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Batch 13

Lab 1

Task 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.

Program:

def calculate\_stats(numbers):

mean sum(numbers) / len(numbers) minimum = min(numbers) maximum = max(numbers) return mean, minimum, maximum

# Example usage:

numbers = [10, 20, 30, 40, 50] mean, minimum, maximum = calculate\_stats(numbers) print(f"Mean: {mean}, Min: {minimum}, Max: {maximum}" )

OUTPUT:

List: [10, 20, 30, 40, 50]

Mean: 30.0

Minimum: 10

Maximum: 50

The list is empty,

write a Python program to calculate the sum of odd numbers and even numbers in a given tuple.

Program:

def (numbers) : odd sum = e even sum = for num in numbers:

if num % 2 even sum num else:

odd sum += num return odd sum, even sum

# Example usage: numbers — odd sum, even sum = sum odd\_even (numbers) print (f" Sum of odd numbers: {odd\_sum}" ) print (f" Sum of even numbers: {even sum)" )

OUTPUT:

Output:

Sum of odd numbers: 5 Sum of even numbers: e

Use it to generate a Python function (e.g., sum of the first N natural numbers) and test its output.

Program:

def sum of natural\_numbers (n) : if n < 0:

return "Input must be a non-negative integer." else:

return

N = 10 sum of natural numbers(N) print(f''The sum of the first {N} natural numbers is: 

|  |  |
| --- | --- |
| print(fi'The sum of the first {N} natural numbers is:  sum of natural numbers(N) | {sum\_n}") |

sum nsum of natural numbers(N)



|  |  |
| --- | --- |
| print(f''The sum of the first {N} natural numbers is:  sum n = sum of natural\_numbers(N) | {sum\_n}") |
| print(f"The sum of the first {N) natural numbers is: | {sum\_n)") |

OUTPUT :

The sum of the first 10 natural numbers is: 55

The sum Of the first e natural numbers is: 0

The sum of the first 5 natural numbers is: 15

The sum of the first -5 natural numbers is: Input must be a non-negative integer.

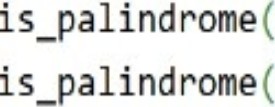
Ask Gemini to explain a Python function (e.g., is\_prime(n) or is\_palindrome(s)) line by line. Choose either a prime-checking or palindromechecking function and document the explanation provided by Gemini.

Program:

def is\_palindrome(s):

s = s. lower() # Convert the string to lowercase for case-insensitive con . join(c for c in s if c.isalnum()) # Remove non-alphanumeric charé return s st -1] # Check if the string is equal to its reverse

# Example usage:

print "Madam" ) ) # Output: True print " Hello" ) ) # Output: False print(is\_pa1indrome("A man, a plan, a canal: Panama")) # Output: True

OUTPUT:

True

False

True

