**Assignment 2**

**1. Write a program to count word frequencies in a given text.**

def count\_word\_frequencies(text):

    words = text.lower().split()

    freq = {}

    for word in words:

        word = word.strip('.,!?";:')

        freq[word] = freq.get(word, 0) + 1

    return freq

text ="How are you,what are you doing? I hope you are doing well."

frequencies = count\_word\_frequencies(text)

print(frequencies)

**Output:**

{'how': 1, 'are': 3, 'you,what': 1, 'you': 2, 'doing': 2, 'i': 1, 'hope': 1, 'well': 1}

**2. Palindrome Checker Write a program that checks if a given word is a palindrome.**

def is\_palindrome(word):

    if word == word[::-1]:

        return True

    else:

        return False

# Example usage

word = "madam"

if is\_palindrome(word)==True:

    print(f"{word} is a palindrome")

else:

    print(f"{word} is not a palindrome")

**Output:**

**madam is a palindrome**

**3. List Manipulation Create a list of numbers, then write a program that prints the square of each number in the list.**

# List Manipulation – Square Each Number

def square\_list(numbers):

    return [x \*\* 2 for x in numbers]

# Example usage

nums = [1, 2, 3, 4, 5]

squared = square\_list(nums)

print("Original list:", nums)

print("Squared list:", squared)

Output:

**Original list: [1, 2, 3, 4, 5]**

**Squared list: [1, 4, 9, 16, 25]**