LAB 2

1.

```
def string_manipulations():
    # Initial string
    S1 = "Maha Bharat"

    # Generate required strings
    manipulated_1 = S1.swapcase()  # Swap uppercase and lowercase
    manipulated_2 = S1[5:]       # Extract substring starting from index 5
    manipulated_3 = S1[5:] * 3    # Repeat the substring "Bharat" three times
    manipulated_4 = "Mera " + S1[5:]  # Add "Mera " before "Bharat"
    manipulated_5 = "Mera Bharat Mahan"  # Directly create the string

    # Print the results
    print(f"Original String: {S1}")
    print(f"1. \"{manipulated_1}\"")
    print(f"2. \"{manipulated_2}\"")
    print(f"3. \"{manipulated_3}\"")
    print(f"4. \"{manipulated_4}\"")
    print(f"5. \"{manipulated_5}\"")

# Call the function
string_manipulations()
```

2.

```
def string_operations():
    # Given string
    S = "Ba Ba Black Sheep"
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    # Determine the length of the string
    length = len(S)

    # Find the first occurrence of the letter 'e'
    first_e = S.find('e')  # Returns -1 if 'e' is not found

    # Count the total number of occurrences of 'a'
    count_a = S.count('a')

    # Generate "Ta Ta Black Sheep" by replacing "Ba" with "Ta"
    replaced_string = S.replace("Ba", "Ta", 2)  # Replace first 2 occurrences

    # Print the results
    print(f"Original String: {S}")
    print(f"1. Length of the string: {length}")
    print(f"2. First occurrence of 'e': {first_e}")
    print(f"3. Total occurrences of 'a': {count_a}")
    print(f"4. Modified String: {replaced_string}")

# Call the function
string_operations()
```

3.

```
def is_palindrome():
    # Input string from the user
    user_input = input("Enter a string: ")

    # Remove spaces and convert to lowercase for accurate comparison
    cleaned_string = user_input.replace(" ", "").lower()
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    # Check if the string is equal to its reverse
    if cleaned_string == cleaned_string[::-1]:
        print(f"'{user_input}' is a palindrome.")
    else:
        print(f"'{user_input}' is not a palindrome.")

# Call the function
is_palindrome()
```

4.

```
def student_details():
    # Input student details
    name = input("Enter student's name: ")
    roll_number = input("Enter roll number: ")
    marks = float(input("Enter marks secured in Mathematics (out of 100): "))

    # Determine Grade Point and Remark
    if marks >= 90:
        grade_point = 10
        remark = "OUTSTANDING"
    elif 80 <= marks < 90:
        grade_point = 9
        remark = "VERY GOOD"
    elif 70 <= marks < 80:
        grade_point = 8
        remark = "GOOD"
    elif 60 <= marks < 70:
        grade_point = 7
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        remark = "AVERAGE"
    elif 50 <= marks < 60:
        grade_point = 6
        remark = "PASS"
    else:
        grade_point = 0
        remark = "FAIL"

    # Display student details
    print("\nStudent Details:")
    print(f"Name: {name}")
    print(f"Roll Number: {roll_number}")
    print(f"Marks: {marks}")
    print(f"Grade Point: {grade_point}")
    print(f"Remark: {remark}")

# Call the function
student_details()
```