LAB ASSIGNMENT 2.2

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TASK 1 :

task.py > ...

```python
def clean_sensor_data(sensor_data):
    cleaned_data = [value for value in sensor_data if value >= 0]
    return cleaned_data


sensor_data = [25, -3, 18, -7, 0, 42, -15, 30]

print("Before Cleaning:", sensor_data)

cleaned_data = clean_sensor_data(sensor_data)

print("After Cleaning:", cleaned_data)

```

OUT PUT :

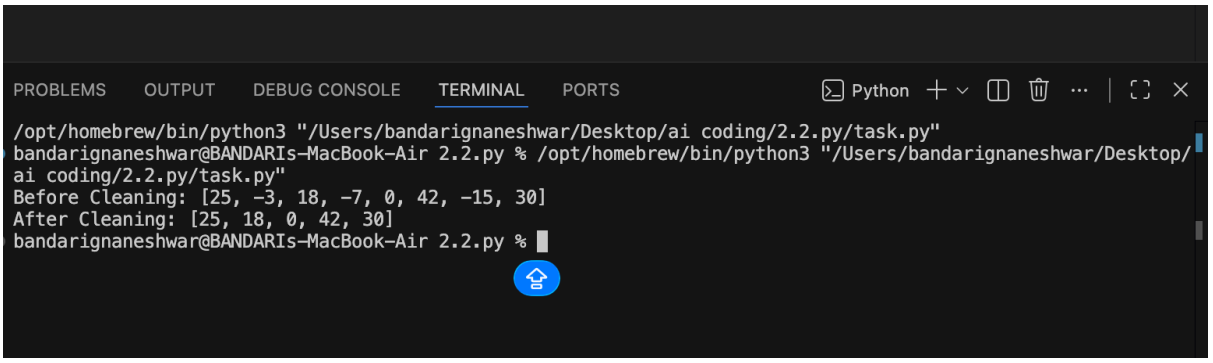
OBSERVATIONS : The code successfully cleans the sensor data by removing invalid negative values and prepares it for further processing or analysis.

TASK 2 :

task2.py > analyze_string

```python
def analyze_string(text):
    vowels = "aeiouAEIOU"
    vowel_count = 0
    consonant_count = 0
    digit_count = 0

    for char in text:
        if char in vowels:
            vowel_count += 1
        elif char.isalpha():
            consonant_count += 1
        elif char.isdigit():
            digit_count += 1

    return vowel_count, consonant_count, digit_count


# Sample Inputs
sample_text_1 = "Hello World 123"
sample_text_2 = "AI2026 is Smart!"

# Function Calls and Output
print("Input:", sample_text_1)
print("Vowels, Consonants, Digits:", analyze_string(sample_text_1))

print("\nInput:", sample_text_2)
print("Vowels, Consonants, Digits:", analyze_string(sample_text_2))
```

OUTPUT :



OBSERVATION : The code efficiently analyzes a string and provides accurate character classification, making it suitable for text-analysis features and student-level applications

TASK 3 :

```python
task3.py > ...
def is_palindrome_gemini(text):
    cleaned_text = ""

    for char in text:
        if char.isalnum():
            cleaned_text += char.lower()

    return cleaned_text == cleaned_text[::-1]


print(is_palindrome_gemini("Madam"))
print(is_palindrome_gemini("Hello"))
print(is_palindrome_gemini("A man, a plan, a canal Panama"))
```

OUTPUT :

```
/opt/homebrew/bin/python3 "/Users/bandarignaneshwar/Desktop/ai coding/2.2.py/task3.py"
bandarignaneshwar@BANDARIs-MacBook-Air 2.2.py % /opt/homebrew/bin/python3 "/Users/bandarignaneshwar/Desktop/
ai coding/2.2.py/task3.py"
True
False
True
bandarignaneshwar@BANDARIs-MacBook-Air 2.2.py %
```

TASK 4 :

```python
def is_prime(number):
    if number <= 1:
        return False

    for i in range(2, int(number ** 0.5) + 1):
        if number % i == 0:
            return False

    return True


print(is_prime(7))
print(is_prime(10))
print(is_prime(2))
print(is_prime(1))
```

OUTPUT :