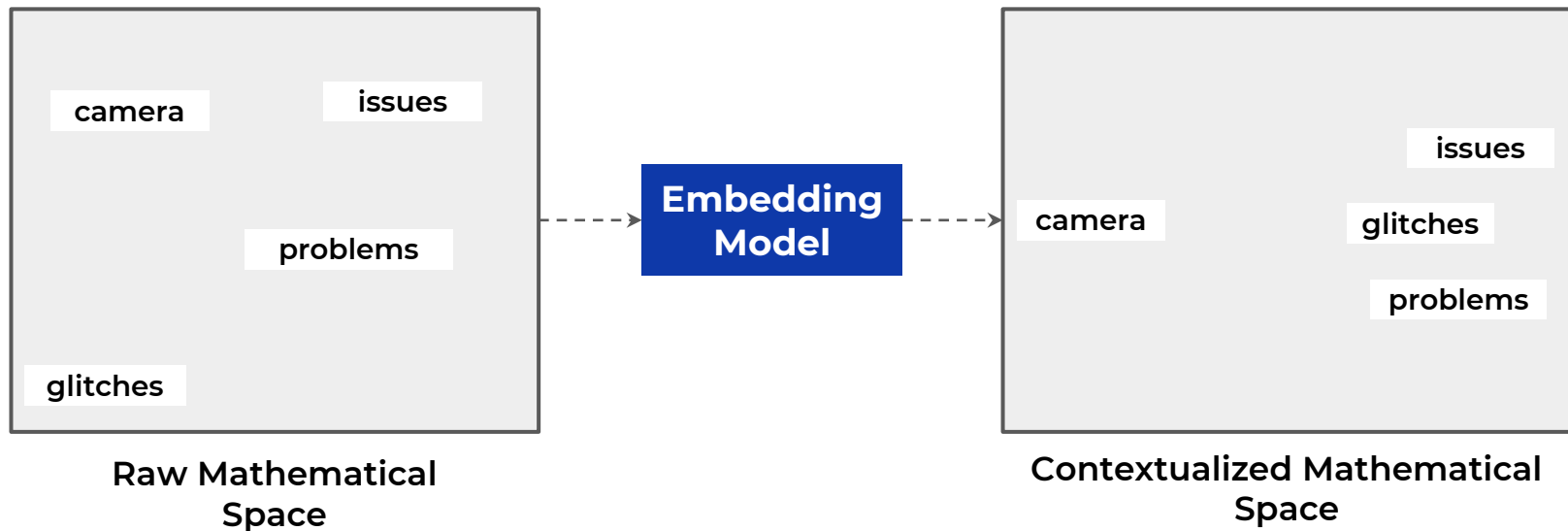
1

Longest Common Subsequence

(glitches, defects, and a), (camera).

5

Embeddings (Used in Bert Score)



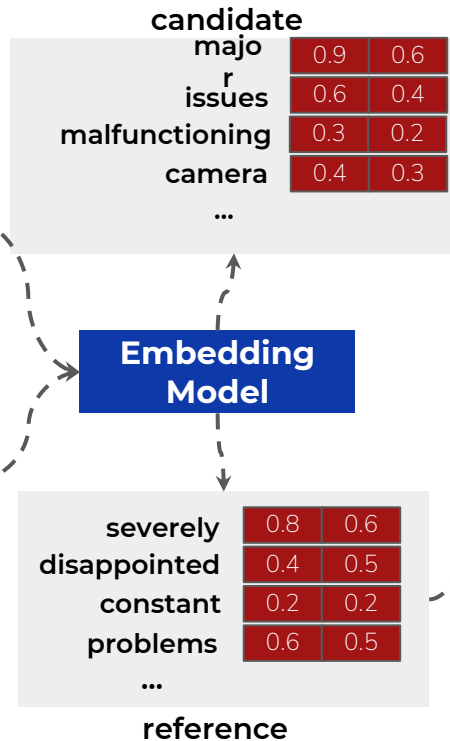
Defining Metrics: BERT Score

AI-Generated Summary

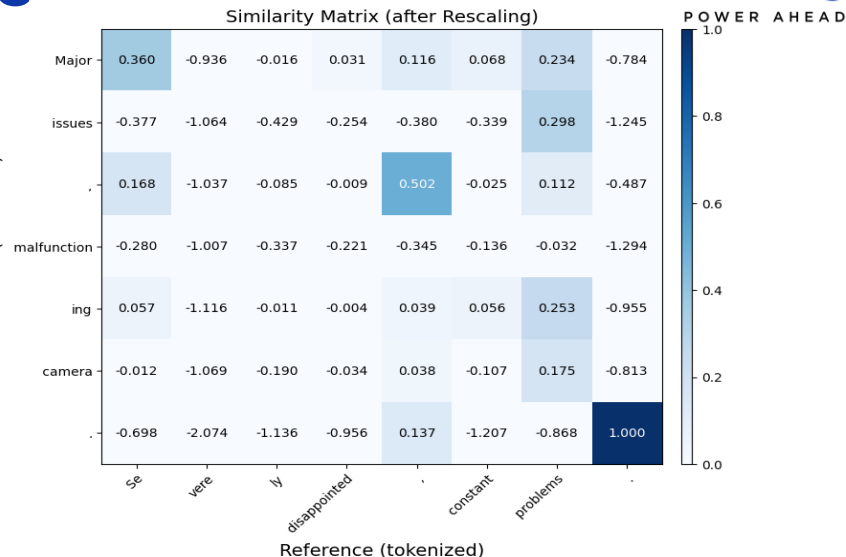
Major issues,
malfunctioning
camera

Human-Generated Summary

Severely
disappointed,
constant problems



Candidate (tokenized)



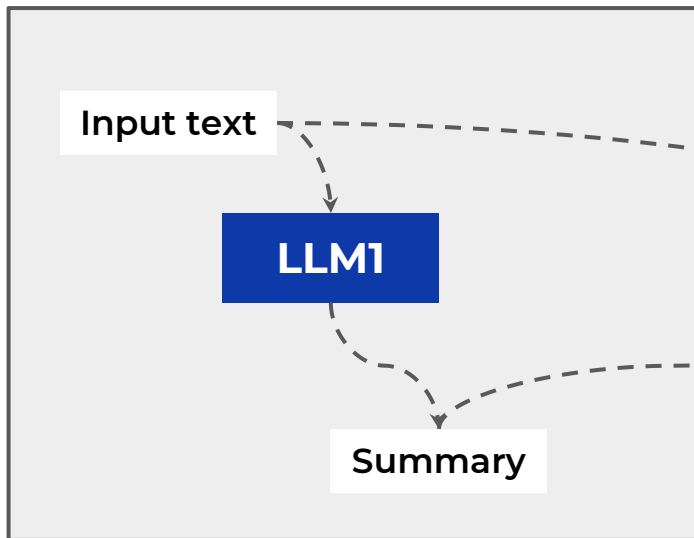
$$P = (0.360 + 0.298 + 0.502 + \dots)/7 = 0.36$$

$$R = (0.360 - 0.936 - 0.011 + \dots)/8 = 0.17$$

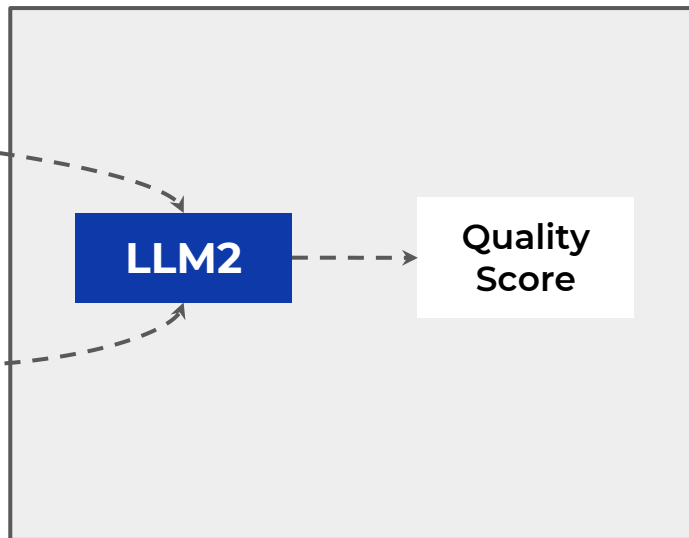
$$F1 = (2 * P * R)/(P + R) = 0.23$$

Defining Metrics: LLM Rating

Step 1

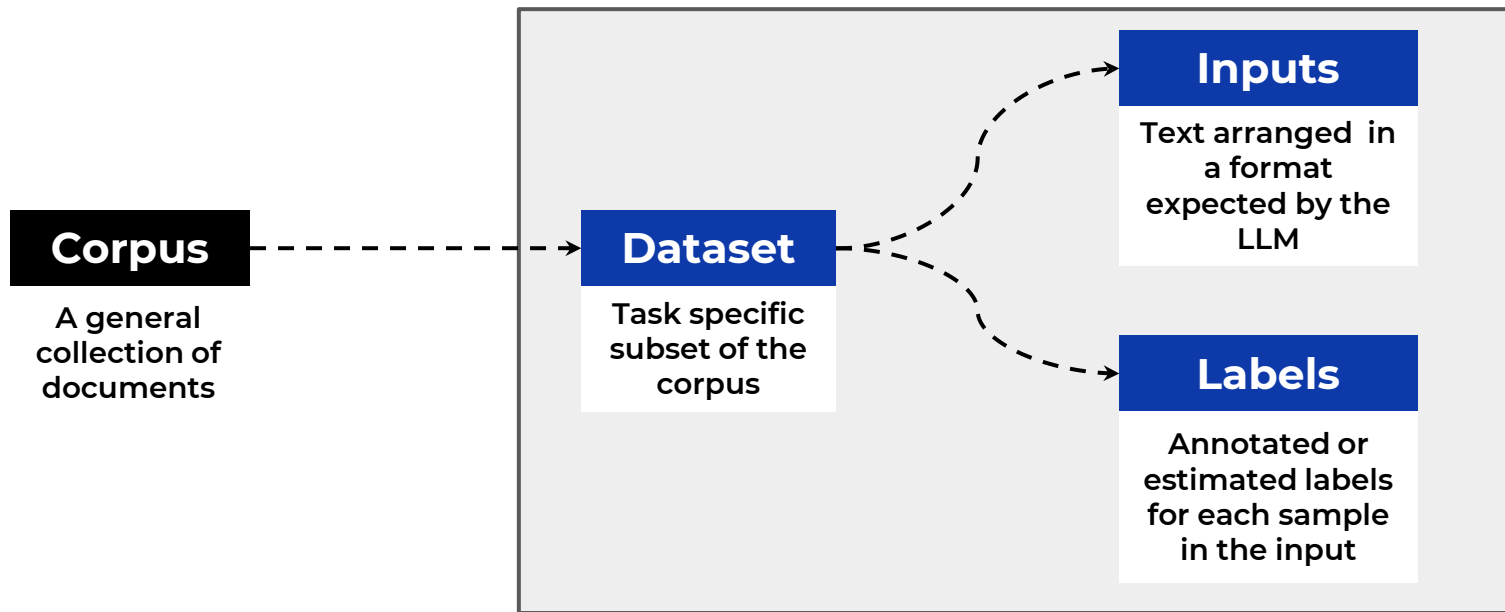


Step 2

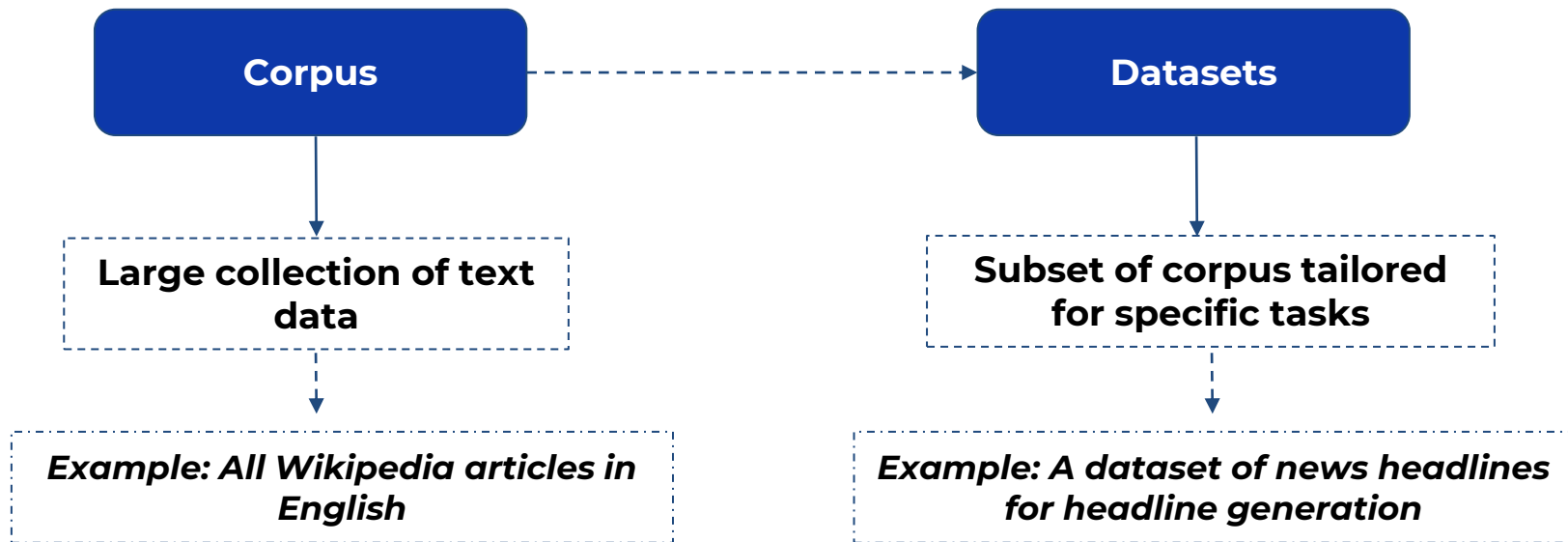


Step 2 : Assemble Data

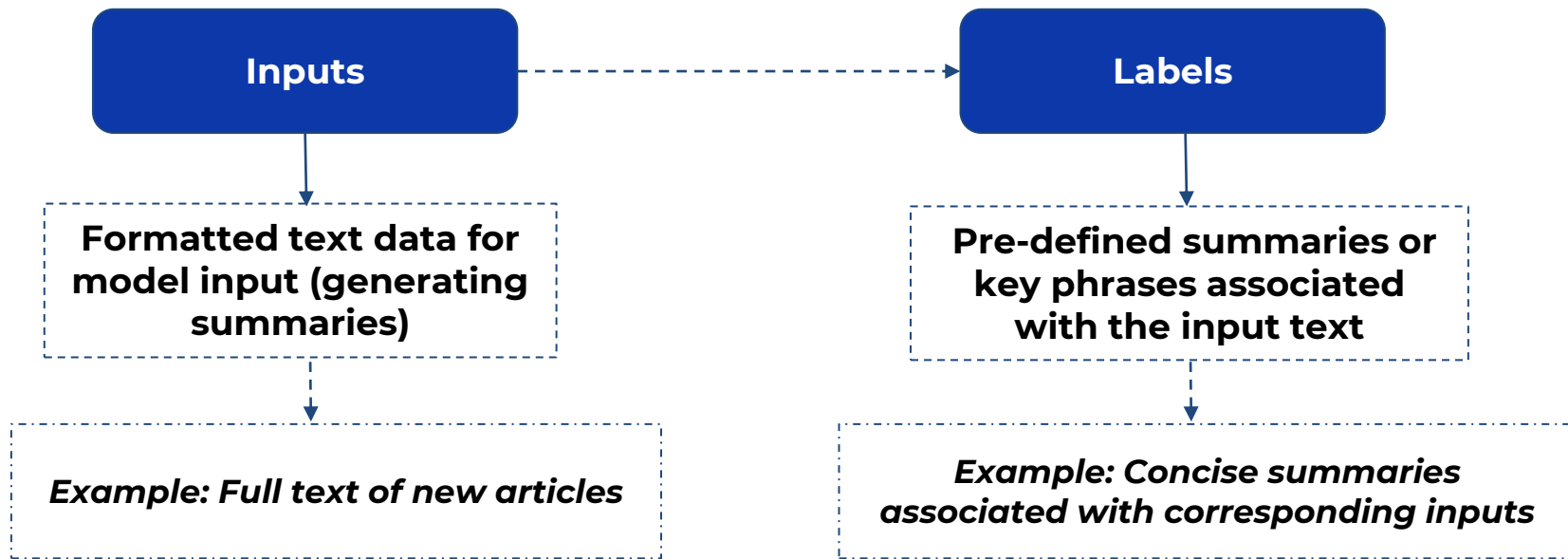
Data Preparation Process



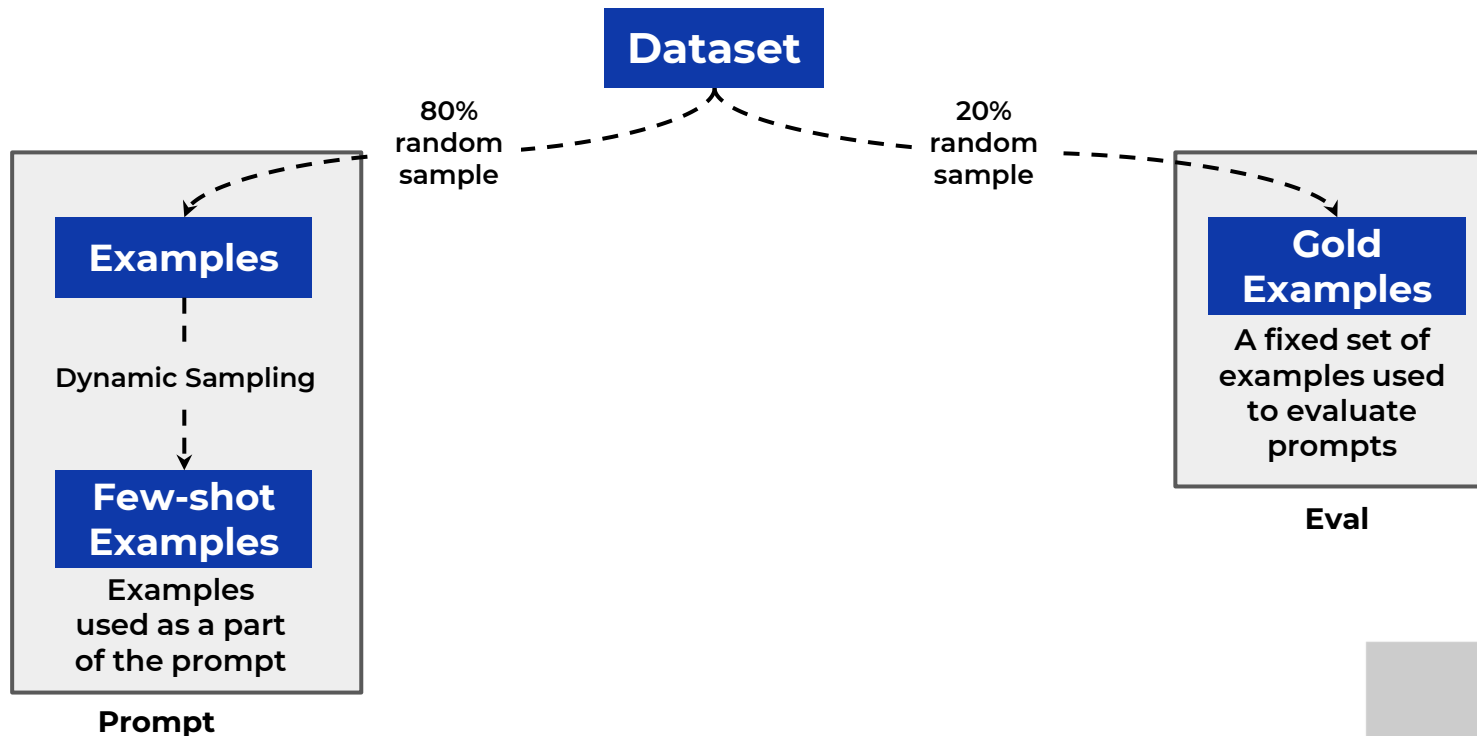
What are Corpus and Datasets?



What are Inputs and Labels?

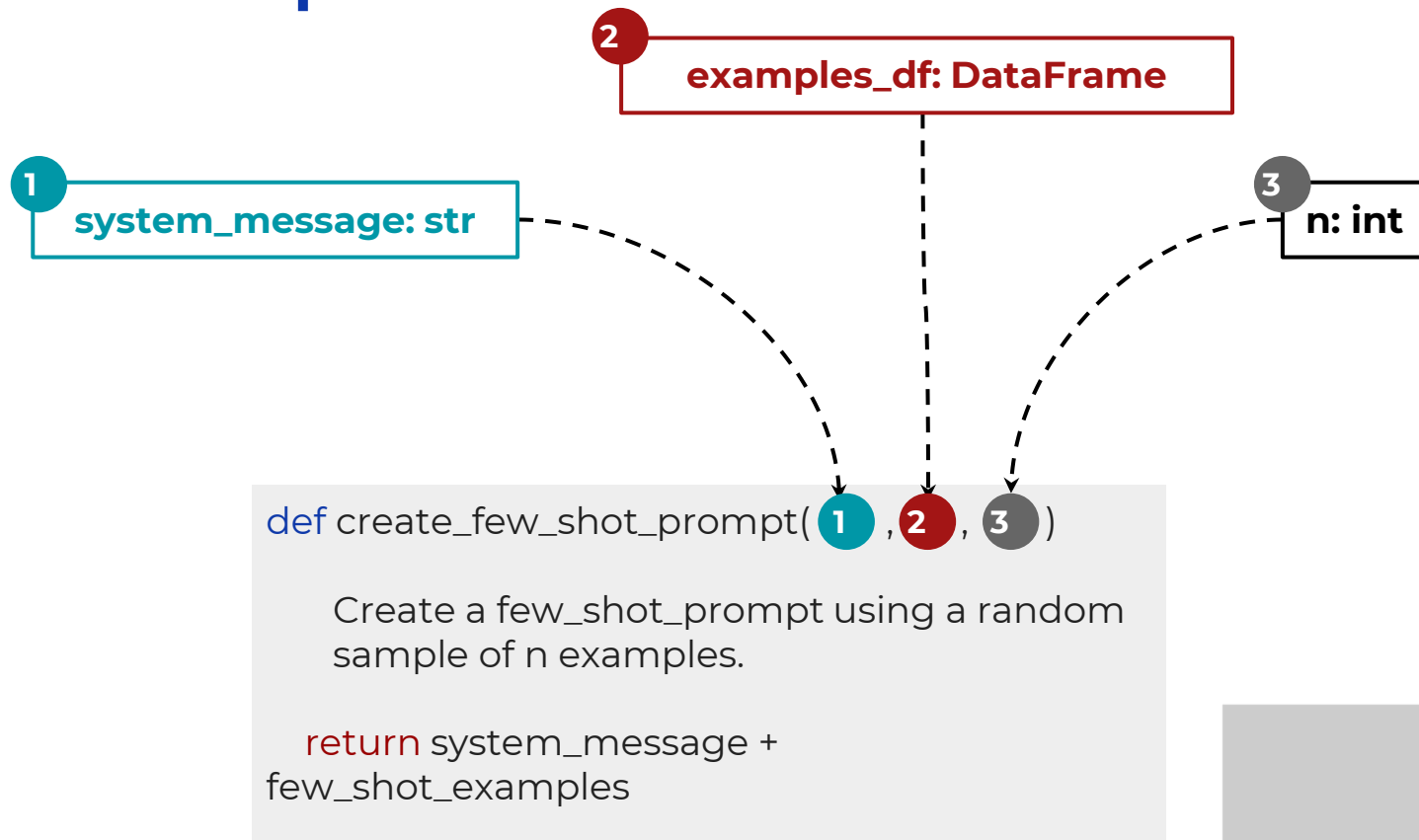


Assembling Data in Text Generation Task



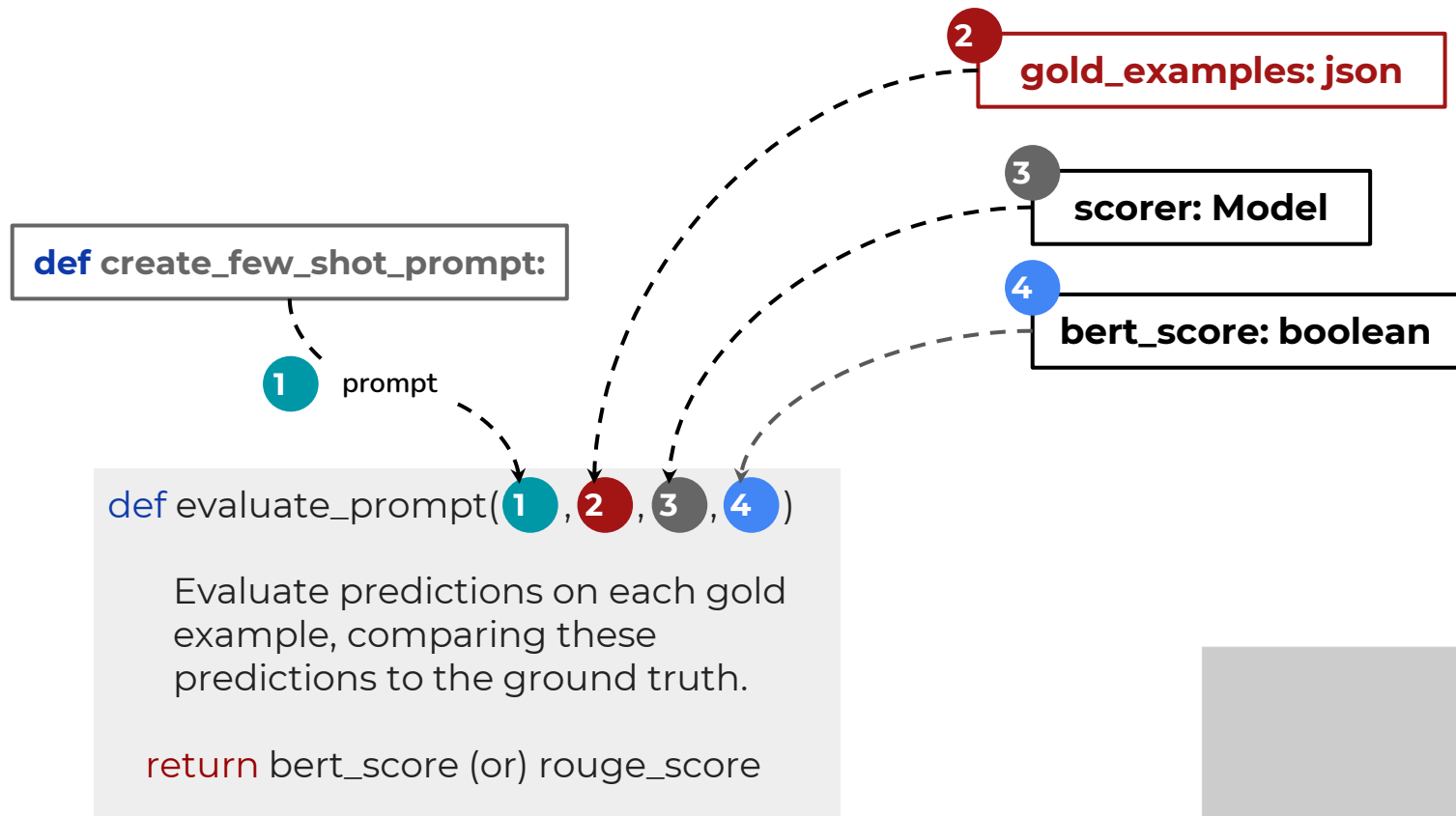
Step 3: Derive Prompts

Derive Prompts



Step 4: Evaluation of Prompts

Understanding the Evaluation Process



Summary of Text-to-Text Tasks

