

**School of Computer Science and Artificial Intelligence****Lab Assignment # 10.2**

Program : B. Tech (CSE)  
Specialization : -  
Course Title : AI Assisted Coding  
Course Code : 23CS002PC304  
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**Task -01(Error Detection and Correction)****Code used:**

```
def calculate_total(nums)
    sum = 0
    for n in nums
        sum += n
    return total

...
File "/tmp/ipython-input-1993060875.py", line 1
    def calculate_total(nums)
                           ^
SyntaxError: expected ':'
```

A screenshot of a Jupyter Notebook cell. The code defines a function 'calculate\_total' that sums up a list of numbers. There are several errors: a missing colon after the function definition, a missing colon after the 'for' loop, and a misspelling of 'total' as 'total'. A syntax error message is displayed at the bottom of the cell.

**Prompt:** Correct the code and give brief explanations of the identified syntax and logic errors.

**Output:**

```
def calculate_total(nums):
    total_sum = 0
    for n in nums:
        total_sum += n
    return total_sum
```

A screenshot of a Jupyter Notebook cell showing the corrected code. The errors from the previous screenshot have been fixed: a colon was added after the function definition, another was added after the 'for' loop, and 'total' was renamed to 'total\_sum'. The code now runs successfully.**Explanation:**

- 1) Missing colons: Python requires a colon : at the end of def (function definition) and for (loop definition) statements.
- 2) Variable shadowing: I renamed the sum variable to total\_sum to avoid overwriting Python's built-in sum() function, which can lead to unexpected behavior.
- 3) Undefined variable: The function was trying to return total, but the variable was named sum (or total\_sum after the fix). I've corrected it to return total\_sum.

## Task-02(Code Style Standardization)

**Code Used:**

```
▶ def findSum(a,b):return a+b
  print(findSum(5,10))
...
... 15
```

**Prompt:** convert the code to follow standard style conventions.

**Output:**

```
▶ def find_sum(a, b):
    return a + b

print(find_sum(5, 10))
...
... 15
```

## Task-03(Code Clarity Improvement)

**Code used:**

```
▶ def f(x,y):
    return x-y*2
  print(f(10,3))

...
File "/tmp/ipython-input-2982719317.py", line 2
    return x-y*2
      ^
IndentationError: expected an indented block after function definition on line 1
```

**Prompt:** rewrite the code with meaningful function and variable names, proper indentation, and improved clarity.

**Output:**

```
▶ def calculate_value(first_number, second_number):
    """Calculates the first number minus two times the second number."""
    result = first_number - (second_number * 2)
    return result

# Example usage with meaningful variable names for the call
input_a = 10
input_b = 3
output = calculate_value(input_a, input_b)
print(output)
...
... 4
```

## Task-04(Structural Refactoring)

**Code used:**

```
▶ print("Hello Ram")
  print("Hello Sita")
  print("Hello Ravi")

... Hello Ram
Hello Sita
Hello Ravi
```

**Prompt:** make the code modular using reusable functions to eliminate repetition.

**Output:**

```
▶ Gemini
▶ def greet_person(name):
    print(f"Hello {name}")

greet_person("Ram")
greet_person("Sita")
greet_person("Ravi")

... Hello Ram
Hello Sita
Hello Ravi
```

## Task-05(Efficiency Enhancement)

**Code used:**

```
▶ numbers = []
  for i in range(1, 500000):
    numbers.append(i * i)
  print(len(numbers))

... 499999
```

**Prompt:** Optimize the code to achieve the same result with improved performance.

**Output:**

```
▶ Gemini
▶ numbers = [i * i for i in range(1, 500000)]
  print(len(numbers))

... 499999
```