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Code JupyterLab Python 3 (ipykernel)

[ ]:
```
Exercise 1:
Create a function that takes in three arguments, two of which are optional. The first argument should be a required positional argument, the second argum
```

[1]:
```
def calculate(a, b=10, c=None):
    if c is None:
        result = a + b
    else:
        result = a * b * c
    print(result)
```

[3]:
```
calculate(5)          # Should print 15 (5 + 10)
calculate(5, 2)       # Should print 7 (5 + 2)
calculate(5, 2, 3)    # Should print 30 (5 * 2 * 3)
```

```
15
7
30
```

[ ]:
```
Exercise 2:
Write a function that takes in a list of strings and returns a new list with only the strings that have a length greater than or equal to 5.
```

[5]:
```
def filter_long_strings(strings):
    return [s for s in strings if len(s) >= 5]

# Example usage:
string_list = ["apple", "banana", "fig", "grape", "cherry"]
filtered_list = filter_long_strings(string_list)
print(filtered_list)  # Should print ['apple', 'banana', 'grape', 'cherry']
```

```
['apple', 'banana', 'grape', 'cherry']
```

[ ]:
```
Exercise 3:
Write a Python program to evaluate a given mathematical expression using the eval() function.
```

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Code JupyterLab Python 3 (ipykernel)

[ ]:
```
Exercise 3:
Write a Python program to evaluate a given mathematical expression using the eval() function.
expression = "3 * 5 + 2"
```

[7]:
```
# Given expression
expression = "3 * 5 + 2"

# Evaluate the expression
result = eval(expression)

# Print the result
print(f"The result of the expression '{expression}' is: {result}")
```

```
The result of the expression '3 * 5 + 2' is: 17
```

[ ]:
```
Exercise 4:

Exercise 4: (score : 1)
Write a Python program to filter out the prime numbers from a given list of integers using the filter()  function.
```

[9]:
```
def is_prime(num):
    if num < 2:
        return False
    for i in range(2, int(num**0.5) + 1):
        if num % i == 0:
            return False
    return True

# List of integers
numbers = [10, 15, 3, 7, 8, 23, 2, 4, 5]
```

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Exercise 4:

Exercise 4: (score : 1)
Write a Python program to filter out the prime numbers from a given list of integers using the filter() function.

[9]:
```
def is_prime(num):
    if num < 2:
        return False
    for i in range(2, int(num**0.5) + 1):
        if num % i == 0:
            return False
    return True

# List of integers
numbers = [10, 15, 3, 7, 8, 23, 2, 4, 5]

# Filtering prime numbers using filter()
prime_numbers = list(filter(is_prime, numbers))

# Print the result
print("Prime numbers:", prime_numbers)
```

```
Prime numbers: [3, 7, 23, 2, 5]
```

[ ]:
```
Exercise 5:
Write a Python program to convert a list of strings to uppercase using the map() function.
```

[11]:
```

# List of strings
strings = ["hello", "world", "python", "programming"]

# Convert to uppercase using map()
```

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Code JupyterLab Python 3 (ipykernel)

```
print("Prime numbers:", prime_numbers)
```

```
Prime numbers: [3, 7, 23, 2, 5]
```

[ ]:
```
Exercise 5:
Write a Python program to convert a list of strings to uppercase using the map() function.
```

[11]:
```
# List of strings
strings = ["hello", "world", "python", "programming"]

# Convert to uppercase using map()
uppercase_strings = list(map(str.upper, strings))

# Print the result
print("Uppercase strings:", uppercase_strings)
```

```
Uppercase strings: ['HELLO', 'WORLD', 'PYTHON', 'PROGRAMMING']
```

[ ]:
```
Exercise 6:
Write a Python program to calculate the length of each string in a given list of strings using the map() function.
```

[13]:
```
# List of strings
strings = ["hello", "world", "python", "programming"]

# Calculate the length of each string using map()
lengths = list(map(len, strings))

# Print the result
print("Lengths of the strings:", lengths)
```

```
Lengths of the strings: [5, 5, 6, 11]
```

[ ]:
```
Exercise 7:
```

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Code JupyterLab Python 3 (ipykernel)

[ ]:
```
Exercise 7:
Write a Python program to calculate the sum of elements in a list using the reduce() function.
```

[15]:
```
from functools import reduce

# List of numbers
numbers = [1, 2, 3, 4, 5]

# Calculate the sum using reduce()
total_sum = reduce(lambda x, y: x + y, numbers)

# Print the result
print("Sum of the elements in the list:", total_sum)
```

```
Sum of the elements in the list: 15
```

[ ]:
```
Exercise 8:
Write a Python program to find the maximum element in a list using the reduce() function.
```

[17]:
```
from functools import reduce

# List of numbers
numbers = [3, 5, 2, 8, 1, 4]

# Find the maximum using reduce()
max_element = reduce(lambda x, y: x if x > y else y, numbers)

# Print the result
print("Maximum element in the list:", max_element)
```

```
Maximum element in the list: 8
```

[ ]:

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