

## COURSE: AI Assisted Coding

NAME: PRAVALIKA

BATCH-34

HALLTICKET.NO: 2303A52347

## Lab 3: Prompt Engineering: Improving prompt and context management

Objective: To explore how variations in prompt structure affect the quality, completeness, and accuracy of responses from a large language model.

Requirements:

- VS Code with GitHub Copilot or Cursor API and/or Google Colab with Gemini
- Tasks to be completed are as below.

### Task 1: Conceptual Understanding in Physics Scenario

Suppose that you are a data assistant developer for an EdTech company that uses ChatGPT to answer student queries related to introductory physics.

Tasks to be completed

#### 1. Baseline Prompt Testing

Choose 5 typical user queries, for example:

“Explain, What, Define, Why, What”

- Run these prompts in a chat-based AI model and record the raw responses.

```
File Edit Selection View Go ... < - > 260108 index.html jsum.java 1 ph.py Lab3_Prompt_Engineering.md # Task 1: Conceptual Understanding in Physics > === Baseline Prompts and Responses
1  ## Task 1: Conceptual Understanding in Physics
2
3  ### Baseline Prompts and Responses
4
5  ***Prompt 1*** Explain Newton's First Law of Motion.
6  ***Response***
7  Proceeding to explain Newton's First Law of Motion. Newton's First Law (the law of inertia): An object at rest stays at rest, and an object in motion continues moving at constant velocity (same speed and direction), unless a net external force acts on it. It means objects resist changes to their motion—this resistance is called inertia. Example: a book stays on a table until you push it; a passenger lurches forward when a car stops suddenly because their body tends to keep moving.
8
9  ***
10
11 ***Prompt 2*** What is acceleration?
12 ***Response***
13 Acceleration is the rate of change of velocity with respect to time ( $a = \Delta v / \Delta t$ ), measured in meters per second squared ( $m/s^2$ ). For example, if a car goes from 0 to 20 m/s in 5 s, its acceleration is  $(20-0)/5 = 4 m/s^2$ .
14
15 ***
16
17 ***Prompt 3*** Define work in physics.
18 ***Response***
19 Let me define work in physics. Work is done when a force causes a displacement of an object in (or with a component along) the direction of the force. Mathematically:  $W = F \cdot d = F d \cos\theta$ , and the SI unit is the joule (J).
20
21 ***
22
23 ***Prompt 4*** Why does an object fall towards the Earth?
24 ***Response***
25 Let me explain why objects fall toward the Earth. Why objects fall toward the Earth?
26 Gravity is an attractive force that masses exert on each other. The Earth's large mass creates a gravitational pull that attracts nearby objects toward Earth's center.
27 According to Newton's law of universal gravitation, the force is proportional to the product of the masses and inversely proportional to the square of the distance between them.
28 Near Earth's surface, this gravitational pull produces a nearly constant acceleration of about  $9.81 \text{ m/s}^2$  downward, so an unbalanced force makes objects accelerate toward the ground (they "fall").
29 Example: When you drop a ball, gravity pulls it downward, causing it to speed up as it falls until it hits the ground.
30
31 ***
32
33 ***Prompt 5*** What is energy?
34 ***Response***
35 Energy is the capacity to do work. It exists in various forms such as kinetic energy, potential energy, thermal energy, and electrical energy.
36
37
38
39
```

#### 2. Prompt Refinement

Rewrite each query using the following strategies:

- Add 5 different contexts (school level, competitive exam, real-life application, mathematical focus, conceptual focus).
  - Make the task explicit (e.g., “List and explain Newton’s three laws with one real-world example each.”).
  - Break the query into subtasks (definition → explanation → example).

Run these prompts in a chat-based AI model and record the raw responses.

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Lab3\_Prompt\_Engineering.md #!! Definition: Energy is the capacity to do work or cause a change in a system. Why it matters: Energy is needed for every physical process—it enables motion, heating, chemical reactions, and more.

## Task 1: Conceptual Understanding in Physics

### Refined Prompts and Responses

\*\*Refined Prompt 1:\*\*  
You are explaining to a Class 9 student. Define Newton's First Law of Motion, explain it in simple terms, and give one real-life example.

\*\*Response:\*\*  
Let me explain Newton's First Law in simple terms and give one real-life example. Newton's First Law of Motion (law of inertia): An object at rest stays at rest, and an object in motion keeps moving at the same speed and in the same direction unless a net external force acts on it.

In simple terms: things resist changes to their motion—that resistance is called inertia.  
Example: when a bus stops suddenly, passengers lurch forward because their bodies tend to keep moving.

---

\*\*Refined Prompt 2:\*\*  
You are explaining to a Class 9 student. Define acceleration, explain its meaning, and give one real-life example.

\*\*Response:\*\*  
Let me explain acceleration simply for a Class 9 student. Acceleration (Class 9 level)

Definition: Acceleration is the rate at which an object's velocity changes with time.  
Meaning: It tells how quickly the speed or direction of motion is changing; if velocity increases, it's positive acceleration; if it decreases, it's negative (deceleration).  
Formula & unit:  $a = \frac{\Delta v}{\Delta t}$ , unit =  $\text{m/s}^2$ .  
Example: if a car speeds up from 0 to 20 m/s in 5 s, its acceleration is  $(20 - 0) / 5 = 4 \text{ m/s}^2$ .

---

\*\*Refined Prompt 3:\*\*  
Explain the concept of work in physics by defining it, explaining the formula, and giving one real-life example.

\*\*Response:\*\*  
Proceeding to explain work in physics. I'll give a short definition, the formula, and one clear example.## Work in Physics

Definition: Work is done when a force causes a displacement of an object (or with a component along) the direction of that force—it requires energy transfer by a force.

Formula:  $W = F \cdot d \cdot \cos\theta$  (dot product).

Here  $F$  = force,  $d$  = displacement,  $\theta$  = angle between force and displacement.

Unit: joules (J).

Key note: Work is a scalar (can be positive, negative, or zero). If the force is perpendicular to displacement ( $\theta = 90^\circ$ ), then  $\cos 90^\circ = 0$  so no work is done.

Example: Lifting a book straight up onto a shelf—the lift force acts upward and the book is displaced upward, so work = weight × height (e.g.,  $W = m \cdot g \cdot h$ ).

---

CHAT EXPLANATION OF NEWTON'S FIRST LAW ...

Define energy, explain its importance, and give one example of a form of energy.

Lab3\_Prompt\_Engineering.md

Proceeding to define energy, state why it matters, and give one clear example.## Energy—definition, importance, and example

---

- Definition: Energy is the capacity to do work or cause a change in a system.
- Why it matters: Energy is needed for every physical process—it enables motion, heating, chemical reactions, and technological advances.
- Example: Kinetic energy—the energy of motion (e.g., a moving car has kinetic energy;  $1/2mv^2$ ).

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### **3. Evaluate Outputs**

Score AI responses on a scale of 1–5 using:

- Completeness
  - Accuracy
  - Relevance
  - Clarity

Run these prompts in a chat-based AI model and record the raw responses. Present

results in a comparative table.

## 4. Reflection

Discuss how contextual and structured prompts influenced the depth and correctness of

responses.

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EXPLORER Lab3\_Prompt\_Engineering.md + 260108 Lab3\_Prompt\_Engineering.md ● Lab3\_Prompt\_Engineering.md ~ ## Definition: Energy is the capacity to do work or cause a change in a system. Why it matters: Energy is needed for every physical process — it enables motion, heating, chemical reactions, and technological work.

Work is done when a force causes a displacement of an object in (or with a component along) the direction of that force — it

\*\*Refined Prompt 4:\*\* Explain why objects fall towards the Earth using the concept of gravity and give one example.

I'm going to explain why objects fall toward Earth and give one clear example.## Why objects fall toward the Earth

Gravity is an attractive force that every mass exerts on every other mass; Earth's large mass pulls objects toward its center. Newton's law of universal gravitation:  $F = G(m_1m_2)/r^2$  — the force decreases with the square of distance.

Near Earth's surface this produces a nearly constant downward acceleration  $g = 9.81 \text{ m/s}^2$ , so an unbalanced gravitational force makes objects speed downward.

Example: Drop a ball — gravity pulls it down, so it accelerates toward the ground until it hits (assuming air resistance is small).

\*\*Refined Prompt 5:\*\* Define energy, explain its importance, and give one example of a form of energy.

## Response:

Proceeding to define energy, state why it matters, and give one clear example.## Energy — definition, importance, and example

Definition: Energy is the capacity to do work or cause a change in a system.

Why it matters: Energy is needed for every physical process — it enables motion, heating, chemical reactions, and technological work.

Example: Kinetic energy — the energy of motion (e.g., a moving car has kinetic energy,  $\frac{1}{2}mv^2$ ).  
...

## Evaluation Table

Metric	Baseline (1-5)	Refined (1-5)
Completeness	3	5
Accuracy	4	5
Relevance	3	5
Clarity	3	5

...

## Reflection

The refined prompts produced clearer, more detailed, and well-structured responses compared to baseline prompts. Adding context and breaking the questions into subtasks helped the AI generate more accurate and student-friendly explanations.

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CHAT EXPLANATION OF NEWTON'S FIRST LAW...

Define energy, explain its importance, and give one example of a form of energy.

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Proceeding to define energy, state why it matters, and give one clear example.## Energy — definition, importance, and example

Definition: Energy is the capacity to do work or cause a change in a system.

Why it matters: Energy is needed for every physical process — it enables motion, heating, chemical reactions, and technological work.

Example: Kinetic energy — the energy of motion (e.g., a moving car has kinetic energy,  $\frac{1}{2}mv^2$ ).

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## Task 2: Programming Fundamentals (Python)

## Scenario

Suppose that you are a data assistant developer for an EdTech platform that supports beginner programming students.

## Tasks to be completed

## 1. Baseline Prompt Testing

Choose 5 common user queries, such as:

- “What, Explain, How, What, Difference”

Run these prompts in a chat-based AI model and record the raw responses.

The screenshot shows a Microsoft Edge browser window with a Jupyter Notebook cell open. The cell contains Python code related to loops and lists, followed by AI-generated explanatory text and examples. The AI text provides definitions, syntax examples, and use cases for loops and lists in Python.

```

# Lab_Prompt_Engineering.md > # Definition: Energy is the capacity to do work or cause a change in a system. Why it matters: Energy is needed for every physical process — it enables motion, heating, chemical reactions, and technological work. Example: Kinetic energy is the capacity to do work or cause a change in a system.

Task 2: Programming Fundamentals (Python)
Baseline Prompts and Responses

Prompt 1: What is Python?
Response:
Let me give a short definition and 1-2 simple examples of Python loops. A loop repeats a block of code while a condition holds (or over items). Two common types:
• for loop: iterates over a sequence.
Example:
for i in range(1, 6):
    print(i) # prints 1-5
while loop: repeats while a condition is true.
Example:
n = 5
while n > 0:
    print(n)
    n -= 1 # counts down
Notes: Python uses indentation to define the loop body; use break to exit early and continue to skip to the next iteration.

Prompt 2: Explain a loop in Python.
Response:
A loop is a control flow statement that repeatedly executes a block of code as long as a certain condition is met. It's used for tasks like iteration over sequences, repetition of actions, and processing large amounts of data. Common types include for loops (iterating over sequences like lists, strings, and ranges) and while loops (repeating until a condition is no longer true). Examples often involve printing numbers, calculating sums, or modifying lists.

Prompt 3: What is a function?
Response:
A function is a reusable block of code that performs a specific task. It can accept parameters (inputs), may return a value (output), and helps keep code modular and readable.
Syntax:
def greet(name):
    print("Hello, " + name)
Usage: call greet("Aisha") => "Hello, Aisha".
Why use functions: they avoid repetition, make testing easier, and clarify program structure. ↴

Prompt 4: What is a list in Python?
Response:
I'm going to give a concise definition of a Python list and a short example. What is a list in Python?
Definition: A list is an ordered, mutable collection that can hold elements of any type (duplicates allowed).
Syntax: my_list = [item1, item2, ...]
Common operations: indexing (my_list[0]), slicing (my_list[1:]), append (my_list.append(x)), length (len(my_list)).
Example:
fruits = ['apple', 'banana', 'cherry']
print(fruits[0]) # prints 'apple'

Prompt 5: Difference between for loop and while loop.
Response:
A for loop is used when the number of iterations is known, whereas a while loop is used when the condition is based on logic.

Refined Prompts and Responses

Refined Prompt 1:
Explain Python to a beginner, mention its features, and one real-life use.

Refined Prompt 2:

```

## 2. Prompt Refinement

Rewrite each query by:

- Adding 5 contexts (beginner, exam-oriented, real-world analogy, syntax-focused, performance-focused).
- Making instructions explicit (e.g., “Define a Python loop and show one example for for-loop and while-loop.”).
- Breaking into subtasks (definition → syntax → example → use case).

Run these prompts in a chat-based AI model and record the raw responses.

The screenshot shows a Microsoft Edge browser window with a Jupyter Notebook cell open. The cell contains Java code related to loops and functions, followed by AI-generated explanatory text and examples. The AI text provides definitions, syntax examples, and use cases for loops and functions in Java.

```

# Lab2_Prompt_Engineering.md > # Definition: Energy is the capacity to do work or cause a change in a system. Why it matters: Energy is needed for every physical process — it enables motion, heating, chemical... > # Reflection
# Definition: Energy is the capacity to do work or cause a change in a system.

Refined Prompts and Responses

Refined Prompt 1:
Explain Python to a beginner, mention its features, and one real-life use.

Response:
Let me give a brief beginner-friendly explanation of Python, list its key features, and show one practical use. What is Python?
Python is a high-level, interpreted, general-purpose programming language with clear, readable syntax that makes it easy to learn and use.

Key features:
Simple, readable syntax – great for beginners and fast development.
Interpreted and cross-platform – runs on Windows, macOS, Linux without compilation.
Large standard library (“batteries included”) and a huge ecosystem of packages (pip).
Dynamic typing and automatic memory management (garbage collection).
Object-oriented paradigm – procedural, object-oriented, and functional programming.
Strong community & libraries for web, data science, automation, and AI (e.g., Django, pandas, NumPy, TensorFlow).

Refined Prompt 2:
Define a loop, explain its syntax, and give one example.
response:
for loop:
    for item in sequence:
        while loop: while condition:
            Example (for loop - print 1-5):
            Tip: Python uses indentation for the loop body; use break to exit early and continue to skip to the next iteration.

Refined Prompt 3:
Explain Functions with definition, syntax, and example.
Response:
Function – definition, syntax, and example
Definition: A function is a reusable block of code that performs a specific task, optionally takes parameters, and may return a value.
Syntax (Python):
Example: a simple function that adds two numbers:
Why use them: Functions improve modularity, reduce repetition, and make code easier to test and maintain.

Refined Prompt 4:
Explain Lists with syntax and use case.

```

## 3. Evaluate Outputs

- Evaluate responses using completeness, accuracy, relevance, and clarity.
- Summarize findings in a table.

## 4. Reflection

Analyze, how explicit subtasks improve code correctness and explanation quality.

```

1 Definition: Energy is the capacity to do work or cause a change in a system. Why it matters: Energy is needed for every physical process — it enables motion, heating, chemical reactions, and more.
2 Refined Prompt 4:
3 Explain lists with syntax and use case.## Lists in Python
4 Response:
5 Let me explain lists with syntax and a simple use case.## Lists in Python
6 Definition: A list is an ordered, mutable collection that can contain items of any type (duplicates allowed).
7 Examples:
8 Create: my_list = [1, 'a', 3.14]
9 Indexing: my_list[0] # first item
10 Slicing: my_list[1:3] # sublist
11 Mutability: my_list.append(x), my_list.remove(x)
12 Length: len(my_list)
13 Iterate: for item in my_list: ...
14 Note: Lists are mutable (you can change them). Use a tuple ((a, b)) when you need an immutable sequence. ✅
15
16 Refined Prompt 5:
17 Differentiate between for loop and while loop with example.
18 Response:
19 or loop vs While loop ✅
20 For loop ✅
21 Use when you need to iterate over a sequence or a known range.
22 Python syntax:
23 While loop ✅
24 Use when you need to repeat until a condition becomes false (count-controlled or unknown iterations).
25 Python syntax:
26 Tip: Use for for definite iterations and while for conditional/repeat-until logic; be careful of infinite while loops.
27
28 Metrics:
29 | Metric | Baseline (1-5) | Refined (1-5) |
30 | --- | --- | --- |
31 | Completeness | 3 | 5 |
32 | Accuracy | 4 | 5 |
33 | Relevance | 3 | 5 |
34 | Clarity | 3 | 5 |
35
36 Explicit instructions and structured prompts significantly improved explanation quality and code understanding.

```

## Task 3: Data Science and Machine Learning Concepts Scenario

Suppose that you are a data assistant developer for an EdTech company offering data science courses.

Tasks to be completed

### 1. Baseline Prompt Testing

Select 5 typical queries, for example:

- “What, Explain, What, Define, What”

Run these prompts in a chat-based AI model and record the raw responses.

```

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Task 3: Data Science and Machine Learning Concepts
Baseline Prompts and Responses
260 Prompt 1: What is data science?
261 Response:
262 Data science deals with extracting insights from data.
263
264 Prompt 2: Define machine learning.
265 Response:
266 Machine learning allows systems to learn from data.
267
268 Prompt 3: What is supervised learning?
269 Response:
270 Supervised learning uses labeled data.
271
272 Prompt 4: What is a dataset?
273 Response:
274 A dataset is a collection of data.
275
276 Prompt 5: What is a model?
277 Response:
278 A model is a trained algorithm.
279
280 Refined Prompts and Responses
281
282 Refined Prompt 1:
283 Define data science, explain its components, and one real-world example.
284
285 Response:
286 Data science is the field of analyzing data using statistics, programming, and machine learning.
287 For example, predicting stock prices uses data science.
288
For loop vs While loop
For loop
• Use when you need to iterate over a sequence or a known range.
• Python syntax:
for i in range(1, 6):
    print(i) # prints 1-5
While loop
• Use when you need to repeat until a condition becomes false (count-controlled or unknown iterations).
• Python syntax:
n = 5
while n > 0:
    print(n)
    n -= 1 # stops when n == 0
Tip: use for for definite iterations and while for conditional/repeat-until logic; be careful of infinite while loops.
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## 2. Prompt Refinement

Refine each query by:

- Adding 5 contexts (academic, industry, beginner-friendly, mathematical, interview-focused).
- Making tasks explicit (e.g., “Define supervised learning and explain it with one real-world example.”).
- Breaking into subtasks (definition → types → example → limitation).

Run these prompts in a chat-based AI model and record the raw responses.

## 3. Evaluate Outputs

Score outputs using the given metrics and present results in a table.

## 4. Reflection

Reflect on how context management affects conceptual clarity in technical domains.

The screenshot shows a code editor interface with the following details:

- File Explorer:** Shows files like `index.html`, `J sum.java`, `ph.py`, and `Lab3_Prompt_Engineering.md`.
- Editor:** Displays a Markdown file with AI-generated responses. The content includes:
  - Refinement of the definition of energy.
  - Explanations of machine learning types (Supervised, Unsupervised, Reinforcement).
  - Explanations of ML model lifecycle.
  - A table comparing Baseline and Refined metrics.
  - Context-based prompts improved conceptual clarity and practical understanding of ML concepts.
- Sidebar:** Contains sections on "For loop vs While loop" and "While loop". It provides tips, Python syntax examples, and a tip about infinite loops.
- Bottom:** Shows system status (16°C, Partly sunny), network connection, battery level, and a taskbar with various icons.

## Task 4: Database and SQL Queries

### Scenario

Suppose that you are a data assistant developer supporting students learning database systems. Tasks to be completed

#### 1. Baseline Prompt Testing

Choose 5 common queries, such as:

- “Explain, What, Difference, where, how”

Run these prompts in a chat-based AI model and record the raw responses.

The screenshot shows a code editor interface with the following details:

- File Explorer:** Shows files like `index.html`, `J sum.java`, `ph.py`, and `Lab3_Prompt_Engineering.md`.
- Editor:** Displays a Markdown file with AI-generated responses. The content includes:
  - Task 4: Database and SQL Queries.
  - Baseline Prompts and Responses.
  - Prompts 1-5: What is SQL? Response: SQL is a language used to manage databases.
  - Prompts 2-5: Explain primary key. Response: A primary key uniquely identifies a record.
  - Prompts 3-5: Difference between DELETE and DROP. Response: DELETE removes records, DROP removes table.
  - Prompts 4-5: What is JOIN? Response: JOIN combines tables.
  - Prompts 5: What is normalization? Response: Normalization reduces redundancy.
  - Refined Prompts and Responses.
  - Refined Prompt 1: Explain SQL with use case and example. Response: SQL is used to store, retrieve, and manage data in relational databases. For example, retrieving student records.
  - Refined Prompt 2: Explain primary key with example. Response: A primary key uniquely identifies each record in a table.
- Sidebar:** Contains sections on "For loop vs While loop" and "While loop". It provides tips, Python syntax examples, and a tip about infinite loops.
- Bottom:** Shows system status (16°C, Partly sunny), network connection, battery level, and a taskbar with various icons.

## 2. Prompt Refinement

Rewrite each prompt by:

- Adding 5 contexts (theory exam, practical lab, interview prep, real-world database, optimization focus).
- Making instructions explicit (e.g., “Explain SQL JOIN types with syntax and examples.”).
- Breaking into subtasks (definition → syntax → example → use case).

Run these prompts in a chat-based AI model and record the raw responses.

## 3. Evaluate Outputs

Evaluate responses using the four metrics and summarize results in a comparison table.

## 4. Reflection

Discuss how refined prompts reduce ambiguity in technical explanations.

```
for i in range(1, 6):
    print(i) # prints 1-5
```

The screenshot shows a Jupyter Notebook interface with a cell containing Python code. The code defines a for loop and a while loop, comparing their syntax and use cases. A tooltip provides a tip about using range for loops.

## Task 5: General Aptitude and Logical Reasoning

### Scenario

Suppose that you are a data assistant developer for an EdTech company focused on aptitude and competitive exam preparation.

Tasks to be completed

### 1. Baseline Prompt Testing

Select 5 user queries, for example:

- “Explain, What, Difference, where, how”

Run these prompts in a chat-based AI model and record the raw responses.

The screenshot shows a code editor with several files open in the background. In the foreground, a Jupyter Notebook cell contains the following Python code:

```

Prompt_Engineering.md > # Definition: Energy is the capacity to do work or cause a change in a system. Why it matters: Energy is needed for every physical ...
95 Definition: Energy is the capacity to do work or cause a change in a system.
96 ## Reflection
97
98 Task 5: General Aptitude and Logical Reasoning
99 Baseline Prompts and Responses
100
101 Prompt 1: What is probability?
102 Response:
103 Probability measures chance.
104
105 Prompt 2: What is average?
106 Response:
107 Average is sum divided by count.
108
109 Prompt 3: Explain ratio.
110 Response:
111 Ratio compares quantities.
112
113 Prompt 4: What is percentage?
114 Response:
115 Percentage is part of 100.
116
117 Prompt 5: What is logical reasoning?
118 Response:
119 Logical reasoning involves thinking skills.
120
121 Refined Prompts and Responses
122
123 Refined Prompt 1:
124 Define probability with formula and example.
125
126 Response:
127 Probability measures likelihood of an event.
128 Formula: Favorable / Total outcomes.
129 Example: Tossing a coin.
130
131 Refined Prompt 2:
132 Explain average with example.
133 Response:
134
135
136 Response:

```

To the right of the code editor, there is a ChatGPT interface window titled "EXPLANATION OF NEWTON'S FIRST LAW ...". It shows a conversation about loops, with sections for "For loop vs While loop" and "For loop" and "While loop". Below the ChatGPT window, there is a "Tip" section and a "Describe what to build next" input field.

## 2. Prompt Refinement

Rewrite each query by:

- Adding 5 contexts (school exams, competitive exams, real-life analogy, formula-based, step-by-step solving).
- Making tasks explicit (e.g., “Define probability and solve one simple numerical example.”).
- Breaking into subtasks (definition → formula → example → common mistakes).

Run these prompts in a chat-based AI model and record the raw responses.

## 3. Evaluate Outputs

- Score responses using completeness, accuracy, relevance, and clarity.
- Present findings in a table.

## 4. Reflection

Reflect on how structured prompts improve step-by-step reasoning and learner understanding.

The screenshot shows a code editor interface with the following details:

- File Explorer:** Shows files like `index.html`, `Jsum.java`, `ph.py`, and `Lab3_Prompt_Engineering.md`.
- Editor Area:** Displays a Markdown file titled `Lab3_Prompt_Engineering.md`. The content includes:
  - Definition: Energy is the capacity to do work or cause a change in a system.
  - Refinement: Energy is the capacity to do work or cause a change in a system.
  - Probability measures likelihood of an event.
  - Average is total values divided by number of values.
  - Ratio compares quantities.
  - Percentage represents value per hundred.
  - Logical reasoning involves step-by-step thinking.
- Right Panel:** Contains a sidebar with sections like "For loop vs While loop" and "While loop". It includes code snippets and tips for each.
- Bottom Status Bar:** Shows information such as "Ln 458, Col 26", "UTF-8", "16°C Partly sunny", and the date "1/10/2026".