AI ASSISTED CODING LAB 13.2

Lab 13: Code Refactoring: Improving Legacy Code with AI Suggestions.

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BATCH: 01

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**Task Description 1** – Remove Repetition  
**Task:** Provide AI with the following redundant code and ask it to refactor.

**CODE:** def calculate\_area(shape, x, y=0):  
if shape == "rectangle":  
return x \* y  
elif shape == "square":  
return x \* x  
elif shape == "circle":  
return 3.14 \* x \* x

**Used Prompt:**

Refactor the given code, convert into separate functions and make it modular and cleaner. Take input from user.

A computer screen shot of a program

AI-generated content may be incorrect.

**Task Description 2** – Error Handling in Legacy Code  
**Task:** Legacy function without proper error handling

**CODE:** def read\_file(filename):  
f = open(filename, "r")  
data = f.read()

f.close()  
return data

**Used Prompt:**

refactor the code with with open() and try-except.

A screenshot of a computer program

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**Task Description 3** – Complex Refactoring  
**Task:** Provide this legacy class to AI for readability and modularity improvements:

**CODE:** class Student:  
def \_\_init\_\_(self, n, a, m1, m2, m3):  
self.n = n  
self.a = a  
self.m1 = m1  
self.m2 = m2  
self.m3 = m3  
def details(self):  
print("Name:", self.n, "Age:", self.a)  
def total(self):  
return self.m1+self.m2+self.m3

**Used Prompt:**

in the given code make more readability and cleaner by givingnames such as(name, age,marks), add docstrings, improve print readability and use sum(self.marks) if marks are stored in a list and take input from the user

A screenshot of a computer program

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A screen shot of a computer program

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**Task Description #4** – Inefficient Loop Refactoring  
**Task:** Refactor this inefficient loop with AI help

**CODE:**  
nums = [1,2,3,4,5,6,7,8,9,10]  
squares = []  
for i in nums:  
squares.append(i \* i)

**Used Prompt:** refactor this inefficient loop.

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AI-generated content may be incorrect.