AI ASSISTED CODING

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BATCH NUMBER :13

Lab assignment-13.4

Task 1

- **Task:** Refactor repeated loops into a cleaner, more Pythonic approach.

Instructions:

- Analyze the legacy code.
- Identify the part that uses loops to compute values.
- Refactor using **list comprehensions** or helper functions while keeping the output the same.
  Legacy Code:

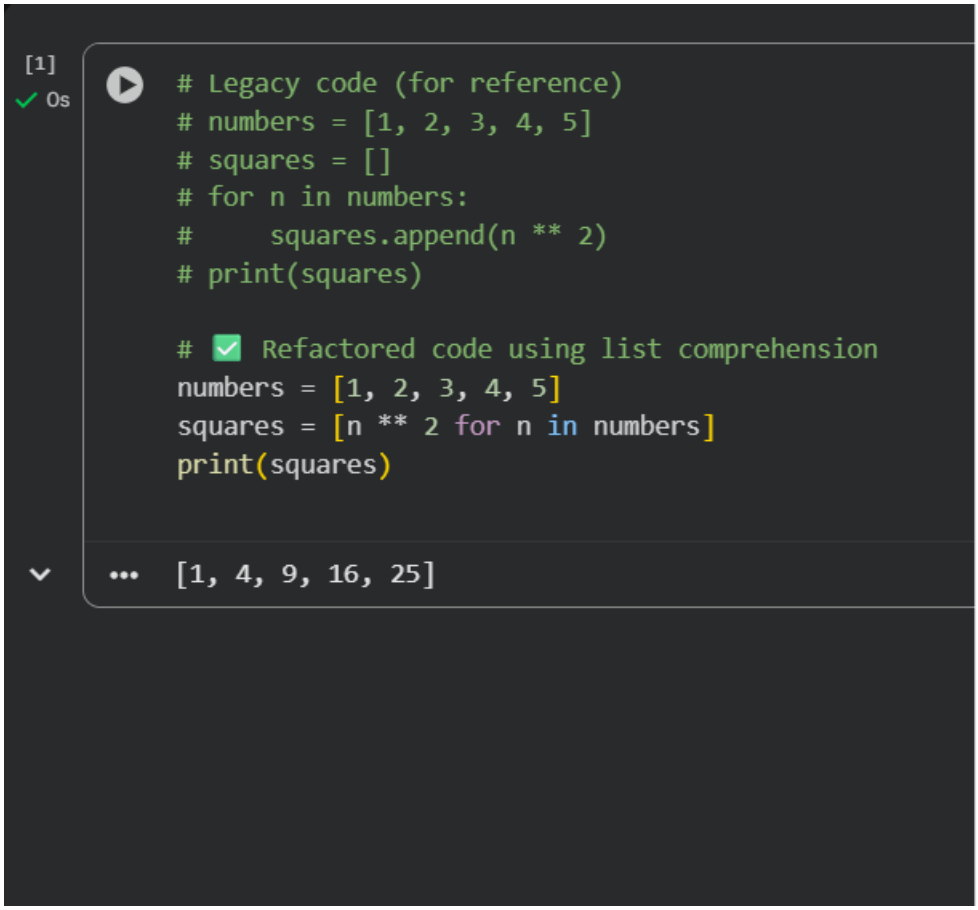
```
numbers = [1, 2, 3, 4, 5]

squares = []

for n in numbers:

   squares.append(n ** 2)

print(squares)
```



Task 2

Task: Simplify string concatenation.

Instructions:

- Review the loop that builds a sentence using +=.
- Refactor using " ".join() to improve efficiency and readability.
  Legacy Code:

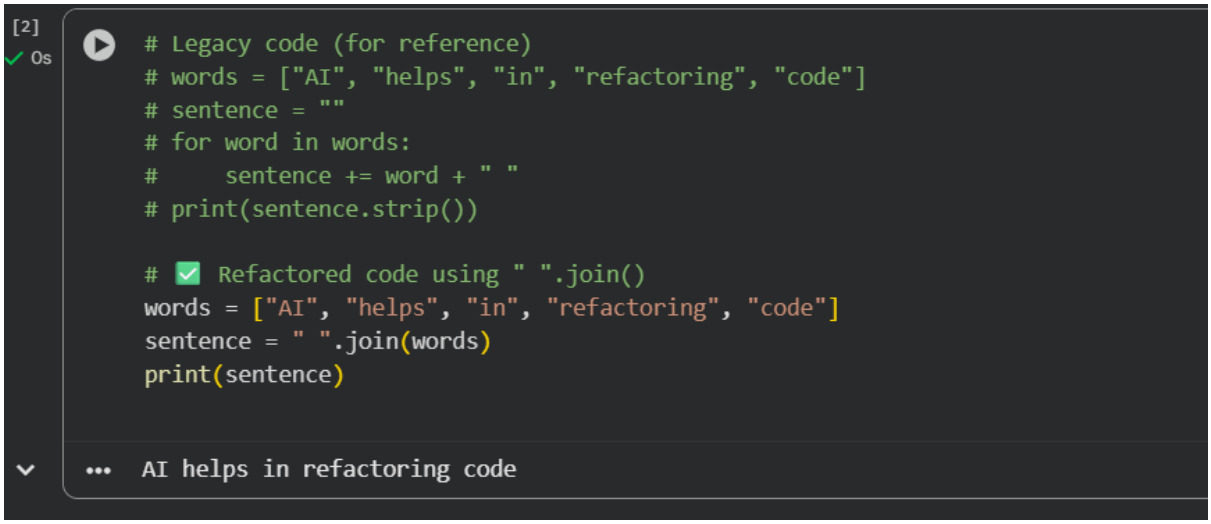
```
words = ["AI", "helps", "in", "refactoring", "code"]

sentence = ""

for word in words:

    sentence += word + " "

print(sentence.strip())
```



Task 3

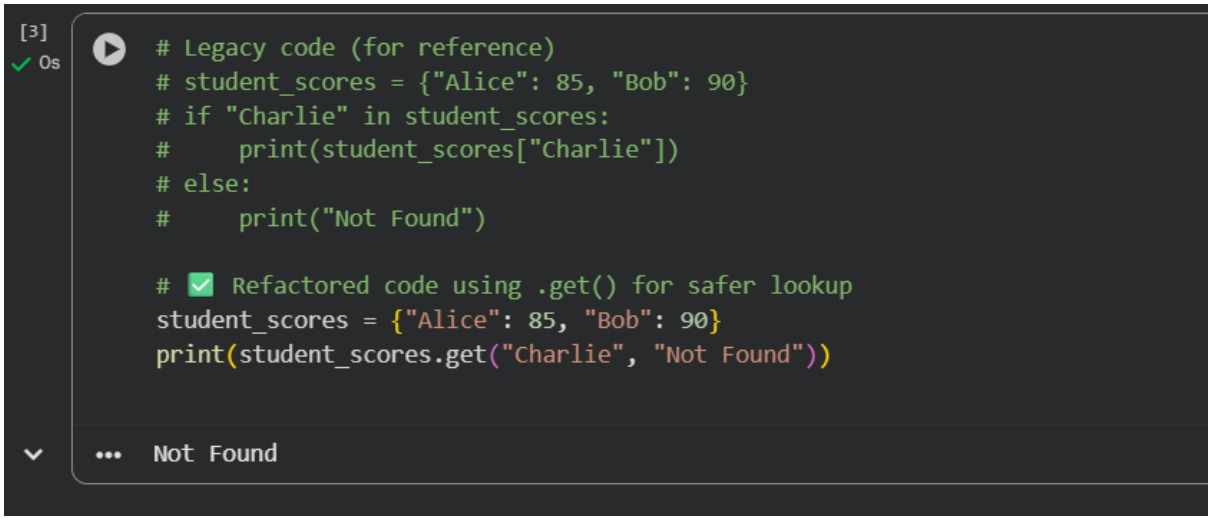
Task: Replace manual dictionary lookup with a safer method.

Instructions:

- Check how the code accesses dictionary keys.
- Use .get() or another Pythonic approach to handle missing keys gracefully.

  Legacy Code:

```
student_scores = {"Alice": 85, "Bob": 90}
if "Charlie" in student_scores:
    print(student_scores["Charlie"])
else:
    print("Not Found")
```



Task 4

Task: Refactor repetitive if-else blocks.

Instructions:

- Examine multiple if-elif statements for operations.
- Refactor using **dictionary mapping** to make the code scalable and clean.

  Legacy Code:

```
operation = "multiply"

a, b = 5, 3


if operation == "add":
    result = a + b
elif operation == "subtract":
    result = a - b
elif operation == "multiply":
    result = a * b
else:
```

result = None

print(result)

Task 5

Task: Optimize nested loops for searching.

Instructions:

- Identify the nested loop used to find an element.
- Refactor using Python's in keyword or other efficient search techniques.

  Legacy Code:

items = [10, 20, 30, 40, 50]

found = False

for i in items:

```
    if i == 30:
        found = True
        break
print("Found" if found else "Not Found")
```