

# AI ASSISTED LAB EXAM-1

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## 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 func on 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 prompt ng.

## 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:

```

10 temperature_converter.py > Q temperature_converter
11
12 def temperature_converter():
13     """
14     Temperature converter function that converts between Celsius, Fahrenheit, and Kelvin
15     Uses few-shot prompting to guide user input and provide examples
16     """
17     print("\n🌡️ Temperature Converter 🌡️")
18     print("-" * 40)
19
20     # Few-shot examples to guide the user
21     examples = """
22     Examples of valid inputs:
23     - '25 C to F' (25°C to Fahrenheit)
24     - '78.6 F to C' (78.6°F to Celsius)
25     - '300 K to C' (300 K to Celsius)
26     - '0 C to K' (0°C to Kelvin)
27     """
28     print(examples)
29
30     while True:
31         # Get user input
32         try:
33             user_input = input("Enter temperature conversion (e.g., '25 C to F') or 'quit' to exit: ").strip()
34
35             if user_input.lower() == 'quit':
36                 print("Goodbye! 🌟")
37                 break
38
39             # Parse the input
40             parts = user_input.split()
41
42             if len(parts) != 4 or parts[2].lower() != 'to':
43                 print("❌ Invalid format! Please use: 'value unit to unit'")
44                 print("Example: '25 C to F'")
45                 continue
46
47             # Extract values
48             try:
49                 temperature = float(parts[0])
50             except ValueError:
51                 print("❌ Invalid temperature value! Please enter a number.")
52                 continue
53
54             from_unit = parts[1].upper()
55             to_unit = parts[3].upper()
56
57             # Validate units
58             valid_units = {'C', 'F', 'K'}
59             if from_unit not in valid_units or to_unit not in valid_units:
60                 print("❌ Invalid units! Use C (Celsius), F (Fahrenheit), or K (Kelvin)")
61                 continue
62
63             if from_unit == to_unit:
64                 print("✅ (temperature) (from_unit) = (temperature) (to_unit) (same unit)")
65                 continue
66
67             # Convert to Celsius first (as intermediate step)
68             celsius = None
69             if from_unit == 'C':
70                 celsius = temperature
71             elif from_unit == 'F':
72                 celsius = (temperature - 32) * 5/9
73             elif from_unit == 'K':
74                 celsius = temperature - 273.15
75
76             # Convert from Celsius to target unit
77             result = None
78             if to_unit == 'C':
79                 result = celsius
80             elif to_unit == 'F':
81                 result = celsius * 9/5 + 32
82             elif to_unit == 'K':
83                 result = celsius + 273.15
84
85             # Display result with proper formatting
86             print("\n🎯 Conversion Result:")
87             print(f"({temperature}) ({from_unit}) = ({result:.2f}) ({to_unit})")
88
89             # Show the conversion formula used
90             if from_unit == 'F' and to_unit == 'C':
91                 print(f"Formula: ((temperature)-32) * 5/9 = ({result:.2f})°C")
92             elif from_unit == 'C' and to_unit == 'F':
93                 print(f"Formula: (temperature)* 9/5 + 32 = ({result:.2f})°F")
94             elif from_unit == 'K' and to_unit == 'C':
95                 print(f"Formula: (temperature)-273.15 = ({result:.2f})°C")
96             elif from_unit == 'C' and to_unit == 'K':
97                 print(f"Formula: (temperature)+273.15 = ({result:.2f})°K")
98             elif from_unit == 'F' and to_unit == 'K':
99                 print(f"Formula: ((temperature)-32) * 5/9 + 273.15 = ({result:.2f})°K")
100             elif from_unit == 'K' and to_unit == 'F':
101                 print(f"Formula: ((temperature)-273.15) * 9/5 + 32 = ({result:.2f})°F")
102
103         except KeyboardInterrupt:
104             print("\nGoodbye! 🌟")
105             break
106         except Exception as e:
107             print(f"❌ An error occurred: {e}")
108             print("Please try again with the correct format.")
109
110 # Celsius to Fahrenheit converter
111 def quick_convert(temp, from_unit, to_unit):
112     """
113     Quick conversion function for programmatic use
114     """
115     Args:
116         temp (float): Temperature value
117         from_unit (str): Source unit ('C', 'F', or 'K')
118         to_unit (str): Target unit ('C', 'F', or 'K')
119
120     Returns:
121         float: Converted temperature
122     """
123     # Convert to Celsius first
124     if from_unit.upper() == 'C':
125         celsius = temp
126     elif from_unit.upper() == 'F':
127         celsius = (temp - 32) * 5/9
128     elif from_unit.upper() == 'K':
129         celsius = temp - 273.15
130     else:
131         raise ValueError("Invalid source unit. Use 'C', 'F', or 'K'")
132
133     # Convert from Celsius to target unit
134     if to_unit.upper() == 'C':
135         return celsius
136     elif to_unit.upper() == 'F':
137         return celsius * 9/5 + 32
138     elif to_unit.upper() == 'K':
139         return celsius + 273.15
140     else:
141         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 × 9/5 + 32 = 131.00°F

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

```

## QUESTION 4:

Write a Python func on to remove punctua on, convert to lowercase, and remove stop words from a given text. Use the Cursor AI tool. Use zero shot prompt ng.

## 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>
```

