Python_Functions.ipynb ☆

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Python-Functions

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1. What does the len() function do in Python? Write a code example using len() to find the length of a list.

Ans). *The len() function returns the number of items (length) in an object such as a list, string, etc.*

[1] 0s

```
# example using len() to find the length of a list

my_list = [10, 20, 30, 40, 50]
print("Length of the list:", len(my_list))
```

```
Length of the list: 5
```

2. Write a Python function greet(name) that takes a person's name as input and prints "Hello, [name]!".

[2] 0s

```
def greet(name):
    print(f"Hello, {name}!")

# Calling the greet function
greet("Subuhan P. Ummer")
```

```
Hello, Subuhan P. Ummer!
```

3. Write a Python function find_maximum(numbers) that takes a list of integers and returns the maximum value without using the built-in max() function. Use a loop to

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```
[2] # Calling the greet function
    greet("Subuhan P. Ummer")
```

```
Hello, Subuhan P. Ummer!
```

3. Write a Python function find_maximum(numbers) that takes a list of integers and returns the maximum value without using the built-in max() function. Use a loop to iterate through the list and compare values.

```
[3] def find_maximum(numbers):
        if not numbers:  # Check if the list is empty
            return None

        max_num = numbers[0]  # Assume the first number is the largest initially
        for num in numbers[1:]:  # Loop through the rest of the list
            if num > max_num:
                max_num = num
        return max_num

    # Test the find_maximum function
    numbers_list = [5, 2, 9, 1, 7]
    print("Maximum value:", find_maximum(numbers_list))
```

```
Maximum value: 9
```

4. Explain the difference between local and global variables in a Python function. Write a program where a global variable and a local variable have the same name and show how Python differentiates between them.

Ans). *Global variables are declared outside any function and are accessible throughout the program. Local variables are declared inside a function and can only be used within that function. Python differentiates between them using the scope of the variable.*

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```
# Test the find_maximum function
numbers_list = [5, 2, 9, 1, 7]
print("Maximum value:", find_maximum(numbers_list))
```

```
Maximum value: 9
```

4. Explain the difference between local and global variables in a Python function. Write a program where a global variable and a local variable have the same name and show how Python differentiates between them.

Ans). *Global variables are declared outside any function and are accessible throughout the program. Local variables are declared inside a function and can only be used within that function. Python differentiates between them using the scope of the variable.*

Explanation: The function defines its own local variable 'x', which is different from the global 'x'

```
# difference between local variable and global variable.

x = 10  # Global variable

def example_function():
    x = 5  # Local variable
    print("Inside function, x =", x)

example_function()  # Output: Inside function, x = 5
print("Outside function, x =", x)  # Output: Outside function, x = 10

# Explanation: The function defines its own local variable 'x', which is different from the global 'x'.
```

```
Inside function, x = 5
Outside function, x = 10
```

5. Create a function calculate_area(length, width=5) that calculates the area of a rectangle. If only the length is provided, the function should assume the width is 5.

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```
[4]
```

```
Inside function, x = 5
Outside function, x = 10
```

5. Create a function calculate_area(length, width=5) that calculates the area of a rectangle. If only the length is provided, the function should assume the width is 5. Show how the function behaves when called with and without the width argument.

```
# If only the length is provided, the function assumes the width is 5.
def calculate_area(length, width=5):
    return length * width

# Calling the function with both length and width
print("Area (length=10, width=6):", calculate_area(10, 6))  # Output: 60

# Calling the function with only length (width is defaulted to 5)
print("Area (length=10):", calculate_area(10))  # Output: 50
```

```
Area (length=10, width=6): 60
Area (length=10): 50
```

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