SR UNIVERSITY

Program	**:**B.tech(CSE)
Specialization	**:**AIML
Course Title	**:**AI Assisted Coding
Course Code	**:**24CS002PC215
Semester	**:**3rd semester
Academic Session	**:**2025-2026
Name of Student	**:**BachanagariDeekshitha
Enrollment No.	**:**2403A52032
Batch No.	**:**02
Date	**:**20/08/2025

#LAB ASSIGNMENT-3

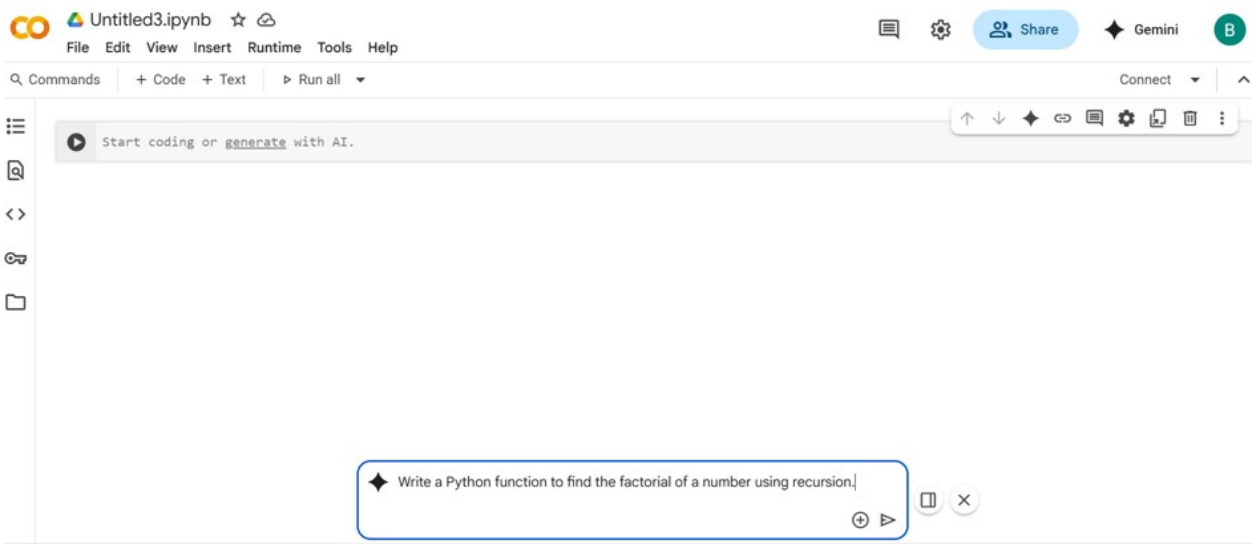
Task Description -1:

Try 3 different prompts to generate a factorial function.

#PROMPT:

- Write a python function to find the factorial of a number using recursion.

QUESTION: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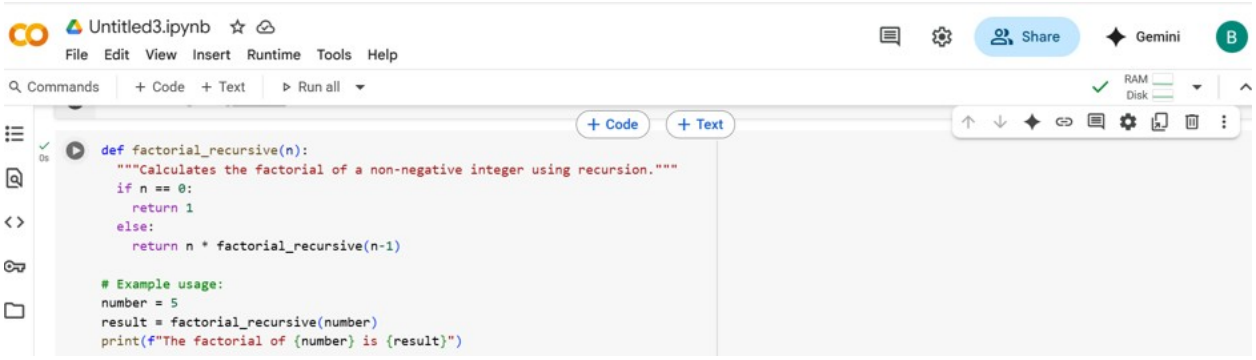
Start coding or generate with AI.
Write a Python function to find the factorial of a number using recursion.

CODE: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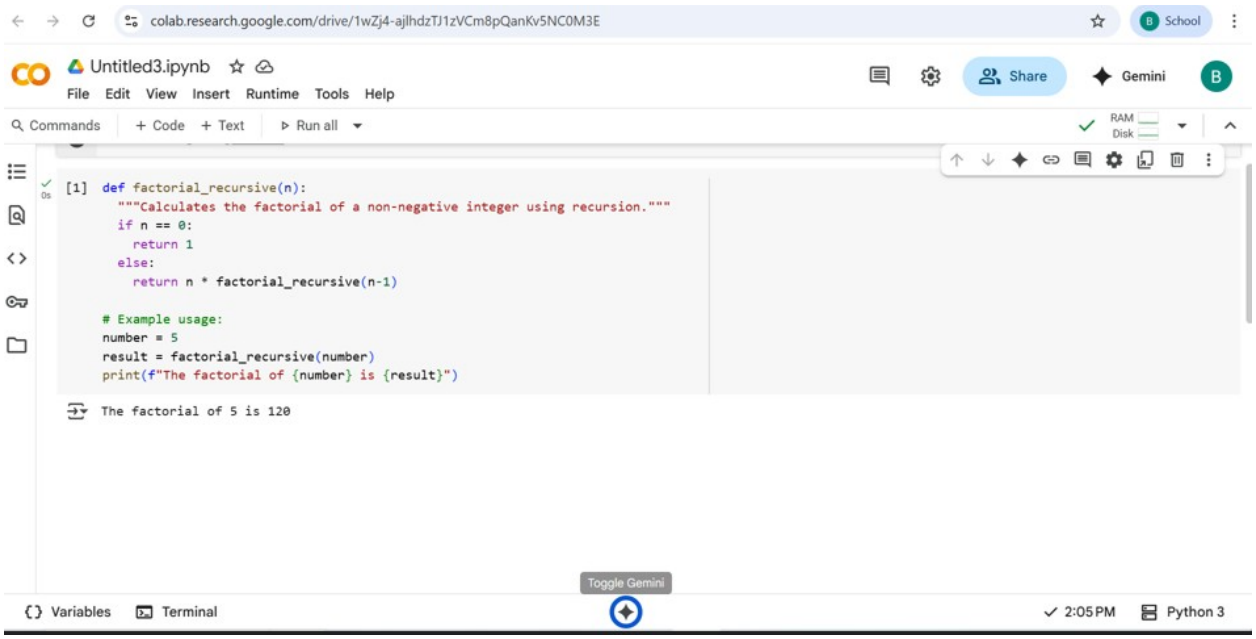
def factorial_recursive(n):
"""Calculates the factorial of a non-negative integer using recursion."""
if n == 0:
return 1
else:
return n * factorial_recursive(n-1)
# Example usage:
number = 5
result = factorial_recursive(number)
print(f"The factorial of {number} is {result}")

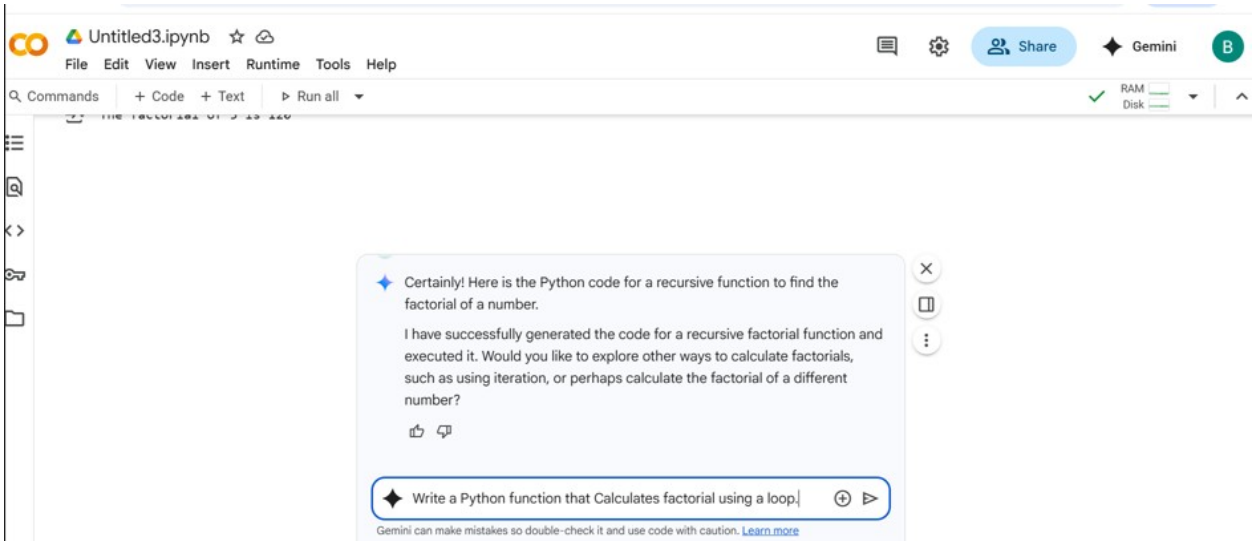
OUTPUT:



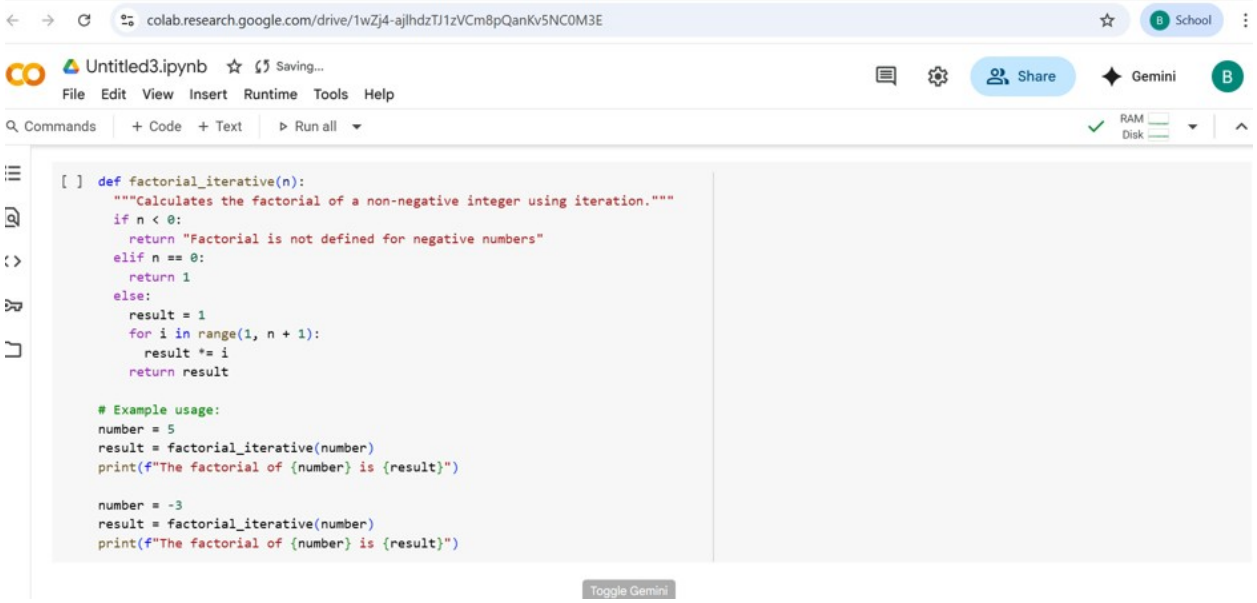
#PROMPT-2:

➢ Write a python function that calculates factorial to find the factorial of a number.

QUESTION:



CODE:

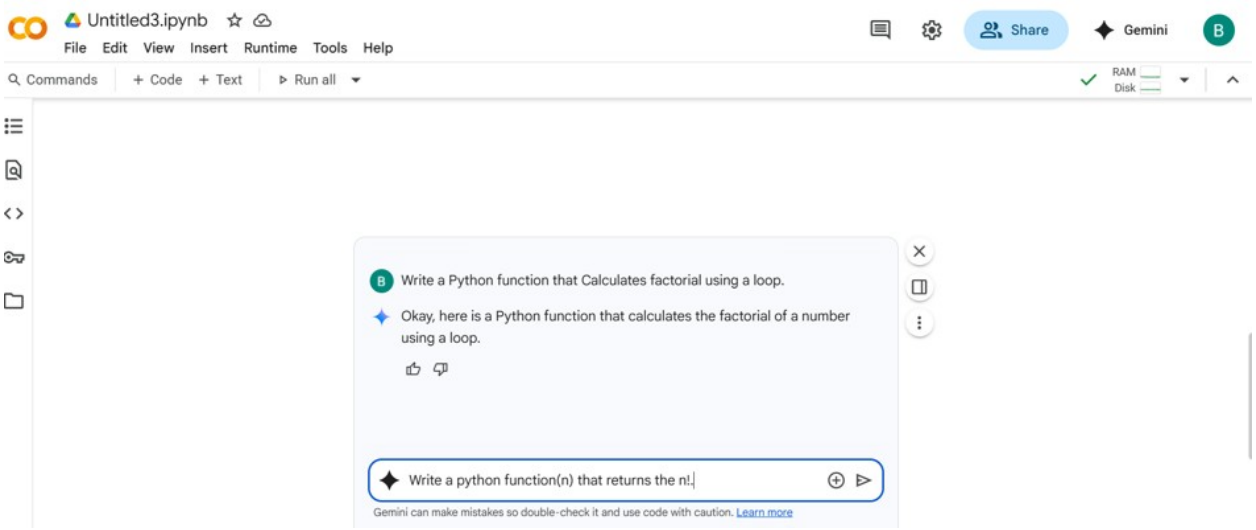


OUTPUT:

#PROMPT-3:

➢ Write a python function() that returns the n!

QUESTION: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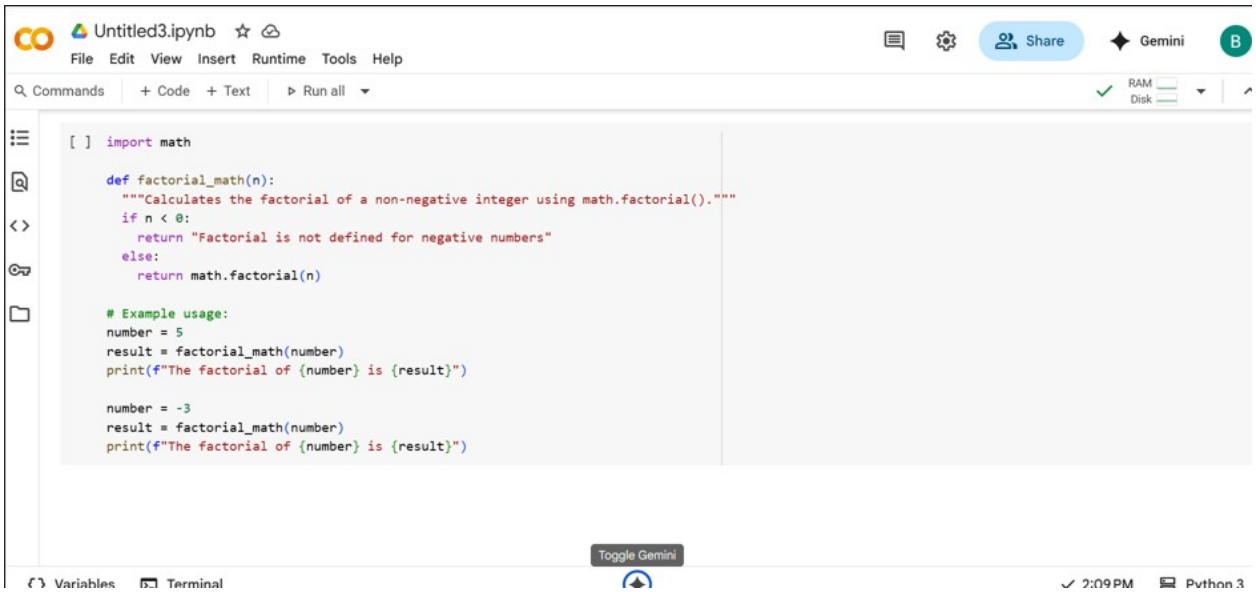
Write a Python function that Calculates factorial using a loop.
Okay, here is a Python function that calculates the factorial of a number using a loop.
Write a python function(n) that returns the n!
Gemini can make mistakes so double-check it and use code with caution. Learn more

CODE: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[ ] import math
def factorial_math(n):
"""Calculates the factorial of a non-negative integer using math.factorial()."""
if n < 0:
return "Factorial is not defined for negative numbers"
else:
return math.factorial(n)
# Example usage:
number = 5
result = factorial_math(number)
print(f"The factorial of {number} is {result}")
number = -3
result = factorial_math(number)
print(f"The factorial of {number} is {result}")
Toggle Gemini
Variables
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Python 3

OUTPUT:

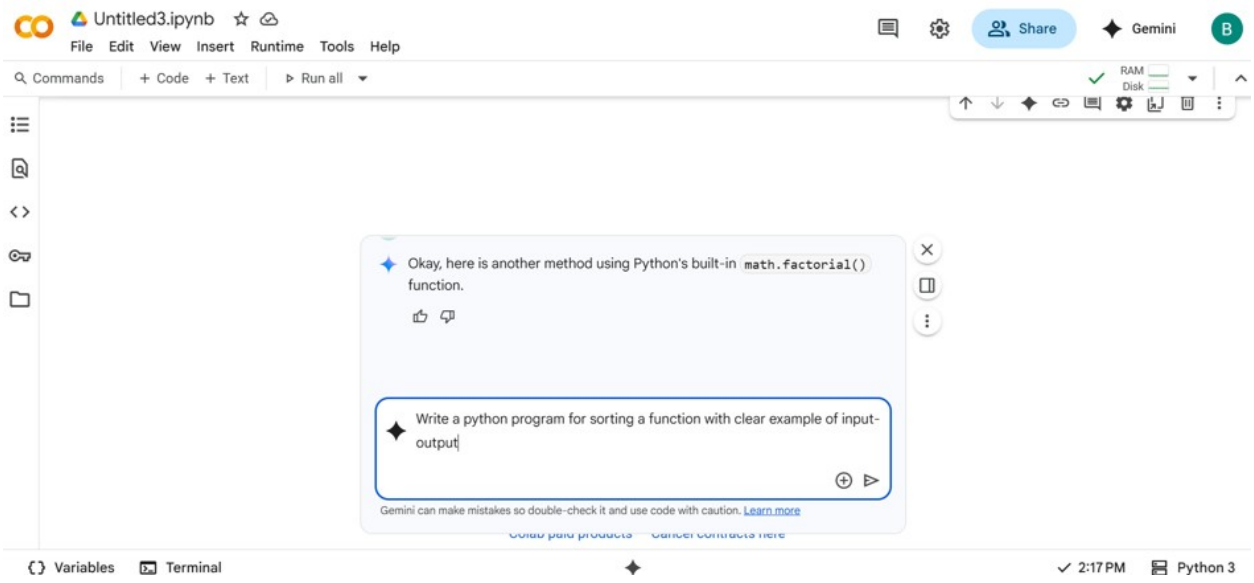
TASK Description-2

- Provide a clear example input-output prompt to generate a sorting function.

#PROMPT:

➢

QUESTION: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Okay, here is another method using Python's built-in math.factorial() function.
Write a python program for sorting a function with clear example of input-output
Gemini can make mistakes so double-check it and use code with caution. Learn more
Variables
Terminal
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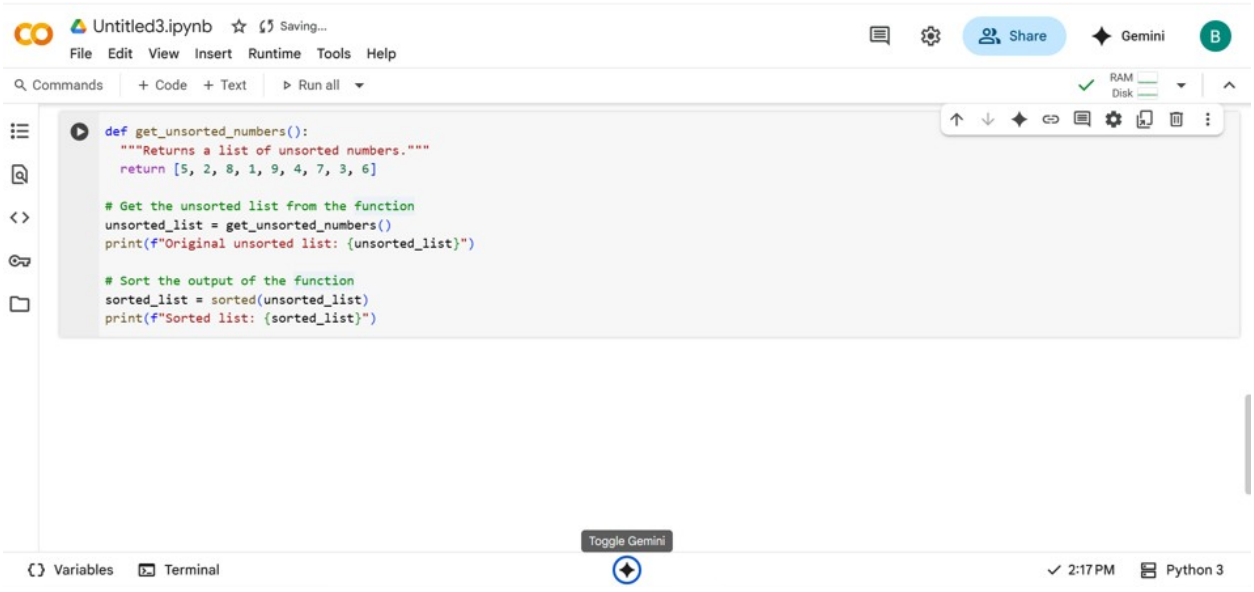
Python 3

CODE: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def get_unsorted_numbers():
"""Returns a list of unsorted numbers."""
return [5, 2, 8, 1, 9, 4, 7, 3, 6]
# Get the unsorted list from the function
unsorted_list = get_unsorted_numbers()
print(f"Original unsorted list: {unsorted_list}")
# Sort the output of the function
sorted_list = sorted(unsorted_list)
print(f"Sorted list: {sorted_list}")
Toggle Gemini
Variables
Terminal
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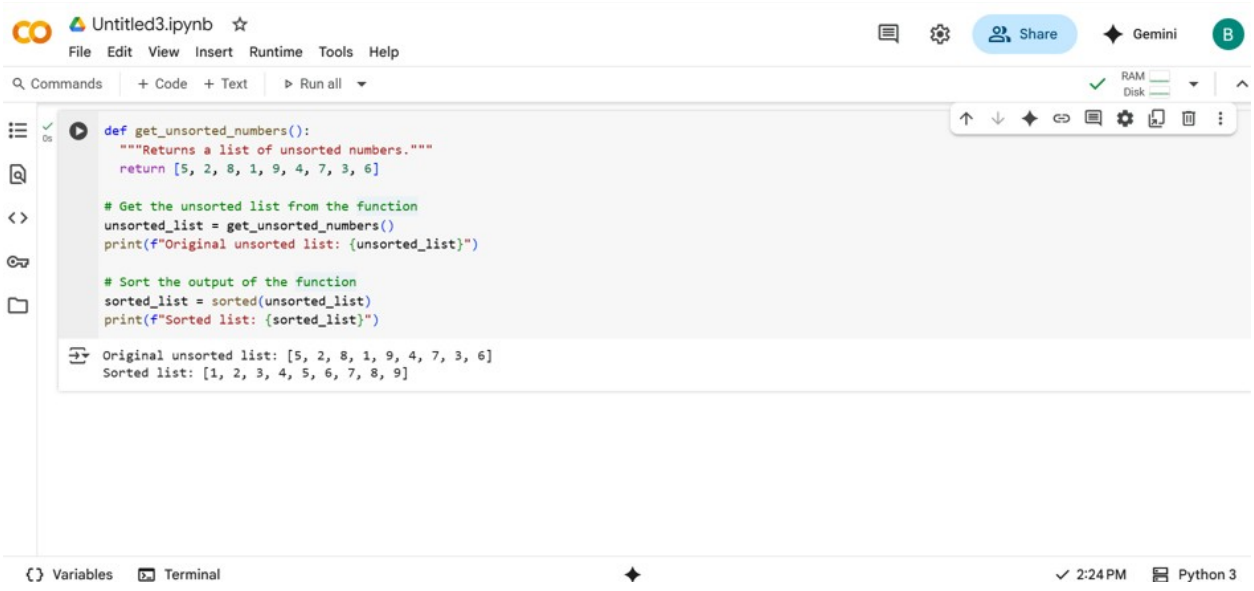
Python 3

OUTPUT:



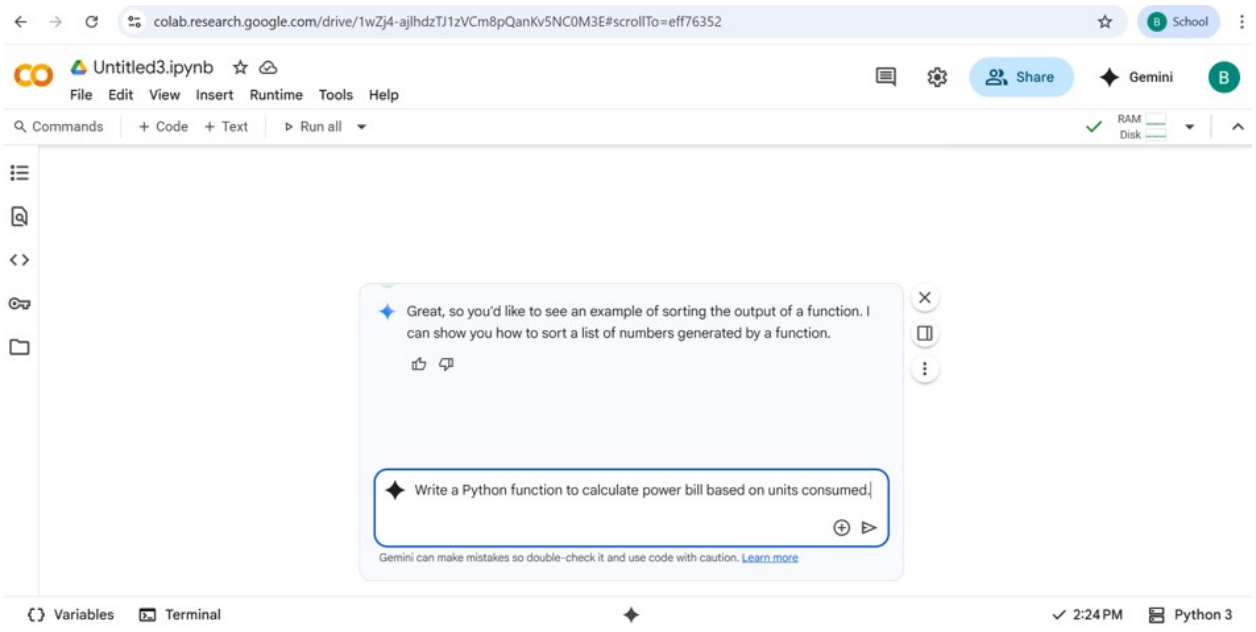
TASK Description-3:

- Start with the vague prompt "Generate python code to calculate power bill" and improve it step-by-step.

#PROMPT:

- Write a python function to calculate power bill based on units consumed.

QUESTION: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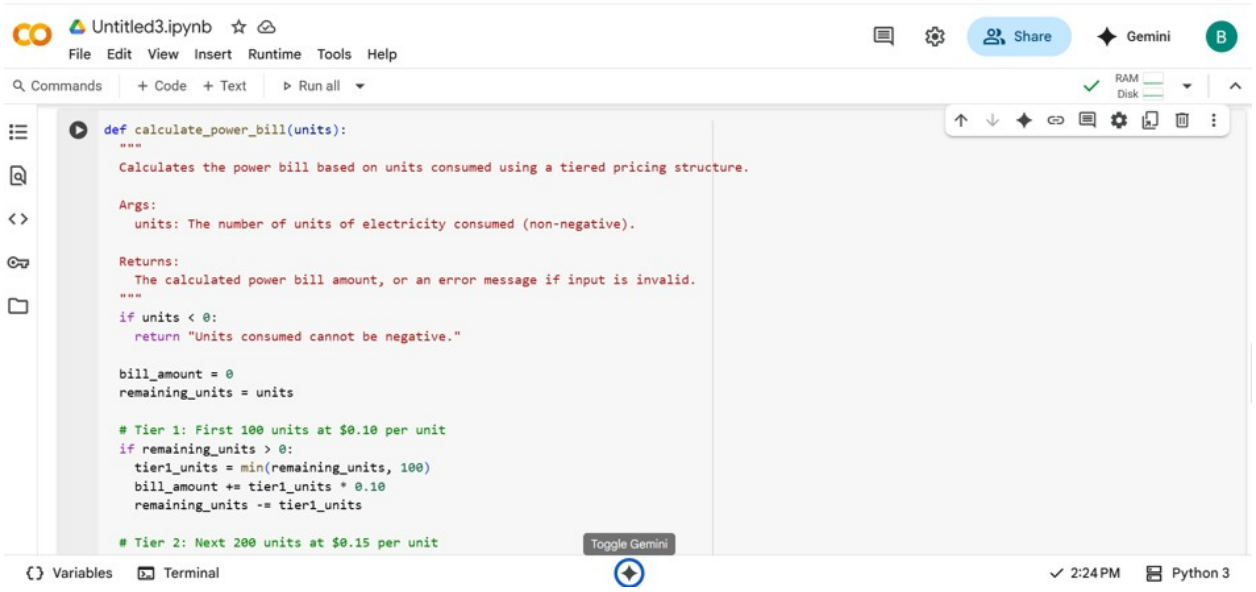
Great, so you'd like to see an example of sorting the output of a function. I can show you how to sort a list of numbers generated by a function.
Write a Python function to calculate power bill based on units consumed.
Gemini can make mistakes so double-check it and use code with caution. Learn more
Variables
Terminal
2:24 PM
Python 3

CODE: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def calculate_power_bill(units):
"""
Calculates the power bill based on units consumed using a tiered pricing structure.
Args:
units: The number of units of electricity consumed (non-negative).
Returns:
The calculated power bill amount, or an error message if input is invalid.
"""
if units < 0:
return "Units consumed cannot be negative."
bill_amount = 0
remaining_units = units
# Tier 1: First 100 units at $0.10 per unit
if remaining_units > 0:
tier1_units = min(remaining_units, 100)
bill_amount += tier1_units * 0.10
remaining_units -= tier1_units
Tier 2: Next 200 units at $0.15 per unit
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Variables
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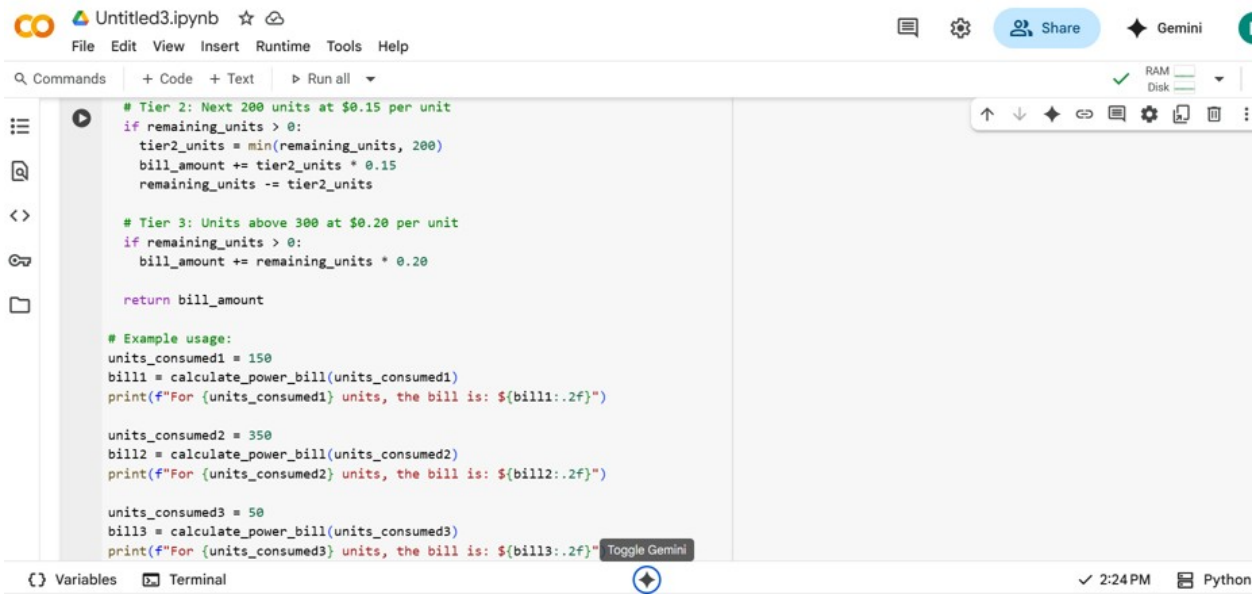
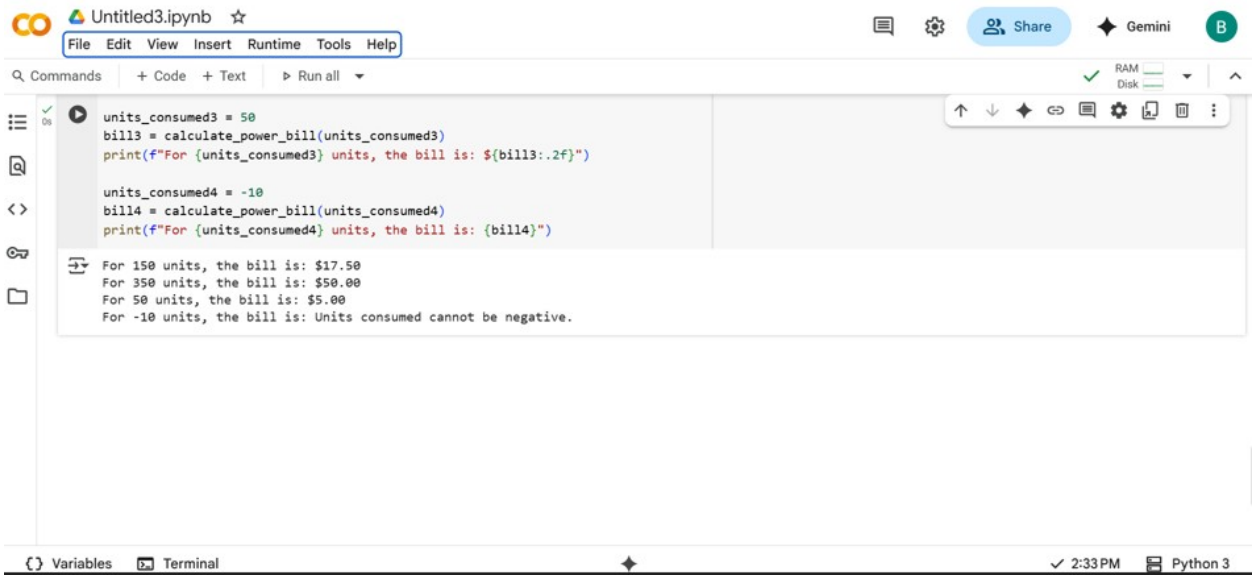
Python 3



OUTPUT:



TASK Description-4:

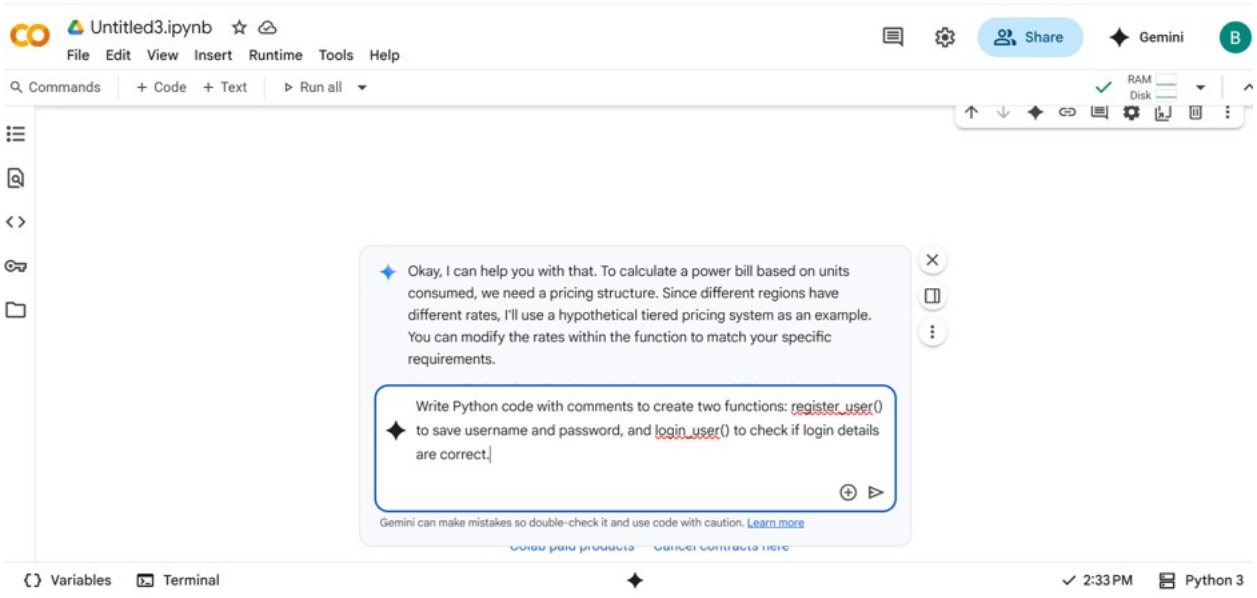
- Write structured comments to help AI generate two linked functions (e.g., login_user() and register_user()).

#PROMPT:

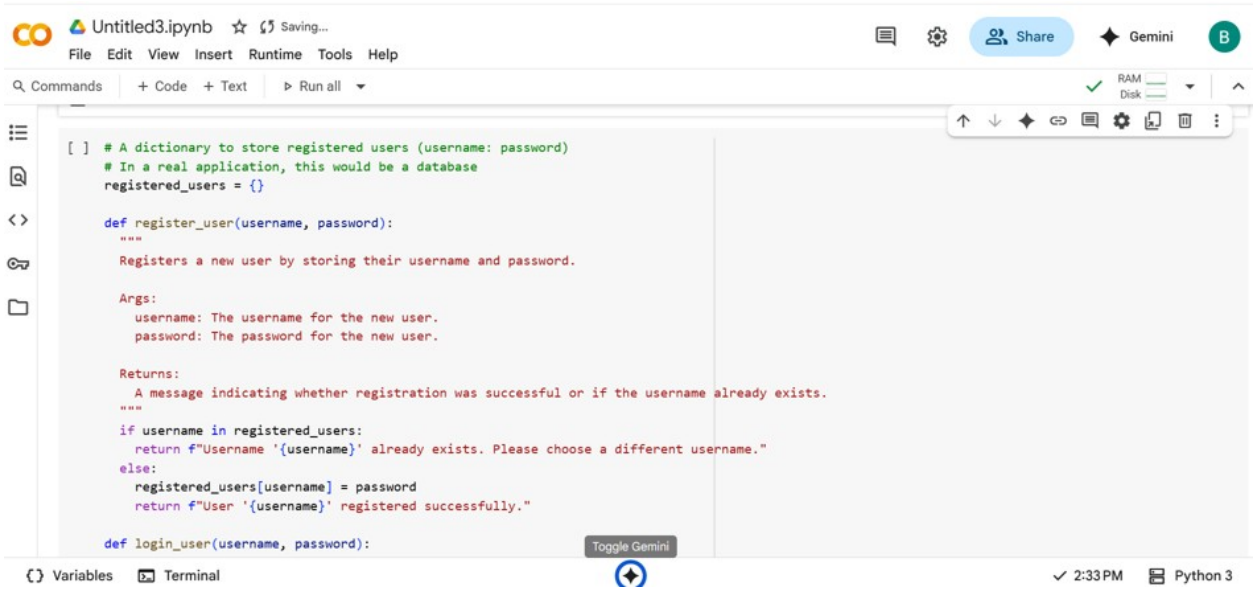
- Write Python code with comments to create two functions :register user() to save username and

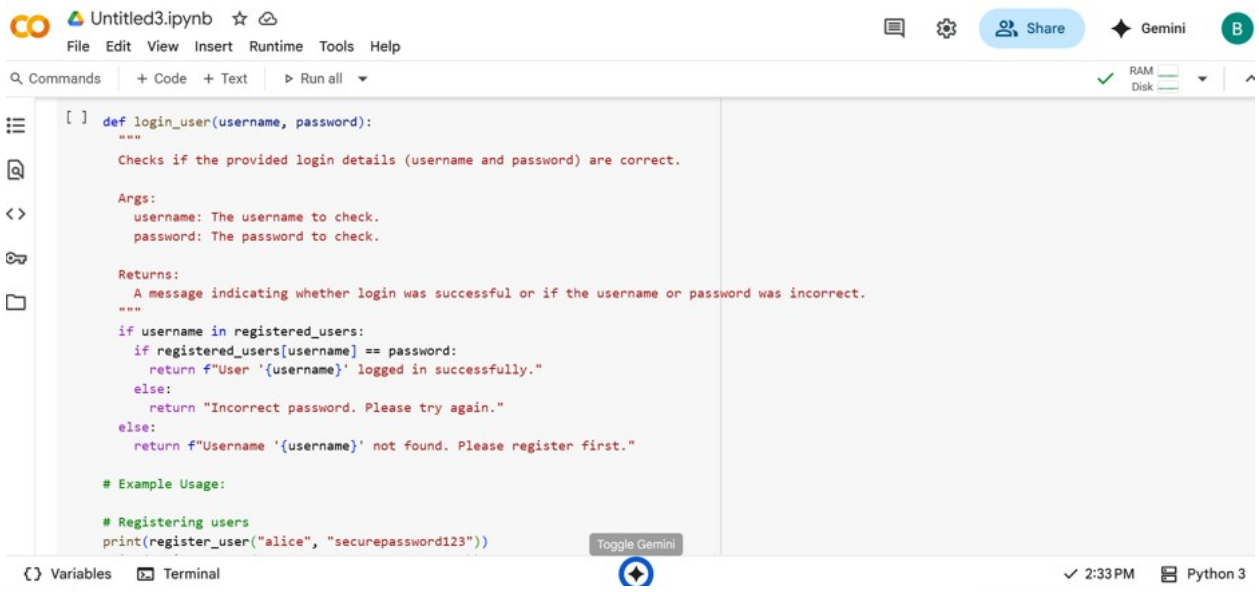
password ,and login_user() to check if login details are correct.

QUESTION:



CODE:

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def login_user(username, password):
"""
Checks if the provided login details (username and password) are correct.
Args:
username: The username to check.
password: The password to check.
Returns:
A message indicating whether login was successful or if the username or password was incorrect.
"""
if username in registered_users:
if registered_users[username] == password:
return f"User '{username}' logged in successfully."
else:
return "Incorrect password. Please try again."
else:
return f"Username '{username}' not found. Please register first."
# Example Usage:
# Registering users
print(register_user("alice", "securepassword123"))
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Variables
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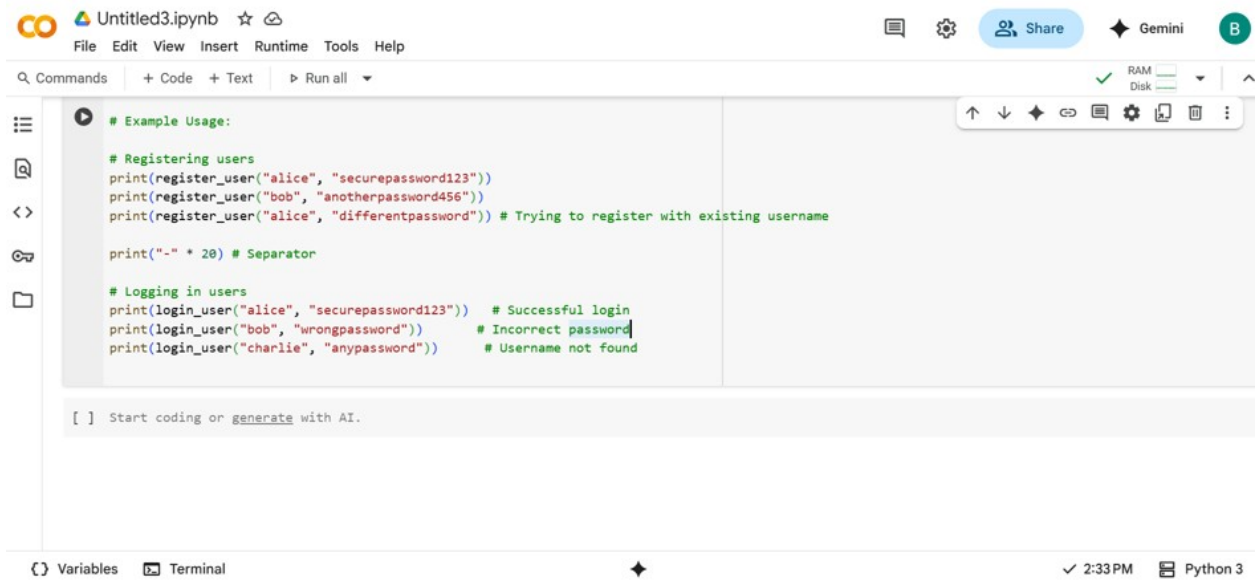
Python 3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# Example Usage:
# Registering users
print(register_user("alice", "securepassword123"))
print(register_user("bob", "anotherpassword456"))
print(register_user("alice", "differentpassword")) # Trying to register with existing username
print("-" * 20) # Separator
Logging in users
print(login_user("alice", "securepassword123")) # Successful login
print(login_user("bob", "wrongpassword")) # Incorrect password
print(login_user("charlie", "anypassword")) # Username not found
[ ] Start coding or generate with AI.
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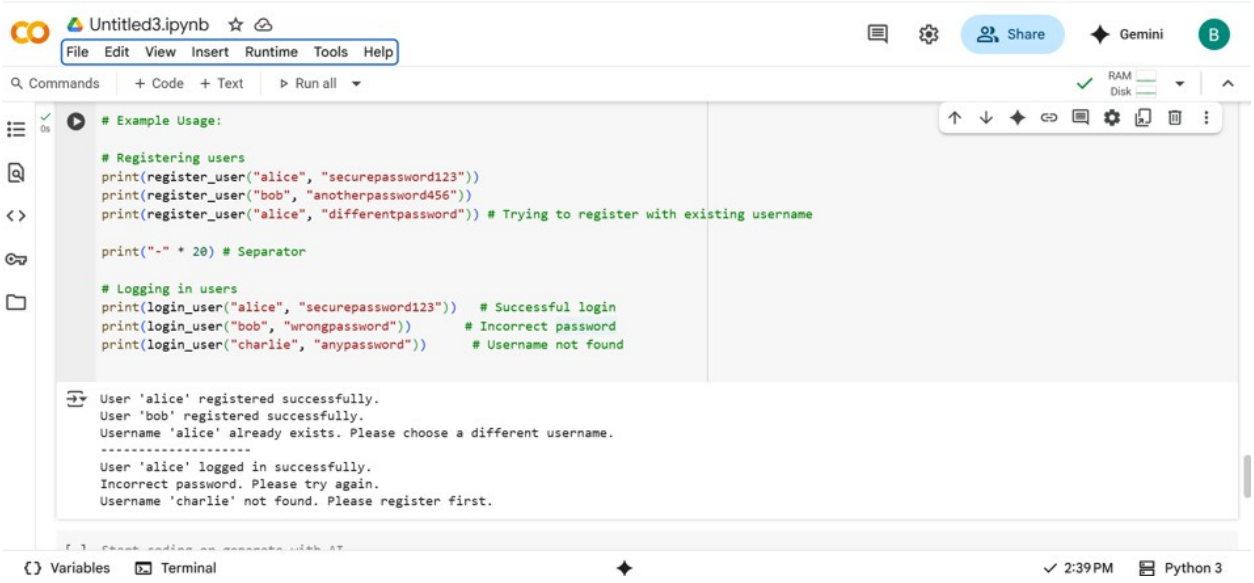
Python 3

OUTPUT:



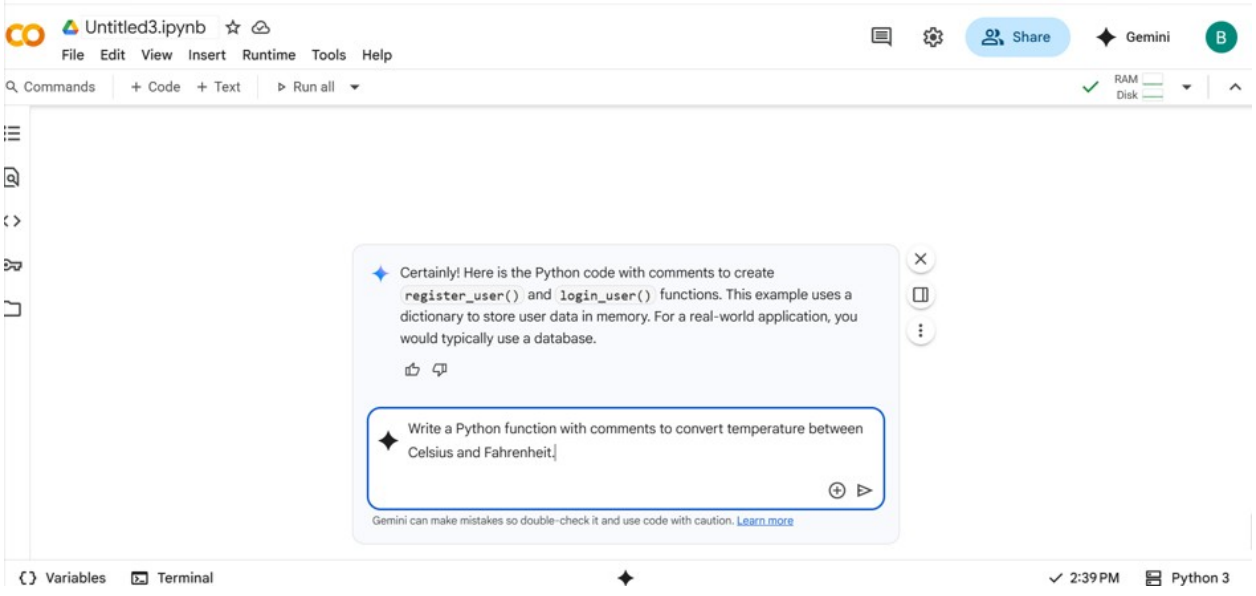
TASK Description-5:

- Analyzing Prompt Specificity: Improving Temperature Conversion Function with Clear Instructions.

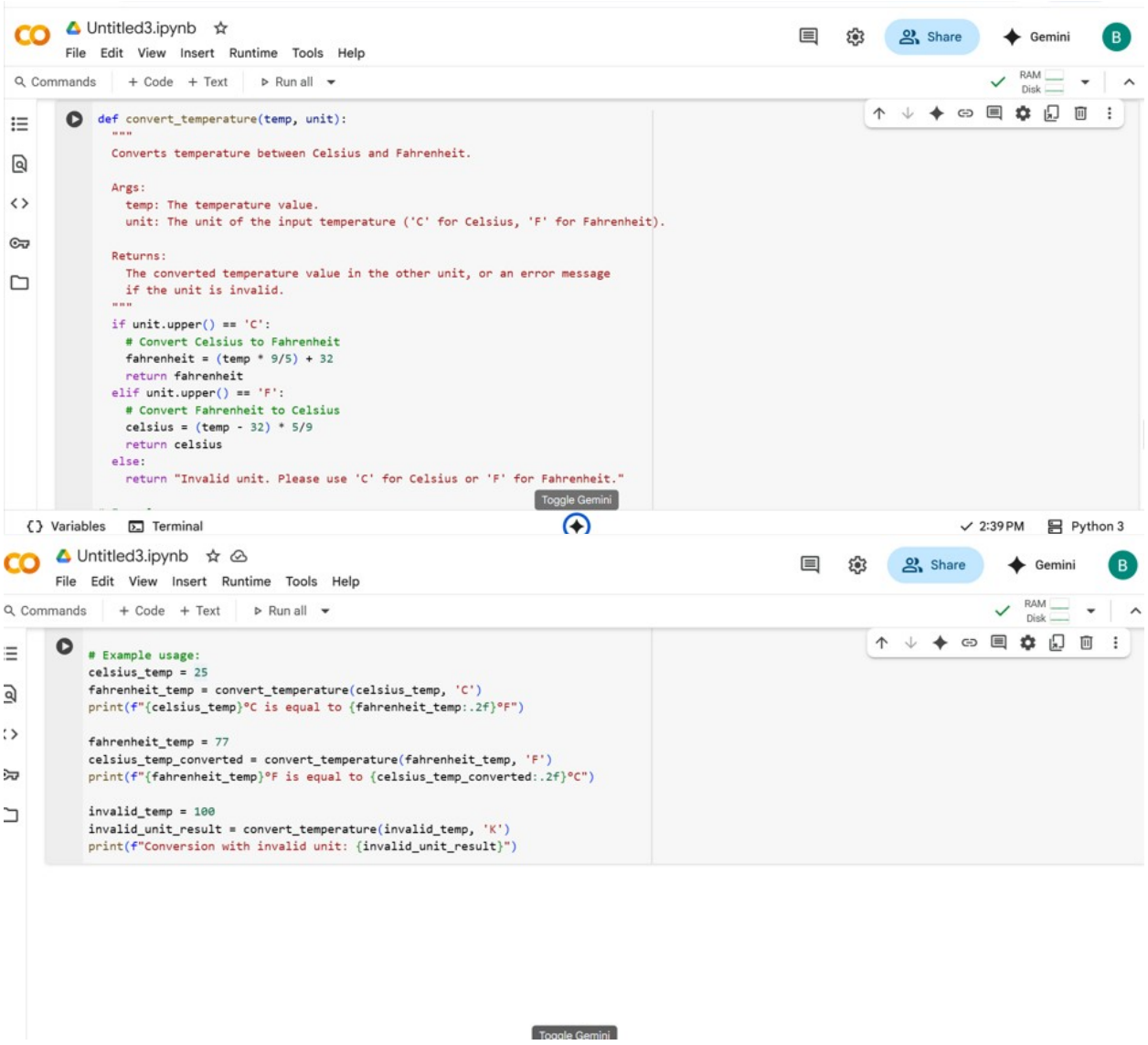
#PROMPT:

- Write a function with comments to convert temperature between Celsius and Fahrenheit.

QUESTION:



CODE: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def convert_temperature(temp, unit):
"""
Converts temperature between Celsius and Fahrenheit.
Args:
temp: The temperature value.
unit: The unit of the input temperature ('C' for Celsius, 'F' for Fahrenheit).
Returns:
The converted temperature value in the other unit, or an error message
if the unit is invalid.
"""
if unit.upper() == 'C':
# Convert Celsius to Fahrenheit
fahrenheit = (temp * 9/5) + 32
return fahrenheit
elif unit.upper() == 'F':
# Convert Fahrenheit to Celsius
celsius = (temp - 32) * 5/9
return celsius
else:
return "Invalid unit. Please use 'C' for Celsius or 'F' for Fahrenheit."
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Python 3

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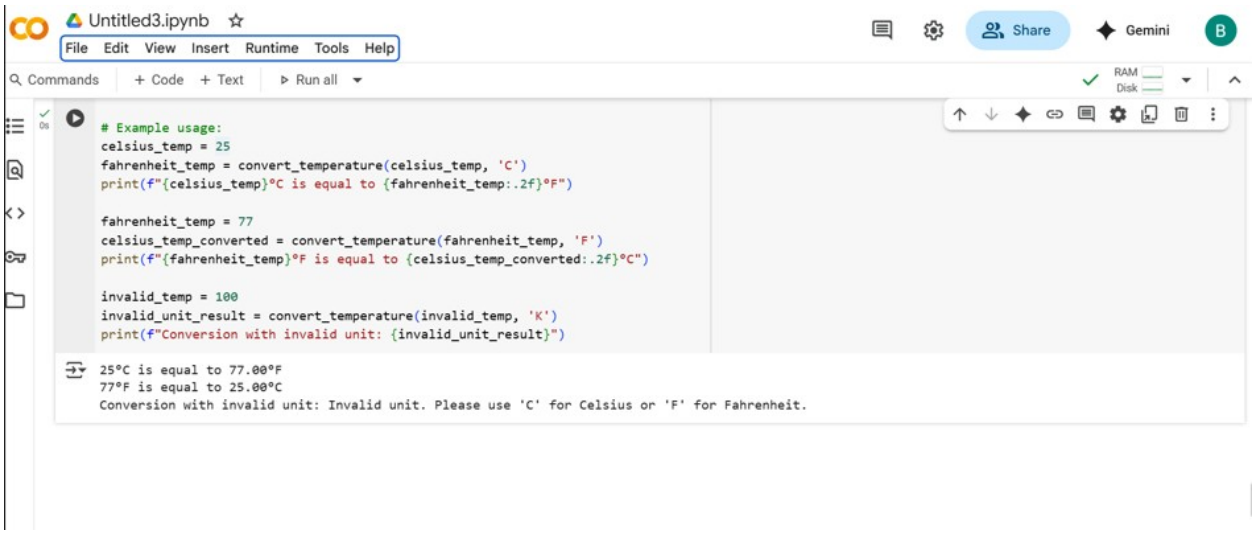
# Example usage:
celsius_temp = 25
fahrenheit_temp = convert_temperature(celsius_temp, 'C')
print(f"{celsius_temp}°C is equal to {fahrenheit_temp:.2f}°F")
fahrenheit_temp = 77
celsius_temp_converted = convert_temperature(fahrenheit_temp, 'F')
print(f"{fahrenheit_temp}°F is equal to {celsius_temp_converted:.2f}°C")
invalid_temp = 100
invalid_unit_result = convert_temperature(invalid_temp, 'K')
print(f"Conversion with invalid unit: {invalid_unit_result}")
Toggle Gemini

OUTPUT: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# Example usage:
celsius_temp = 25
fahrenheit_temp = convert_temperature(celsius_temp, 'C')
print(f"{celsius_temp}°C is equal to {fahrenheit_temp:.2f}°F")
fahrenheit_temp = 77
celsius_temp_converted = convert_temperature(fahrenheit_temp, 'F')
print(f"{fahrenheit_temp}°F is equal to {celsius_temp_converted:.2f}°C")
invalid_temp = 100
invalid_unit_result = convert_temperature(invalid_temp, 'K')
print(f"Conversion with invalid unit: {invalid_unit_result}")
25°C is equal to 77.00°F
77°F is equal to 25.00°C
Conversion with invalid unit: Invalid unit. Please use 'C' for Celsius or 'F' for Fahrenheit.

THANK YOU