Tab 1

## **ChatGPT in Code Generation and Debugging**

## 

## **Lab-5**

## **Objective**

Explore how ChatGPT can assist with generating and debugging code in languages like Python, C++, and Java.

## **Activities & Prompt Examples**

### **1. Generate Code from Prompts**

* **Prompt:** “Write a Python function that returns the factorial of a given number.”
* **Expected output:** Python code implementing factorial using recursion or iteration.

### **2. Debug a Given Code Snippet**

* **Prompt:** “Here is a Python code snippet that should calculate the sum of numbers from 1 to n but has an error. Find and fix the bug.”

def sum\_to\_n(n):

total = 0

for i in range(n):

total += i

return total

## **Output Comparison Template**

| **Task** | **Input Prompt** | **ChatGPT Output** | **Expected Output** | **Notes** |
| --- | --- | --- | --- | --- |
| Code Generation | Factorial function in Python | [ChatGPT factorial code] | [Expected factorial code] | Check correctness, style |
| Debugging | Sum to n code snippet | [ChatGPT fixed code snippet] | Loop corrected to include last number | Identify bug and fix |

def factorial(n):

if n == 0 or n == 1:

return 1

else:

return n \* factorial(n-1)

## **Example: Debugging**

**Prompt:** Fix the bug in the following code that sums numbers from 1 to n:

def sum\_to\_n(n):

total = 0

for i in range(n):

total += i

return total

Output:

def sum\_to\_n(n):

total = 0

for i in range(1, n+1):

total += i

return total