SCHOOL OF COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE		DEPARTMENT OF COMPUTER SCIENCE ENGINEERING	
Program Name: B. Tech		**Assignment Type: Lab**	**Academic Year:**2025-2026
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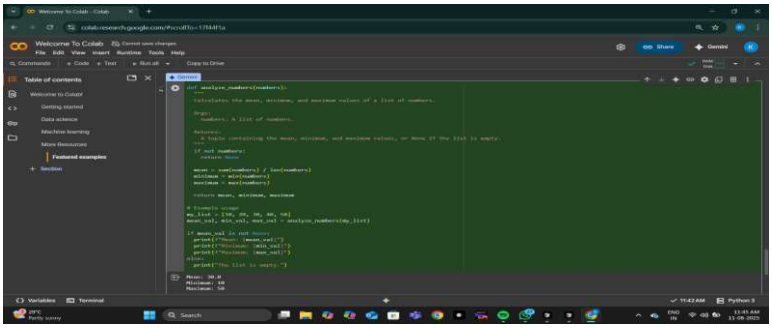
Course Code	24CS002 PC215	**Course Title**	AI Assisted Coding
Year/Sem	II/I	**Regulation**	R24
Date and Day of Assignment	Week1 - Monday	**Time(s)**	
Duration	2 Hours	**Applicable to Batches**	24CSBTB01 To 24CSBTB39
Assignment Number: 2.1(Present assignment number)/**24**(Total number of assignments)			

Q. No.	**Question**	***Expected Time to com***

			plete
1		Lab 2: Exploring Additional AI Coding Tools – Gemini (Colab) and Cursor AI **Lab Objectives:** • To explore and evaluate the functionality of Google Gemini for AI-assisted coding within Google Colab. • To understand and use Cursor AI for code generation, explanation, and refactoring. • To compare outputs and usability between Gemini, GitHub Copilot, and Cursor AI. • To perform code optimization and documentation using AI tools. **Lab Outcomes (LOs):** After completing this lab, students will be able to: • Generate Python code using Google Gemini in Google Colab. • Analyze the effectiveness of code explanations and suggestions by Gemini. • Set up and use Cursor AI for AI-powered coding assistance. • Evaluate and refactor code using Cursor AI features. • Compare AI tool behavior and code quality across different platforms.	Week1 - Monday
		Task Description #1 • Use Google Gemini in Colab to write a Python function that reads a list of numbers and calculates the mean, minimum, and maximum values. Expected Output #1 • Functional code with correct output and screenshot.  Task Description #2 • Compare Gemini and Copilot outputs for a Python function that checks whether a number is an Armstrong number. Document the steps, prompts, and	

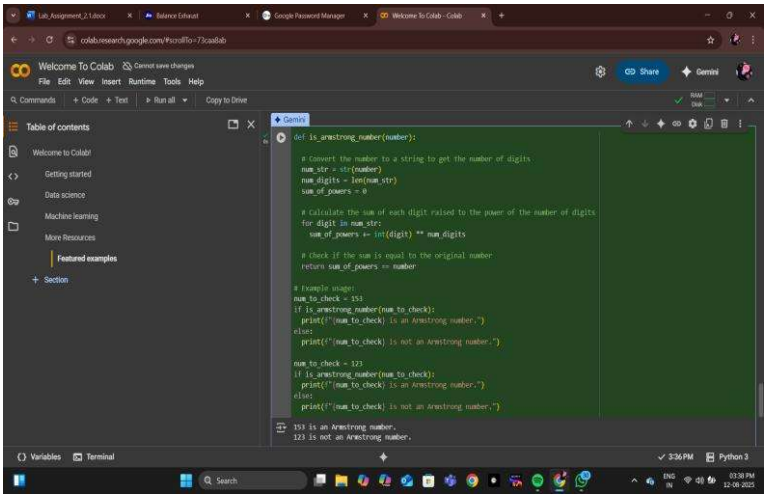
outputs.

Expected Output #2

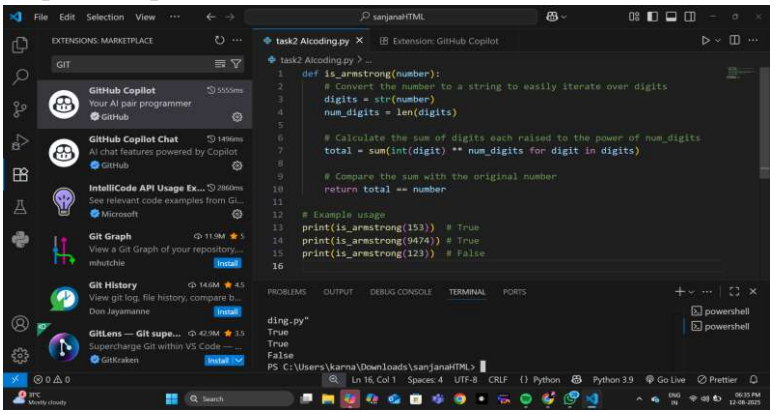
We use the same prompt for both models to ensure fairness:

Prompt: "Python function that checks whether a number is an Armstrong number."

Gemini output:



Copilot output:



Task Description #3

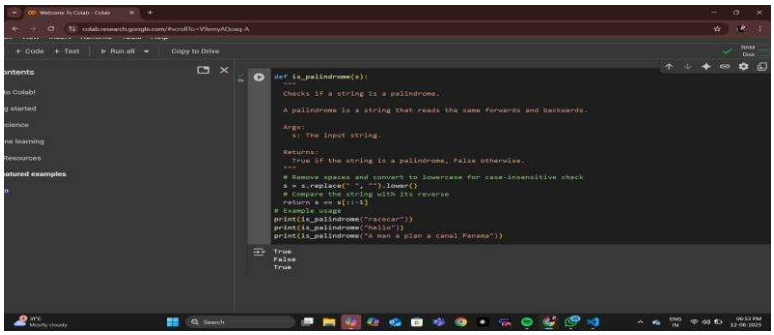
- Ask Gemini to explain a Python function (e.g., is_prime(n) or is_palindrome(s)) line by line.
- Choose either a prime-checking or palindrome-checking function and document the explanation provided by Gemini.

Expected Output #3

- Detailed explanation with the code snippet and

Gemini's response.

GEMINI:



```
def is_palindrome(s):
```

This part defines the function is_palindrome that takes one argument s (the string to check). The triple quotes enclose a docstring, which explains what the function does, its arguments, and what it returns.

```
s = s.replace(" ", "").lower()
```

This line prepares the input string s for the palindrome check.

s.replace(" ", ""): This removes all spaces from the string. This is important so that phrases like "A man a plan a canal Panama" are treated correctly as palindromes.

.lower(): This converts the entire string to lowercase. This ensures that the check is case-insensitive, so "Racecar" is also considered a palindrome.

```
  # Compare the string with its reverse
  return s == s[::-1]
```

This is the core of the palindrome check.

s[::-1]: This is a Python slicing trick that creates a reversed copy of the string s.

s == s[::-1]: This compares the modified string s (with no spaces and in lowercase) with its reversed version. If they are the same, the function returns True, indicating that the original string was a

```
palindrome. Otherwise, it returns False.
# Example usage
print(is_palindrome("racecar"))
print(is_palindrome("hello"))
print(is_palindrome("A man a plan a canal Panama"))
```

These lines show how to use the is_palindrome function and print the results for a few example strings.

Task Description #4

- Install and configure Cursor AI. Use it to generate a Python function (e.g., sum of the first N natural numbers) and test its output.
- Optionally, compare Cursor AI's generated code with Gemini's output.

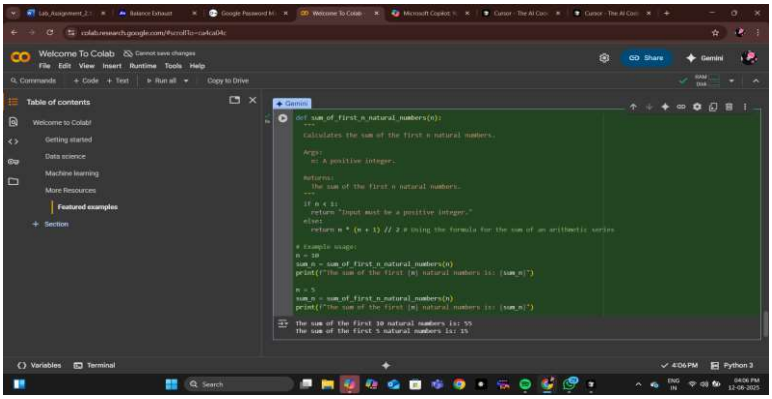
Expected Output #4

- Screenshots of Cursor AI setup, prompts used, and generated code with output.
-

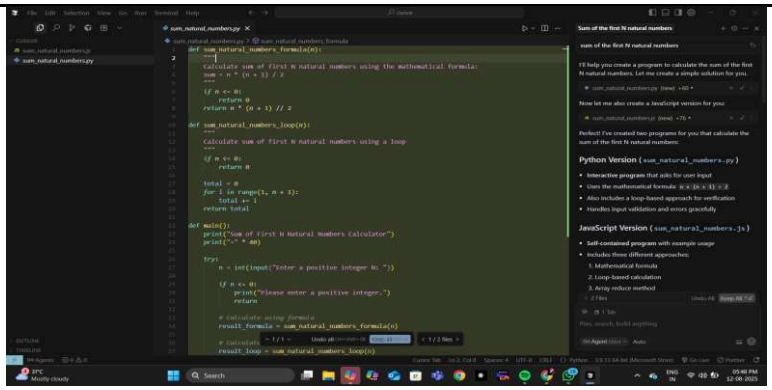
PROMPT USED:

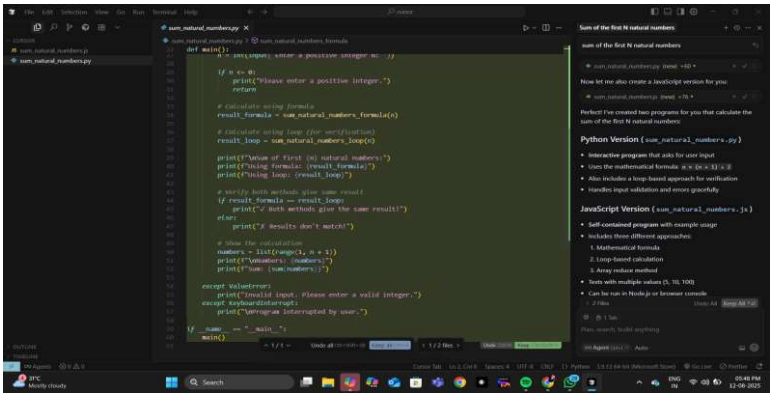
- "Write a Python function that returns the sum of the first N natural numbers."

GEMINI:



CURSOR AI:





Task Description #5

- Students need to write a Python program to calculate the sum of odd numbers and even numbers in a given tuple.
- Refactor the code to improve logic and readability.

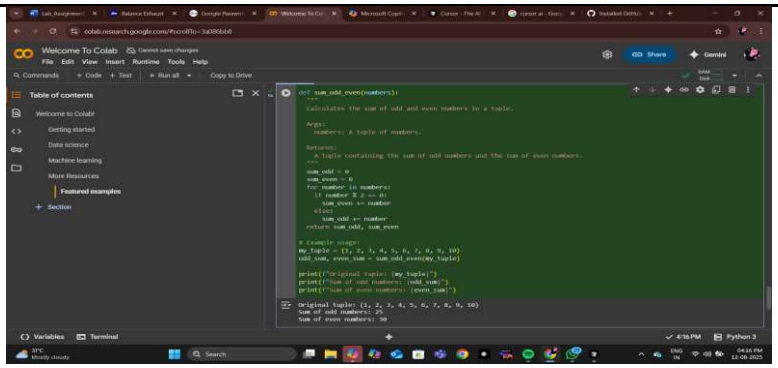
Expected Output #5

- Student-written refactored code with explanations and output screenshots.

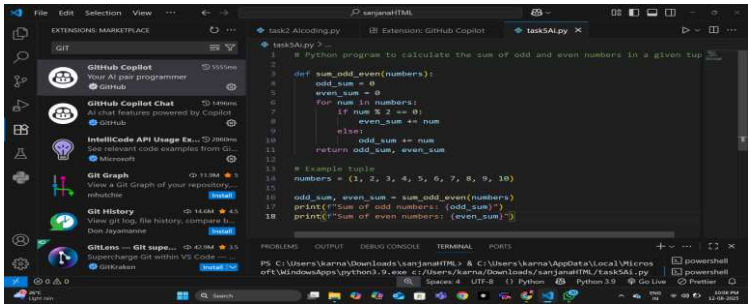
PROMPT:

"Write a Python function that takes a tuple of numbers and returns the sum of even and odd numbers separately. Refactor the code to improve readability and logic."

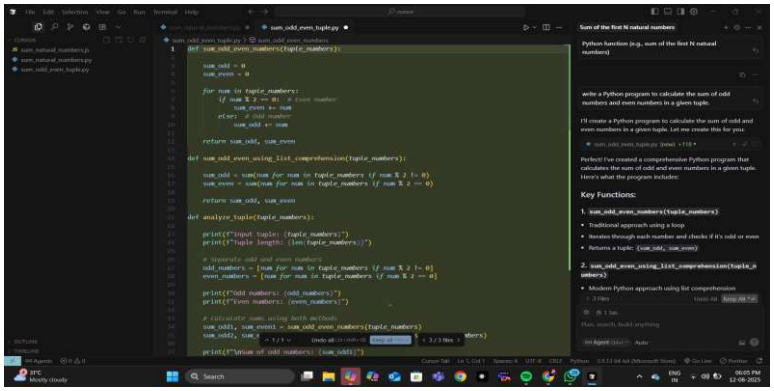
GEMINI:

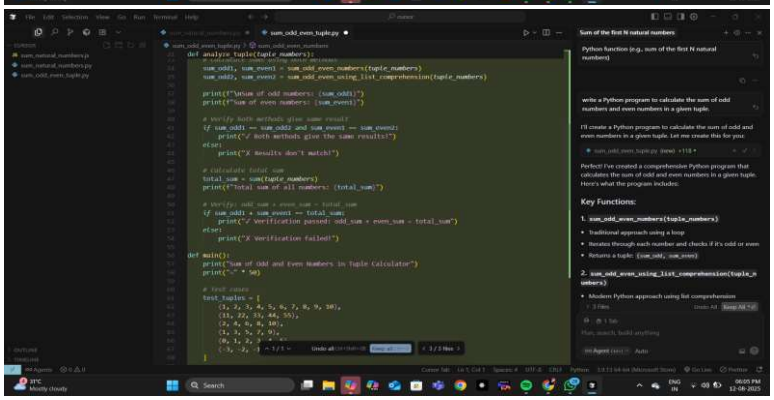


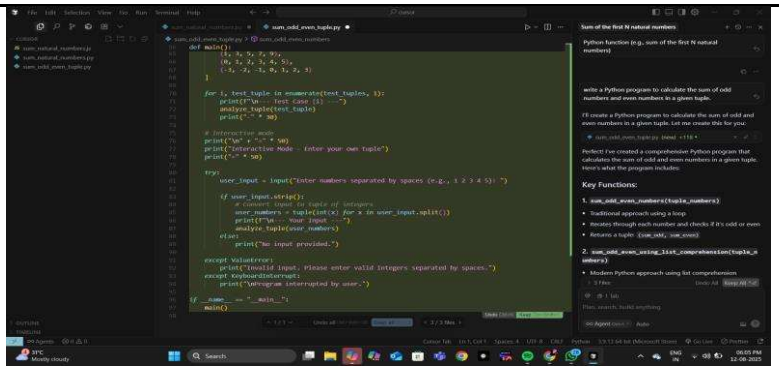
COPILOT:

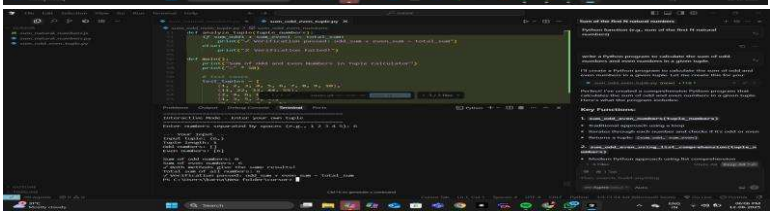


CURSOR AI:









CODE EXPLANATION:

```
numbers = (1, 2, 3, 4, 5, 6, 7, 8, 9, 10)
```

- This line defines a **tuple** named `numbers` that contains integers from 1 to 10.
- Tuples are ordered and immutable collections in Python.

```
even_sum = 0
```

```
odd_sum = 0
```

- These two lines initialize variables to store the **sum of even** and **sum of odd** numbers.
- Both start at 0.

```
for num in numbers:
```

- This line starts a **loop** that goes through each element (`num`) in the `numbers` tuple.

```
if num % 2 == 0:
```

- Checks if the number is **even**.
- `%` is the **modulus operator** — it returns the remainder.
- If `num % 2 == 0`, the number is divisible by 2 → it's even.

```
even_sum += num
```

- If the number is even, it gets **added to** even_sum.

```
else:
```

- If the number is **not even**, it must be **odd**.

```
odd_sum += num
```

- Adds the odd number to odd_sum.

```
print("Sum of even numbers:", even_sum)

print("Sum of odd numbers:", odd_sum)
```

- These lines **print the final results** after the loop finishes.
- You'll see the total sum of even and odd numbers separately.

Note:

- Students must submit a single Word document including:
  - Prompts used for AI tools
  - Copilot/Gemini/Cursor outputs
  - Code explanations
  - Screenshots of outputs and environments

Evaluation Criteria:

Criteria	Max Marks
Successful Use of Gemini in Colab (Task#1 & #2)	1.0
Code Explanation Accuracy (Gemini) (Task#3)	0.5
Cursor AI Setup and Usage (Task#4)	0.5
Refactoring and Improvement Analysis (Task#5)	0.5
Total	**2.5 Marks**