



SCHOOL OF COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE		DEPARTMENT OF COMPUTER SCIENCE ENGINEERING	
ProgramName:B. Tech		Assignment Type: Lab	AcademicYear:2025-2026
CourseCoordinatorName		Venkataramana Veeramsetty	
Instructor(s)Name			
CourseCode	24CS002PC215	CourseTitle	AI Assisted Coding
Year/Sem	II/I	Regulation	R24
Date and Day of Assignment	Week2 - Wednesday	Time(s)	
Duration	2 Hours	Applicableto Batches	
AssignmentNumber:4.3(Present assignment number)/24(Total number of assignments)			

Q.No.	Question	ExpectedTime to complete
	<div>Lab 4: Advanced Prompt Engineering – Zero-shot, One-shot, and Few-shot Techniques</div> <div>Lab Objectives:</div> <ul style="list-style-type: none"><li>To explore and apply different levels of prompt examples in AI-assisted code generation.</li><li>To understand how zero-shot, one-shot, and few-shot prompting affect AI output quality.</li><li>To evaluate the impact of context richness and example quantity on AI performance.</li><li>To build awareness of prompt strategy effectiveness for different problem types.</li></ul>	

### Lab Outcomes (LOs):

After completing this lab, students will be able to:

- Use zero-shot prompting to instruct AI with minimal context.
- Use one-shot prompting with a single example to guide AI code generation.
- Apply few-shot prompting using multiple examples to improve AI responses.
- Compare AI outputs across the three prompting strategies.

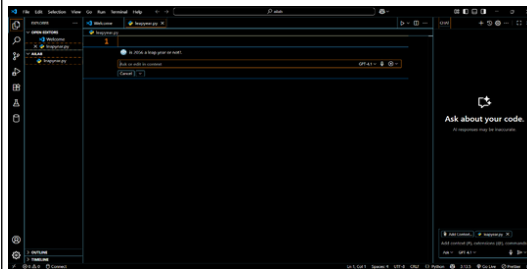
### Task Description#1

- Zero-shot: Prompt AI to write a function that checks whether a given year is a leap year.

### Expected Output#1

- AI-generated function with no examples provided

**PROMPT:** is 2056 a leap year or not?



**CODE:**



- One-shot: Give one input-output example to guide AI in writing a function that converts centimeters to inches.

## Expected Output#2

- Function with correct conversion logic

**PROMPT:** # Convert kilograms to grams

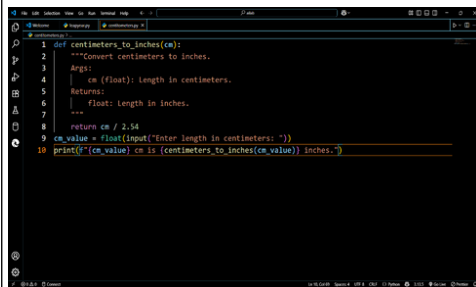
```
kg = float(input("Enter weight in kilograms: "))

grams = kg * 1000

print(f"{kg} kilograms is equal to {grams} grams.")
```

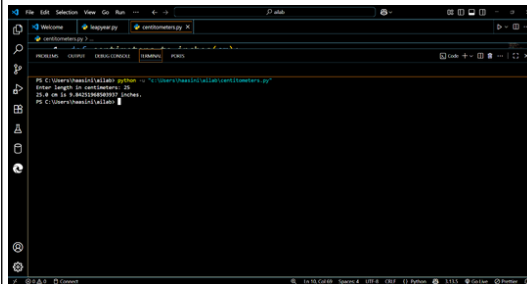
write a python function that converts centimeters to inches.

## CODE:



```
1 def centimeters_to_inches(cm):
2     """Convert centimeters to inches.
3     Args:
4         cm (float): length in centimeters.
5     Returns:
6         float: length in inches.
7     """
8     return cm / 2.54
9 cm_value = float(input("Enter length in centimeters: "))
10 print(f"{cm_value} cm is {centimeters_to_inches(cm_value)} inches.")
```

## OUTPUT:



```
PS C:\Users\hasanil\Idea> python "C:\Users\hasanil\Idea\centimeters.py"
Enter length in centimeters: 25
25.0 cm is 9.84251968503937 inches.
PS C:\Users\hasanil\Idea>
```

## EXPLANATION:



```
def convert_cm_to_inches(cm):  
    inches = cm / 2.54  
    return inches  
  
cm = 10  
inches = convert_cm_to_inches(cm)  
print(inches)
```

Task Description#3

- Few-shot: Provide 2–3 examples to generate a function that formats full names as “Last, First”.

Expected Output#3

- Well-structured function respecting the examples

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PROMPT:



```
def format_full_name(full_name):  
    return full_name.split()[::-1]  
  
full_name = 'John Doe'  
formatted_name = format_full_name(full_name)  
print(formatted_name)
```

CODE:

```
1 example1 = "Budagan Haasini"
2 formatted1 = "Haasini, Budagan"
3 example2 = "Konidela ram"
4 formatted2 = "ram, Konidela"
5 example3 = "Tatapudi Snehlitha"
6 formatted3 = "Snehlitha, Tatapudi"
7 def format_name(full_name):
8     parts = full_name.split()
9     first, last = parts[0], parts[-1] # works even if there are 2+ parts
10    return f"{last}, {first}"
11 print(format_name("Budagan Haasini")) # Haasini, Budagan
12 print(format_name("Konidela ram")) # ram, Konidela
13 print(format_name("Tatapudi Snehlitha")) # Snehlitha, Tatapudi
```

## OUTPUT:

```
1 example1 = "Budagan Haasini"
2 formatted1 = "Haasini, Budagan"
3 example2 = "Konidela ram"
4 formatted2 = "ram, Konidela"
```

```
python3 1.py
Haasini, Budagan
ram, Konidela
Snehlitha, Tatapudi
```

## Explanation:

This code defines a function to reformat names from "First Last" to "Last, First" format. Here's a breakdown:

- example1, formatted1, example2, formatted2, example3, formatted3:** These are example strings showing the input and expected output, but they are not used in the function.
- format\_name(full\_name):** This function takes a full name as input.
  - `parts = full_name.split()`: Splits the input string into a list of words (e.g. `["Konidela", "ram"]`).
  - `first, last = parts[0], parts[-1]`: Assigns the first word to `first` and the last word to `last`. This works even if there are more than two words (e.g. `"John Michael Doe"` → `first = "John", last = "Doe"`).
  - `return f"{last}, {first}"`: Returns the name in "Last, First" format.
- print statements:** These call the function with different names and print the reformatted result.

**Gotchas:**  
If the name has only one word, `first` and `last` will be the same, so the output will be like "Name, Name".

**Example:**

```
format_name("Konidela ram") # Output: "ram, Konidela"
```

**Improvement Suggestion:**  
If you want to handle middle names or single-word names more gracefully, you might want to add extra checks.

## Task Description#4

- Compare zero-shot and few-shot prompts for writing a function that counts the number of vowels in a string.

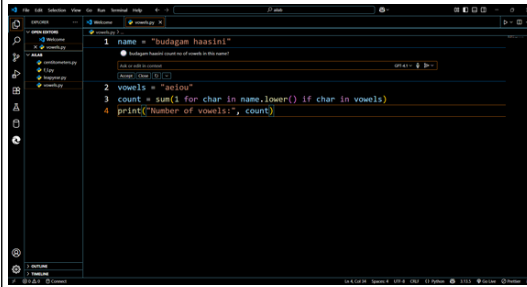
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#### Expected Output#4

- Functional output and comparative reflection

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**ZERO-SHOT: PROMPT:** budagam haasini count number of vowels in this name?



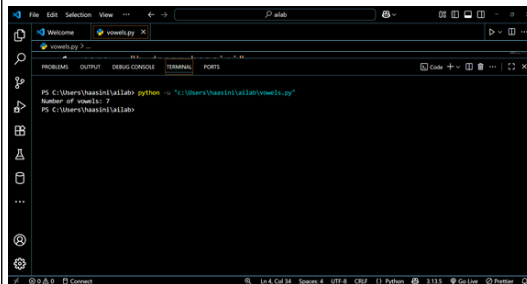
```
1 name = "budagam haasini"
2 vowels = "aeiou"
3 count = sum(1 for char in name.lower() if char in vowels)
4 print("Number of vowels:", count)
```

#### CODE:



```
1 name = "budagam haasini"
2 vowels = "aeiou"
3 count = sum(1 for char in name.lower() if char in vowels)
4 print("Number of vowels:", count)
```

#### OUTPUT:



```
PS C:\Users\haasini\lab> python -i "C:\Users\haasini\lab\count_vowels.py"
Number of vowels: 7
PS C:\Users\haasini\lab>
```

#### FEW-SHOT:

#### PROMPT:



```
1 write a python function to count total no. of vowels in the following examples: Superintelligence, Chromatography, Aerodynamics.
```

Name: Budagam Haasini

Hall num: 2403A53029

Batch: 24BTCAICSB18