AI ASSISTED CODING LAB

ASSIGNMENT-8.2

ENROLLMENT NO:2503A51L46 BATCH NO: 20

NAME: M. SRAVAN KUMAR

TASK DESCRIPTION 1: Use AI to generate test cases for a function is prime(n) and then implement the function.

# Requirements:

* Only integers > 1 can be prime.
* Check edge cases: 0, 1, 2, negative numbers, and large primes

PROMPT 1: Begin by writing a Python function named is prime(n) that determines whether a given integer is a prime number. Use AI to generate diverse test cases for this function, including edge cases such as 0, 1, 2,

negative numbers, and large prime numbers. Ensure that only integers greater than 1 are considered prime. After generating the test cases,

implement the is prime(n) function and validate it using the generated test cases.

CODE GENERATED:

A screenshot of a computer

AI-generated content may be incorrect.

OUTPUT:

A screenshot of a computer code

AI-generated content may be incorrect.

OBSERVATION: The task focuses on using AI to automatically

generate meaningful test cases for the is prime(n) function, ensuring that both typical and edge scenarios are covered. Test cases include inputs like 0, 1, negative numbers, small primes such as 2 and 3, as well as large

prime numbers. This helps in validating the correctness and robustness of the implementation. The function is prime(n) was then developed to

correctly identify prime numbers by ensuring that only integers greater than 1 are considered and by applying logical checks for divisibility.

Running the AI-generated test cases confirmed that the function works as expected for normal inputs and edge cases.

TASK DESCRIPTION 2: Ask AI to generate test cases for celsius\_to\_fahrenheit(c) and fahrenheit\_to\_celsius(f).

# Requirements:

* Validate known pairs: 0°C = 32°F, 100°C = 212°F.
* Include decimals and invalid inputs like strings or None

PROMPT 1: Write two Python functions: celsius\_to\_fahrenheit(c) and fahrenheit\_to\_celsius(f) for temperature conversion. Ask AI to generate diverse test cases to validate these functions. The test cases should

include known conversion pairs such as 0°C = 32°F and 100°C = 212°F,

decimal values to test precision, and invalid inputs like strings or None to check error handling. After generating the test cases, implement both functions and verify their correctness against the test cases.

CODE GENERATED:

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AI-generated content may be incorrect.

OUTPUT:

A computer code with a dotted line

AI-generated content may be incorrect.

OBSERVAION: In this task, AI was used to generate a wide range of test cases to validate the correctness of the two temperature conversion functions celsius\_to\_fahrenheit(c) and fahrenheit\_to\_celsius(f). The

generated cases included standard known values such as 0°C = 32°F and 100°C = 212°F, which helped confirm the accuracy of the conversion

formulas. Decimal values were also tested to ensure precision in fractional conversions. Additionally, invalid inputs such as strings and None were included to verify the robustness and error-handling capability of the functions. The implementation successfully passed the valid test cases while appropriately handling invalid inputs, demonstrating correctness, precision, and reliability.

TASK DESCRIPTION 3: Use AI to write test cases for a function count\_words(text) that returns the number of words in a sentence.

# Requirement:

Handle normal text, multiple spaces, punctuation, and empty strings

PROMPT 1:

Write a Python function count\_words(text) that returns the number of words in a given sentence. Use AI to generate diverse test cases for this function. The test cases should cover normal sentences, inputs with multiple spaces, punctuation marks, and empty strings. After generating the test cases, implement the count\_words(text) function and validate it using the generated cases."

CODE GENERATED:

A screenshot of a computer program

AI-generated content may be incorrect.

OUTPUT:

A black and white dotted line

AI-generated content may be incorrect.

OBSERVATION:

In this task, AI was utilized to generate comprehensive test cases for the count\_words(text) function, which calculates the number of words in a given sentence. The test cases included normal sentences, inputs with multiple spaces, text containing punctuation, and empty strings. These variations ensured that the function was tested for both common and

edge scenarios. The implementation of the function successfully handled all cases, correctly counting words despite irregular spacing or

punctuation, and returning zero for empty strings. This demonstrates that the function is reliable, accurate, and robust across different input

formats

TASK DESCRIPTION 4: Generate test cases for a Bank Account class with:

# Methods:

deposit(amount) withdraw(amount)

check\_balance ()

# Requirements:

* Negative deposits/withdrawals should raise an error.
* Cannot withdraw more than balance.

PROMPT 1: Write a Python class Bank Account with methods

deposit(amount), withdraw(amount), and check\_balance (). Use AI to generate diverse test cases for this class. The test cases should include valid deposits and withdrawals, as well as invalid scenarios such as

negative deposits, negative withdrawals, and attempts to withdraw more than the available balance. After generating the test cases, implement the Bank Account class and validate its behavior against the test cases."

CODE GENERATED:

A screenshot of a computer program

AI-generated content may be incorrect.

OUTPUT:

A close-up of a line

AI-generated content may be incorrect.

OBSERVATION: In this task, AI was used to generate a variety of test cases to validate the functionality of the Bank Account class, which

implements the methods deposit(amount), withdraw(amount), and check balance (). The test cases covered both valid and invalid scenarios. Valid cases included normal deposits, withdrawals, and balance checks, while invalid cases tested negative deposits, negative withdrawals, and attempts to withdraw more than the available balance. The implementation successfully handled all valid transactions and raised appropriate errors

for invalid operations. This confirmed that the class design is robust, ensures data integrity, and enforces the defined banking rules.

TASK DESCRIPTION 5: Generate test cases for is\_number\_palindrome(num), which checks if an integer reads the same backward.

# Examples:

121 → True

123 → False

0, negative numbers → handled gracefully

PROMPT 1: Write a Python function is\_number\_palindrome(num) that checks whether an integer reads the same backward. Use AI to generate diverse test cases for this function. The test cases should include

palindromic numbers (e.g., 121), non-palindromic numbers (e.g., 123), zero, and negative numbers, ensuring they are handled gracefully. After generating the test cases, implement the function and validate it against them.

CODE GENERATED:

A screenshot of a computer program

AI-generated content may be incorrect.

OUTPUT:

A close-up of a line

AI-generated content may be incorrect.

OBSERVATION: In this task, AI was employed to generate test cases for the function is\_number\_palindrome(num), which checks if an integer reads the same backward. The generated test cases included palindromic numbers such as 121 and 1331, non-palindromic numbers like 123 and 456, as well as special cases like 0 and negative numbers. These test cases ensured comprehensive validation of the function across normal and edge scenarios. The implementation successfully identified palindromes,

rejected non-palindromes, and handled zero and negative numbers

gracefully. This confirmed the correctness, robustness, and reliability of the function.