AI ASSISTED CODING

Program :B.tech(CSE)

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Batch No. :02

LAB ASSIGNMENT-03

Task Description -1:

Try 3 different prompts to generate a factorial function.

Prompt-1:

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

Question:

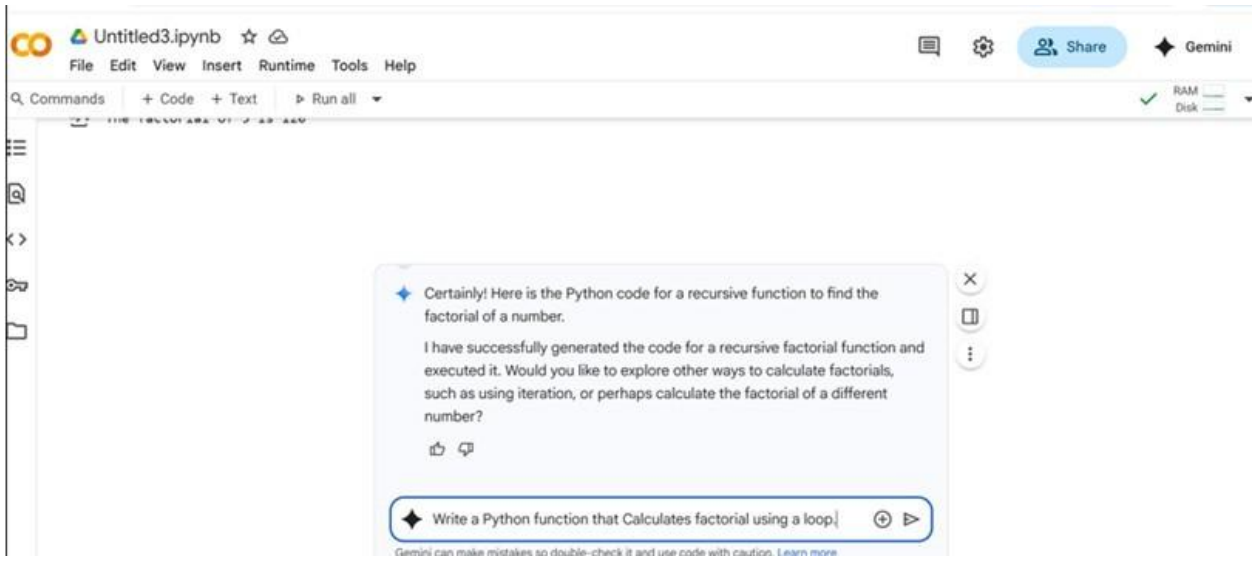
Code:

Output:

Prompt-2:

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

Question: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Certainly! Here is the Python code for a recursive function to find the factorial of a number.
I have successfully generated the code for a recursive factorial function and executed it. Would you like to explore other ways to calculate factorials, such as using iteration, or perhaps calculate the factorial of a different number?
Write a Python function that Calculates factorial using a loop.
Gemini can make mistakes so double-check it and use code with caution. Learn more

Code:


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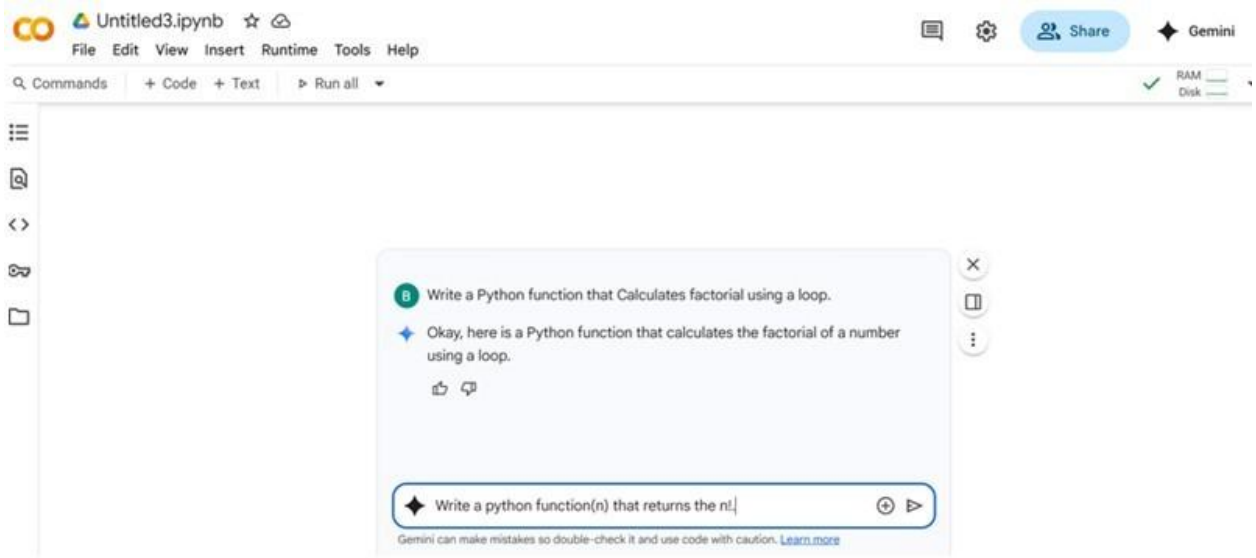
[ ]
def factorial_iterative(n):
"""Calculates the factorial of a non-negative integer using iteration."""
if n < 0:
return "Factorial is not defined for negative numbers"
elif n == 0:
return 1
else:
result = 1
for i in range(1, n + 1):
result *= i
return result
# Example usage:
number = 5
result = factorial_iterative(number)
print(f"The factorial of {number} is {result}")
number = -3
result = factorial_iterative(number)
print(f"The factorial of {number} is {result}")

Output:

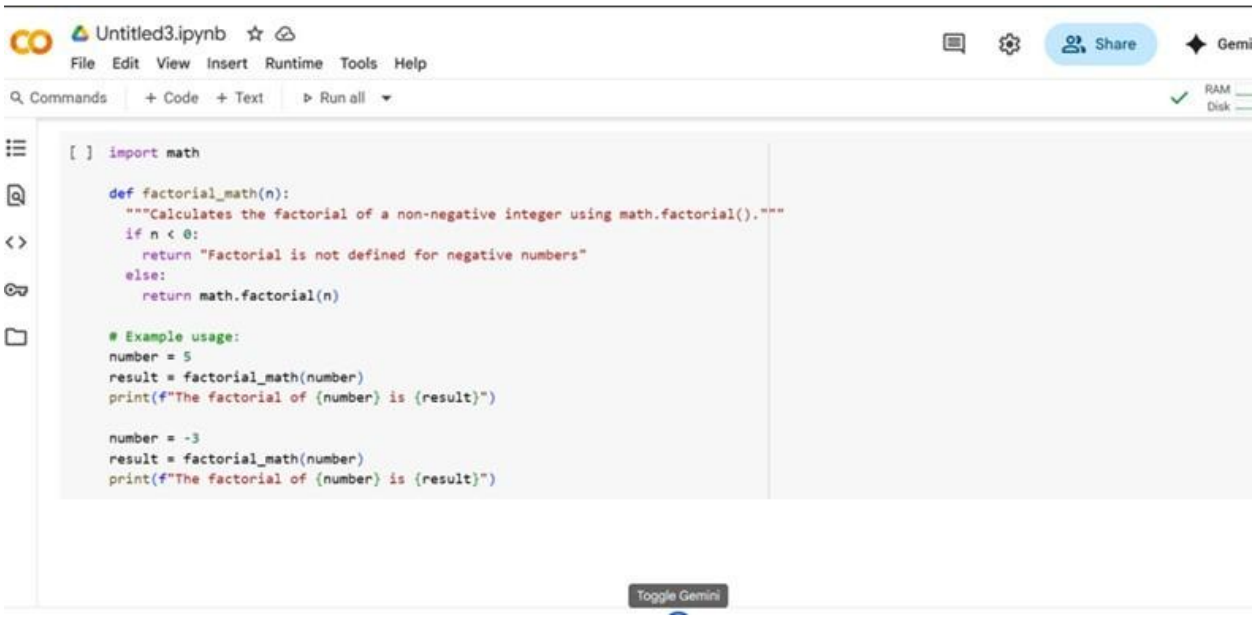
Prompt-3:

Write a python function() that returns the n!

Question:



Code:



Output:

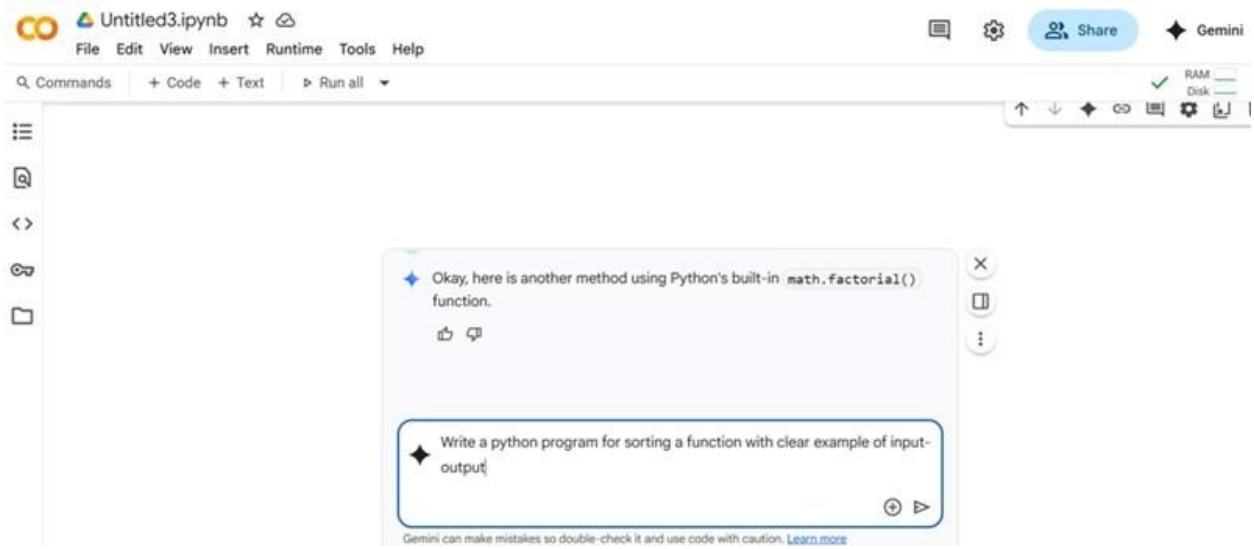
TasK Description-2:

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

Prompt-2:

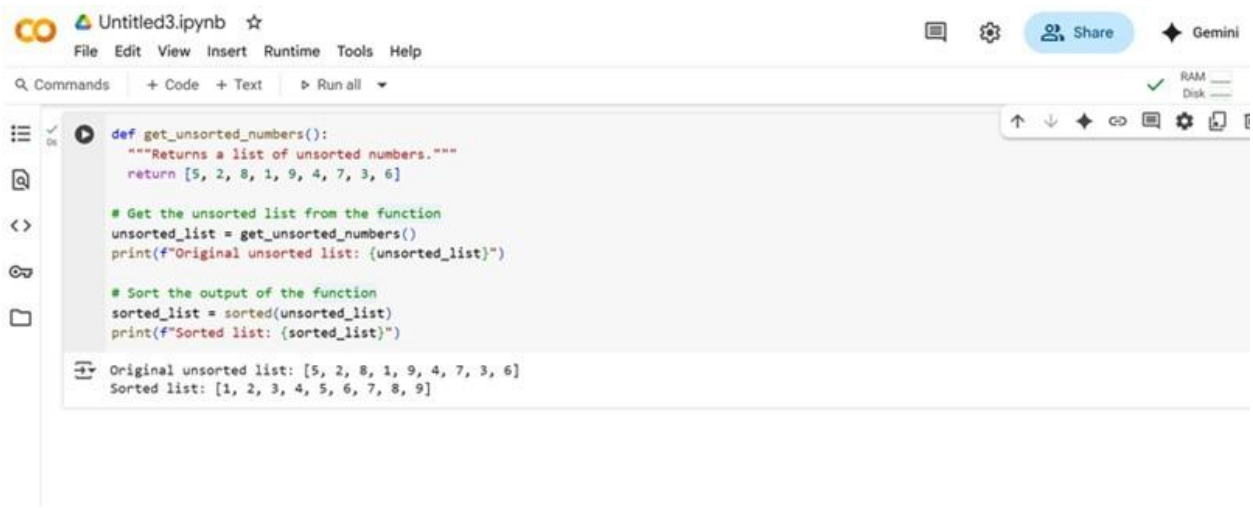
Write a python program using python built-in math.factorial() function

Question:



Code:

Output:



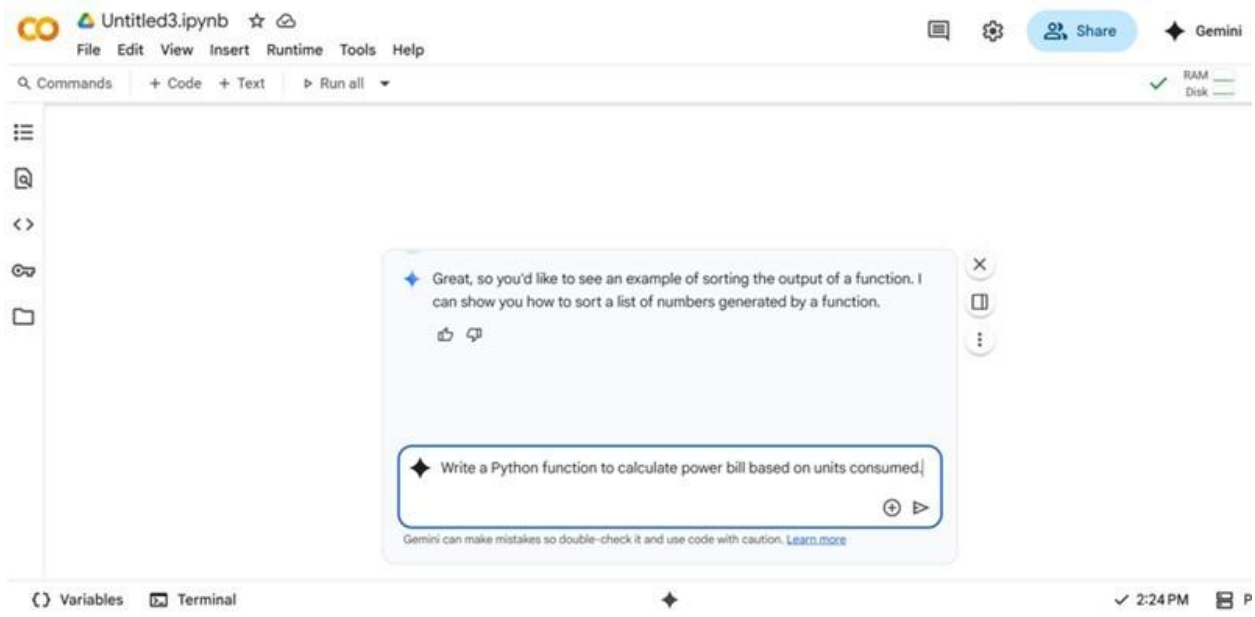
Task Description-3:

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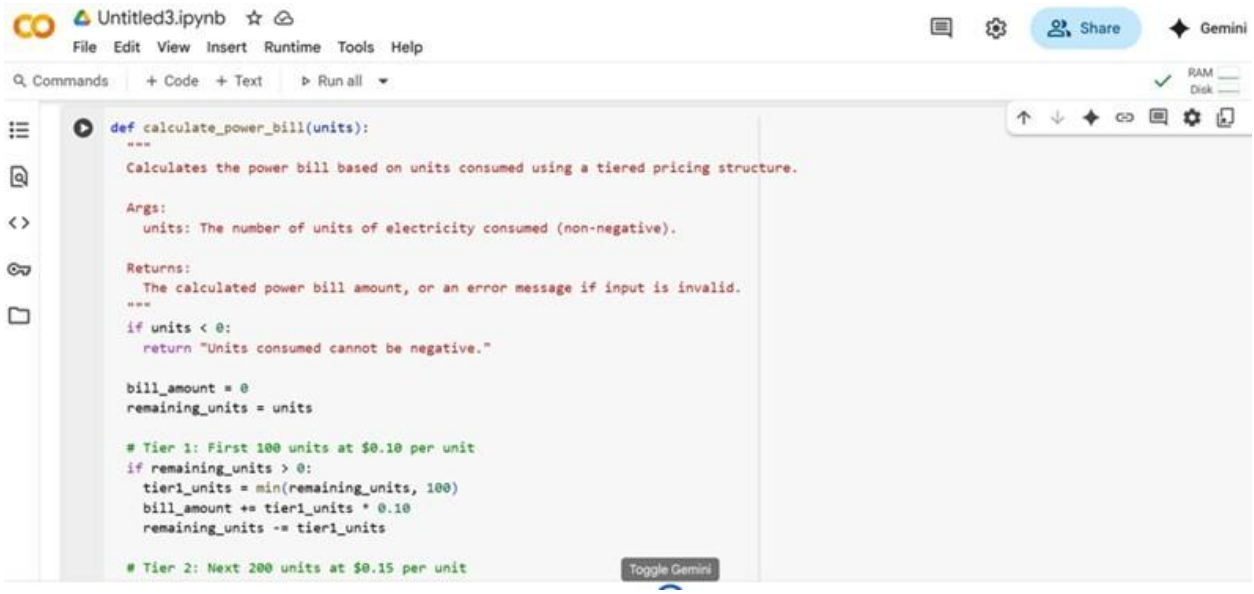
Great, so you'd like to see an example of sorting the output of a function. I can show you how to sort a list of numbers generated by a function.
Write a Python function to calculate power bill based on units consumed.
Gemini can make mistakes so double-check it and use code with caution. Learn more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

Code: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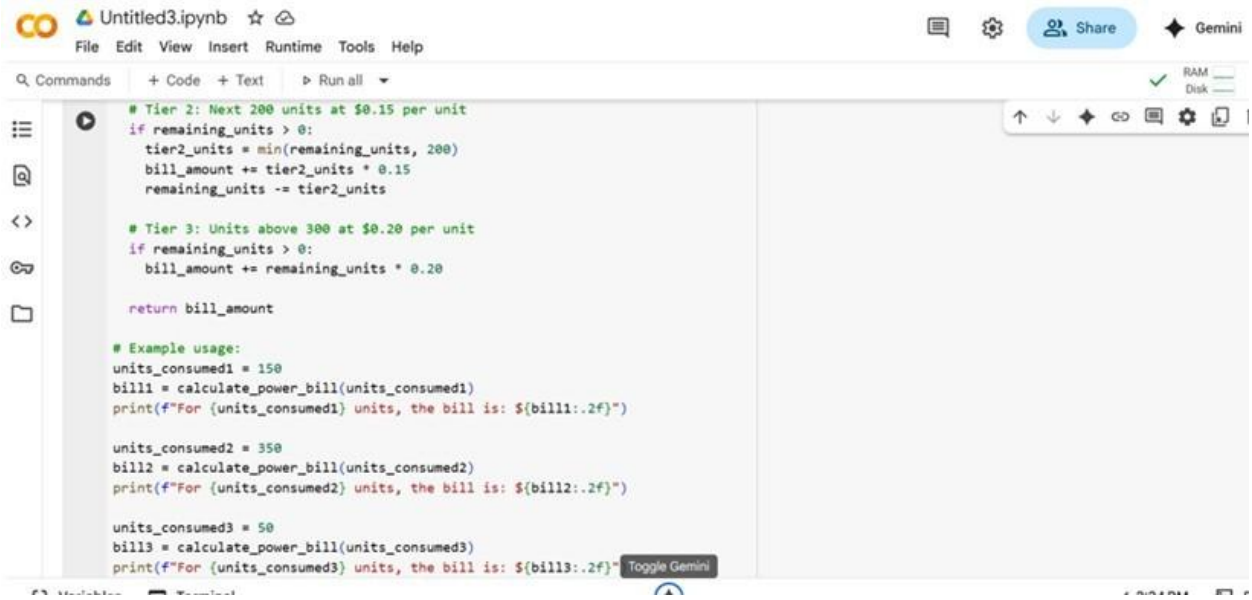
def calculate_power_bill(units):
"""
Calculates the power bill based on units consumed using a tiered pricing structure.
Args:
units: The number of units of electricity consumed (non-negative).
Returns:
The calculated power bill amount, or an error message if input is invalid.
"""
if units < 0:
return "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
Toggle Gemini



Output:

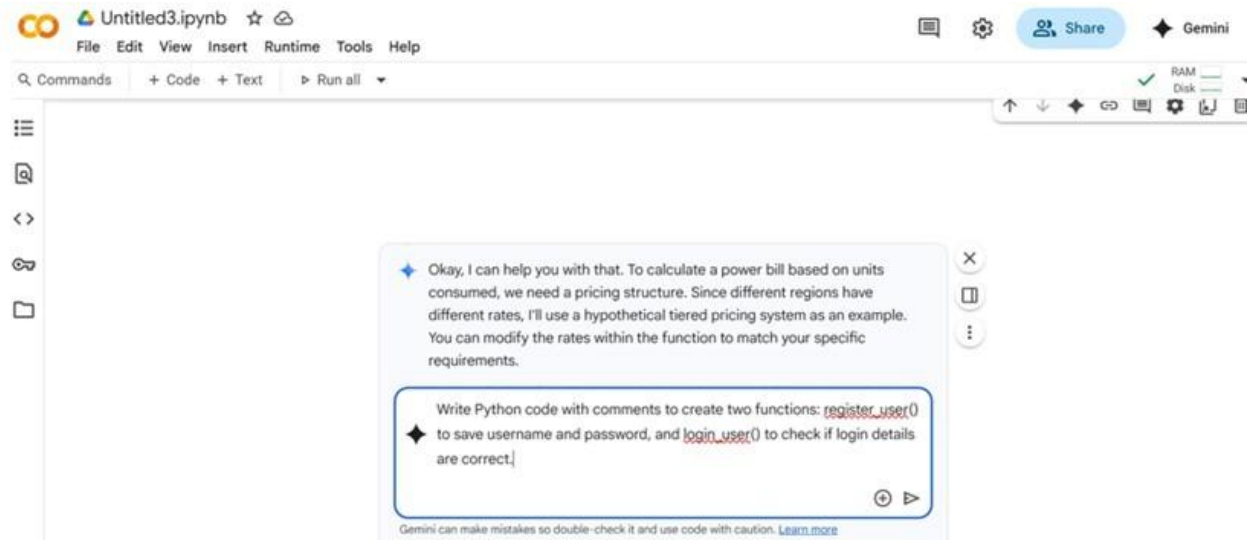
Task Description-4:

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

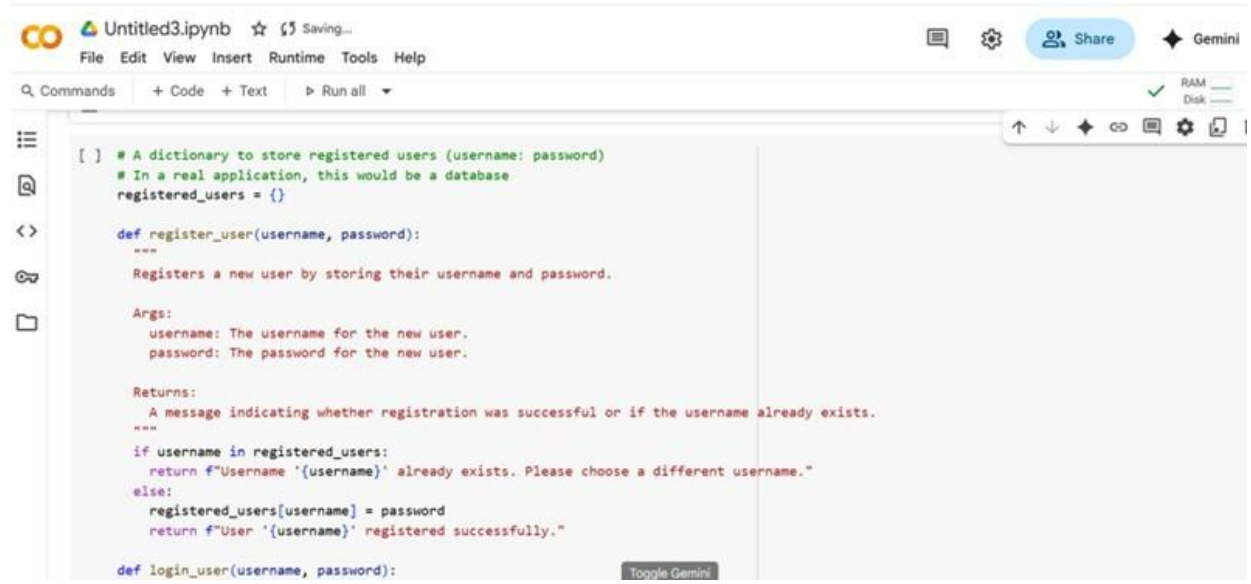
Prompt-4:

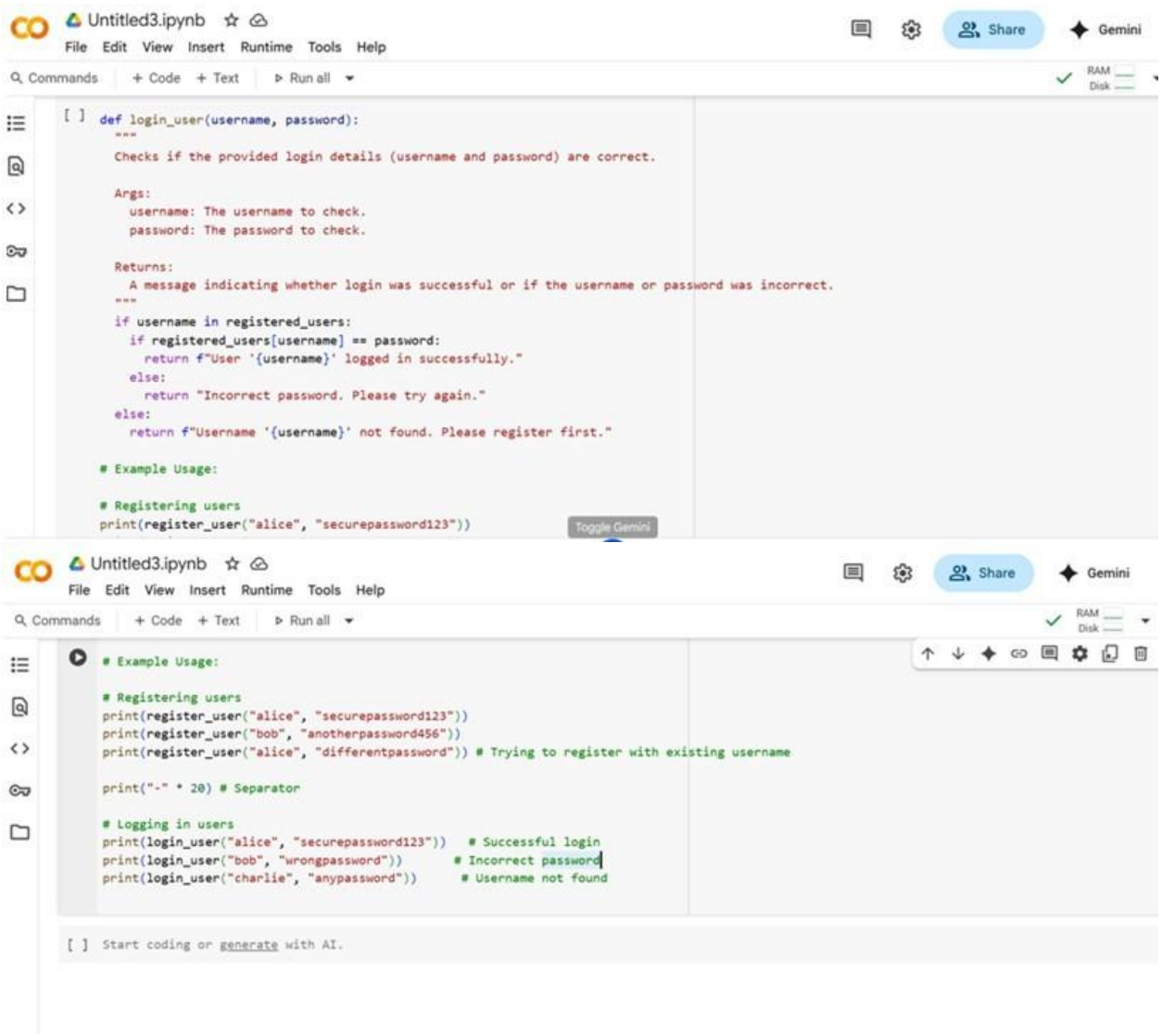
Write Python code with comments to create two functions :register user() to save username and password ,and login_user() to check if login details are correct.

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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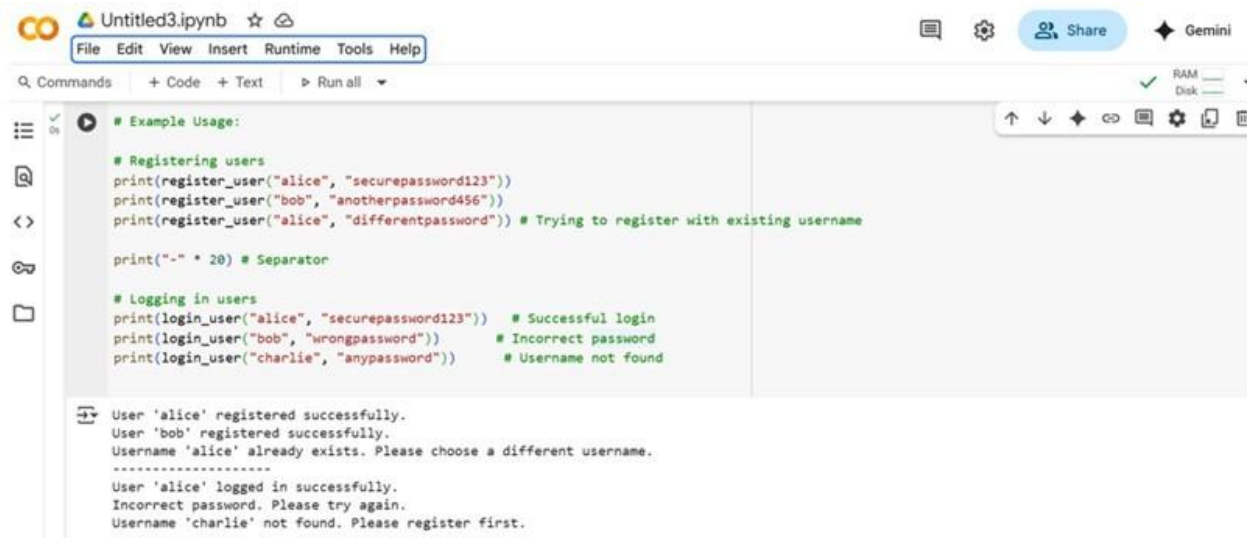
# Example Usage:
# Registering users
print(register_user("alice", "securepassword123"))
print(register_user("bob", "anotherpassword456"))
print(register_user("alice", "differentpassword")) # Trying to register with existing username
print("-" * 20) # Separator
Logging in users
print(login_user("alice", "securepassword123")) # Successful login
print(login_user("bob", "wrongpassword")) # Incorrect password
print(login_user("charlie", "anypassword")) # Username not found
[ ] Start coding or generate with AI.

Output:



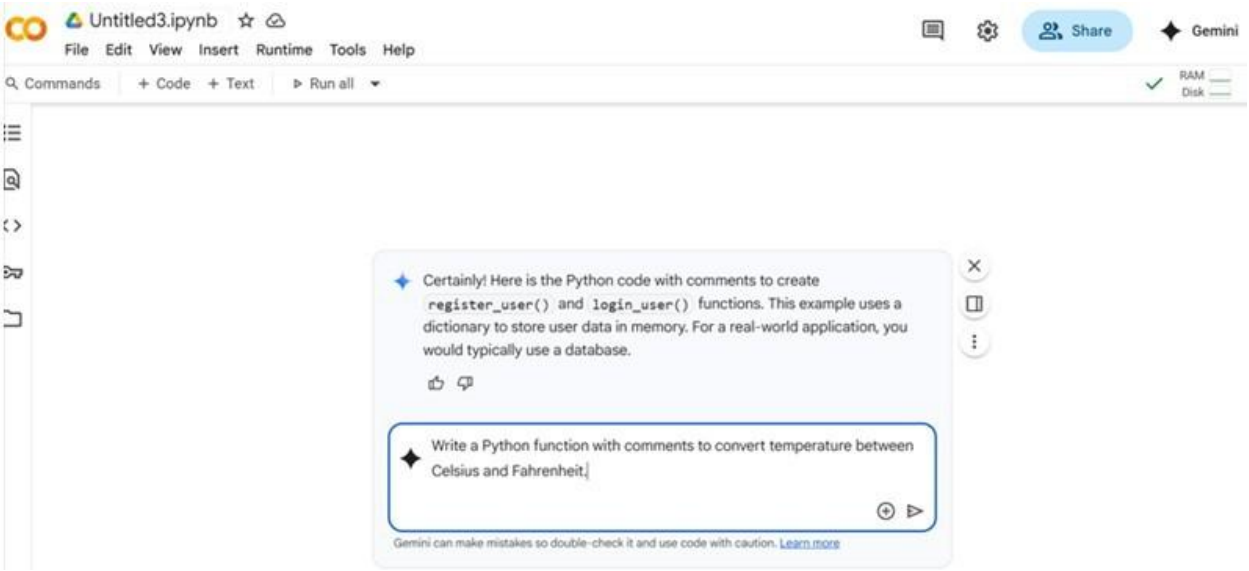
Task Description-5:

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

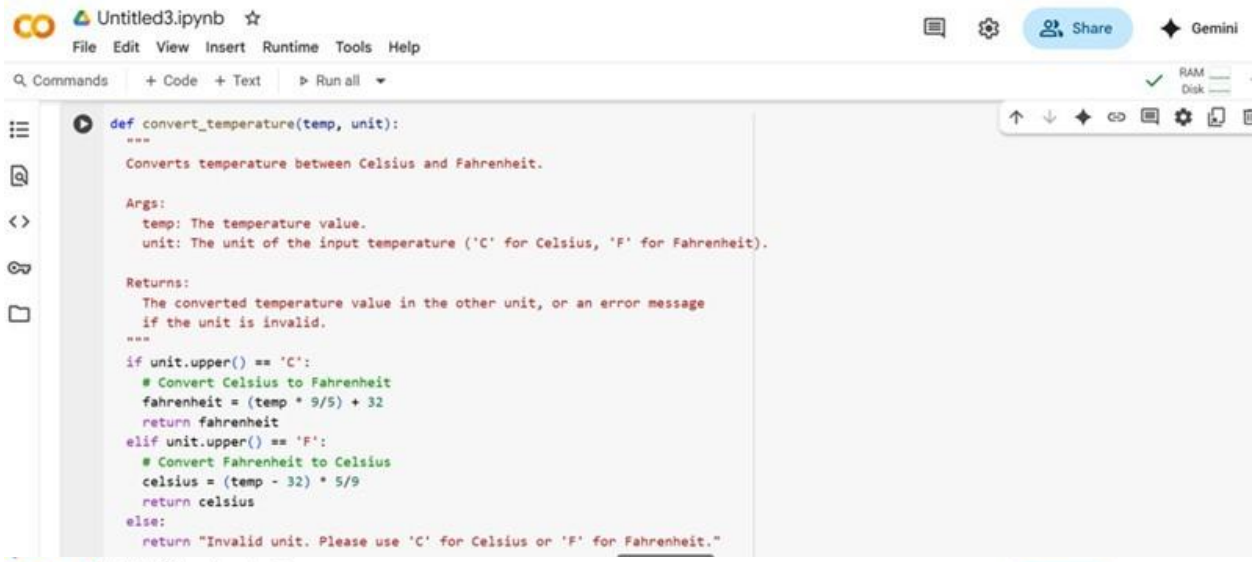
Prompt-5:

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

Question:



Code:



Output:

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