

AI ASSISTED LAB EXAM-1

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Batch-11

QUESTION 1:

Write a Python code to calculate the sum of odd and even numbers in a given list using GitHub Copilot along with VS Code. Use zero shot prompting.

GITHUB COPILOT CODE:

22 lines · 697 bytes

```
1  def sum_odd_even(numbers):
2      if not isinstance(numbers, list):
3          raise TypeError("Input must be a list of integers")
4      sum_odd = 0
5      sum_even = 0
6      for num in numbers:
7          if not isinstance(num, int):
8              raise ValueError(f"List element {num} is not an integer")
9          if num % 2 == 0:
10             sum_even += num
11         else:
12             sum_odd += num
13     return sum_odd, sum_even
14
15 if __name__ == "__main__":
16     try:
17         nums = [1, 2, 3, 4, 5, 6]
18         odd_sum, even_sum = sum_odd_even(nums)
19         print(f"Sum of odd numbers: {odd_sum}")
20         print(f"Sum of even numbers: {even_sum}")
21     except (TypeError, ValueError) as e:
22         print(f"Error: {e}")
```

OUTPUT:

```
PS C:\Users\bavir> & "C:/Program Files/Python313/python.exe" c:/Users/bavir/OneDrive/Desktop/Untitled-1.py
Sum of odd numbers: 9
Sum of even numbers: 12
PS C:\Users\bavir> █
```

ZERO-SHOT PROMPT:

Write a function that takes a list of integers and returns the sum of odd numbers and the sum of even numbers.

VSCODE COPILOT:

```
C: > Users > bavir > OneDrive > Desktop > Untitled-1.py > ...
1  def sum_odd_even(numbers):
2      odd_sum = sum(n for n in numbers if n % 2 != 0)
3      even_sum = sum(n for n in numbers if n % 2 == 0)
4      return odd_sum, even_sum
5
6
7  nums = [1, 2, 3, 4, 5]
8  odd, even = sum_odd_even(nums)
9  print(f"Odd sum: {odd}, Even sum: {even}")
```

OUTPUT:

```
PS C:\Users\bavir> & "C:/Program Files/Python313/python.exe" c:/Users/bavir/OneDrive/Desktop/Untitled-1.py
Odd sum: 9, Even sum: 6
PS C:\Users\bavir> █
```

QUESTION 2:

Write a Python code for given a list of integers, remove duplicates and print the sorted result. GitHub Copilot along with VS Code. Use one shot prompting.

GITHUB COPILOT CODE:

```
1  def remove_duplicates_and_sort(numbers):
2      if not isinstance(numbers, list):
3          raise TypeError("Input must be a list of integers")
4      for num in numbers:
5          if not isinstance(num, int):
6              raise ValueError(f"List element {num} is not an integer")
7      unique_sorted = sorted(set(numbers))
8      print(unique_sorted)
9
10 if __name__ == "__main__":
11     try:
12         nums = [4, 2, 7, 2, 3, 4, 1, 7]
13         remove_duplicates_and_sort(nums)
14     except (TypeError, ValueError) as e:
15         print(f"Error: {e}")
```

OUTPUT:

```
PS C:\Users\bavir> & "C:/Program Files/Python313/python.exe" c:/Users/bavir/OneDrive/Desktop/Untitled-2.py
The sorted list without duplicates is: [1, 2, 3, 4, 7]
PS C:\Users\bavir> █
```

One-shot prompt:

Given a list of integers, remove duplicates and print the sorted result.

VSCODE COPILOT:

```
C: > Users > bavir > OneDrive > Desktop > 📁 Untitled-2.py > ...
1  def remove_duplicates_and_sort(numbers):
2      unique_sorted = sorted(set(numbers))
3      print(unique_sorted)
4
5  if __name__ == "__main__":
6      nums = [4, 2, 7, 2, 3, 4, 1, 7]
7      remove_duplicates_and_sort(nums)
```

OUTPUT:

```
PS C:\Users\bavir> & "C:/Program Files/Python313/python.exe" c:/Users/bavir/OneDrive/Desktop/Untitled-2.py
[1, 2, 3, 4, 7]
PS C:\Users\bavir> █
```

QUESTION 3:

Write a Python function that converts the temperature between Celsius, Fahrenheit, and Kelvin based on user choice. Use the Cursor AI tool. Use few shot prompting.

CURSOR CODE:

```
1 # temperature_converter.py > @ temperature_converter
2 def temperature_converter():
3     """
4     Temperature converter function that converts between Celsius, Fahrenheit, and Kelvin
5     Uses few-shot prompting to guide user input and provide examples
6     """
7     print("\n🌡️ Temperature Converter")
8     print("-" * 40)
9
10    # Few-shot examples to guide the user
11    examples = """
12    Examples of valid inputs:
13    - "25 C to F" (25°C to Fahrenheit)
14    - "78.2 F to C" (78.2°F to Celsius)
15    - "300 K to C" (300K to Celsius)
16    - "5 K to F" (5°K to Kelvin)
17    """
18    print(examples)
19
20    while True:
21        try:
22            # Get user input
23            user_input = input("\nEnter temperature conversion (e.g., '25 C to F') or 'quit' to exit: ").strip()
24
25            if user_input.lower() == 'quit':
26                print("Goodbye! 🌟")
27                break
28
29            # Parse the input
30            parts = user_input.split()
31
32            if len(parts) != 4 or parts[2].lower() != 'to':
33                print("❌ Invalid format! Please use: 'value unit to unit'")
34                print("Example: '25 C to F'")
35                continue
36
37            # Extract values
38            try:
39                temperature = float(parts[0])
40            except ValueError:
41                print("❌ Invalid temperature value! Please enter a number.")
42                continue
43
44            from_unit = parts[1].upper()
45            to_unit = parts[3].upper()
46
47            # Validate units
48            valid_units = {'C': '°C', 'F': '°F', 'K': '°K'}
49            if from_unit not in valid_units or to_unit not in valid_units:
50                print("❌ Invalid unit! Use C (Celsius), F (Fahrenheit), or K (Kelvin)")
51                continue
52
53            if from_unit == to_unit:
54                print("✅ (temperature)" + (temperature)"(to_unit) (same unit)")
55                continue
56
57            # Convert to Celsius first (as intermediate step)
58            celsius = None
59            if from_unit == 'C':
60                celsius = temperature
61            elif from_unit == 'F':
62                celsius = (temperature - 32) * 5/9
63            elif from_unit == 'K':
64                celsius = temperature - 273.15
65
66            # Convert from Celsius to target unit
67            result = None
68            if to_unit == 'C':
69                result = celsius
70            elif to_unit == 'F':
71                result = celsius * 9/5 + 32
72            elif to_unit == 'K':
73                result = celsius + 273.15
74
75            # Display result with proper formatting
76            print(f"\n🎯 Conversion Result:")
77            print(f"({temperature})" + (from_unit) + " = ({result:.2f})" + (to_unit))
78
79            # Show the conversion formula used
80            if from_unit == 'F' and to_unit == 'C':
81                print(f"Formula: ((temperature){F} - 32) * 5/9 = (result:.2f)°C")
82            elif from_unit == 'C' and to_unit == 'F':
83                print(f"Formula: (temperature){C} * 9/5 + 32 = (result:.2f)°F")
84            elif from_unit == 'K' and to_unit == 'C':
85                print(f"Formula: (temperature){K} - 273.15 = (result:.2f)°C")
86            elif from_unit == 'C' and to_unit == 'K':
87                print(f"Formula: (temperature){C} + 273.15 = (result:.2f)°K")
88            elif from_unit == 'F' and to_unit == 'K':
89                print(f"Formula: ((temperature){F} - 32) * 5/9 + 273.15 = (result:.2f)°K")
90            elif from_unit == 'K' and to_unit == 'F':
91                print(f"Formula: ((temperature){K} - 273.15) * 9/5 + 32 = (result:.2f)°F")
92
93        except KeyboardInterrupt:
94            print("\n💡 Goodbye! 🌟")
95            break
96        except Exception as e:
97            print(f"❌ An error occurred: {e}")
98            print("Please try again with the correct format.")
99
100    # Quick conversion function for programmatic use
101    def quick_convert(temp, from_unit, to_unit):
102        """
103        Quick conversion function for programmatic use
104
105        Args:
106            temp (float): Temperature value
107            from_unit (str): Source unit ('C', 'F', or 'K')
108            to_unit (str): Target unit ('C', 'F', or 'K')
109
110        Returns:
111            float: Converted temperature
112        """
113        # Convert to Celsius first
114        if from_unit.upper() == 'C':
115            celsius = temp
116        elif from_unit.upper() == 'F':
117            celsius = (temp - 32) * 5/9
118        elif from_unit.upper() == 'K':
119            celsius = temp - 273.15
120        else:
121            raise ValueError("Invalid source unit. Use 'C', 'F', or 'K'")
122
123        # Convert from Celsius to target unit
124        if to_unit.upper() == 'C':
125            return celsius
126        elif to_unit.upper() == 'F':
127            return celsius * 9/5 + 32
128        elif to_unit.upper() == 'K':
129            return celsius + 273.15
130        else:
131            raise ValueError("Invalid target unit. Use 'C', 'F', or 'K'")
```

```

131         raise ValueError("Invalid target unit. Use 'C', 'F', or 'K'")
132
133 if __name__ == "__main__":
134     # Run the interactive converter
135     temperature_converter()
136
137     # Example of using the quick_convert function
138     print("\n" + "="*50)
139     print("Example of programmatic conversion:")
140     print(f"25°C to Fahrenheit: {quick_convert(25, 'C', 'F'):.2f}°F")
141     print(f"98.6°F to Celsius: {quick_convert(98.6, 'F', 'C'):.2f}°C")
142     print(f"300K to Celsius: {quick_convert(300, 'K', 'C'):.2f}°C")
143

```

OUTPUT:

```

PS C:\Users\bavir\OneDrive\Desktop\sru> & "C:/Program Files/Python313/python.exe" c:/Users/bavir/OneDrive/Desktop/sru/temperature_converter.py
🔧 Temperature Converter
=====

Examples of valid inputs:
- "25 C to F" (25°C to Fahrenheit)
- "98.6 F to C" (98.6°F to Celsius)
- "300 K to C" (300K to Celsius)
- "0 C to K" (0°C to Kelvin)

Enter temperature conversion (e.g., '25 C to F') or 'quit' to exit: 55 c to f
✅ Conversion Result:
55.0°C = 131.00°F
Formula: 55.0°C x 9/5 + 32 = 131.00°F

Enter temperature conversion (e.g., '25 C to F') or 'quit' to exit: 

```

QUESTION 4:

Write a Python function to remove punctuation, convert to lowercase, and remove stop words

from a given text. Use the Cursor AI tool. Use zero shot prompting.

CURSOR CODE:

```
text_preprocessing.py > preprocess_text
1 from typing import Iterable, Set, List
2 import re
3
4 def preprocess_text(text: str, stop_words: Iterable[str] | None = None) -> str:
5     """
6     Zero-shot style text preprocessing:
7     - remove punctuation
8     - convert to lowercase
9     - remove stop words
10
11     Args:
12     text: Input text to clean.
13     stop_words: Optional iterable of stop words. If None, a small default set is used.
14
15     Returns:
16     Cleaned text string with tokens joined by a single space.
17     """
18     if stop_words is None:
19         stop_words_set: Set[str] = {
20             "a", "an", "the", "and", "or", "but", "if", "then", "else", "when", "at", "by", "for",
21             "from", "in", "into", "of", "on", "to", "with", "is", "are", "was", "were", "be", "been",
22             "being", "it", "its", "as", "that", "this", "these", "those", "not", "no", "do", "does",
23             "did", "doing", "so", "such", "than", "too", "very"
24         }
25     else:
26         stop_words_set = {w.lower() for w in stop_words}
27
28     # Lowercase
29     lowered: str = text.lower()
30
31     # Remove punctuation (keep letters, digits, whitespace). Handles Unicode punctuation broadly.
32     no_punct: str = re.sub(r"[^\w\s]", " ", lowered, flags=re.UNICODE)
33
34     # Tokenize on whitespace
35     tokens: List[str] = [t for t in no_punct.split() if t]
36
37     # Filter stop words
38     filtered_tokens: List[str] = [t for t in tokens if t not in stop_words_set]
39
40     # Return as single string
41     return " ".join(filtered_tokens)
42
43
44 if __name__ == "__main__":
45     sample = "Hello, World! This is a sample: Text-processing, with punctuation & STOP words."
46     print("Input: ", sample)
47     print("Output:", preprocess_text(sample))
48
```

OUTPUT:

```
PS C:\Users\bavir\OneDrive\Desktop\sru> & "C:/Program Files/Python313/python.exe" c:/Users/bavir/OneDrive/Desktop/sru/text_preprocessing.py
Input: Hello, World! This is a sample: Text-processing, with punctuation & STOP words.
Output: hello world sample text processing punctuation stop words
PS C:\Users\bavir\OneDrive\Desktop\sru>
```

