1. **Write a Python Program to Calculate the Average of Numbers in a given List.**

def calculate\_average(numbers):

if numbers:

return sum(numbers)/len(numbers)

else:

return 0

numbers=[10,20,30]

print("average:",calculate\_average(numbers))

**2. Write a program which accepts 6 integer values and prints “DUPLICATES” if any of the**

**values entered are duplicates otherwise it prints “ALL UNIQUE”.**

**Example: Let 6 integers are (32, 10, 45, 90, 45, 6) then output “DUPLICATES” to be printed.**

def check\_duplicate(values):

if len(values) != len(set(values)):

return "duplicate"

else:

return "all unique"

values=[]

for \_ in range(5):

value=int(input("enter the element:"))

values.append(value)

result=check\_duplicate(values)

print(result)

1. **Write a Python program to add and remove operation on set.**

my\_set={1,2,3}

my\_set.add(4)

print("after adding 4",my\_set)

my\_set.remove(1)

print("after remove 1",my\_set)

1. **Write a Python program to find maximum and the minimum value in a set.**

my\_set={1,2,3}

print("maximum:",max(my\_set))

print("minumum:",min(my\_set))

**5. Write a python program to create an array of ‘n’ integers and display the array elements.**

**Access individual elements through indexes.**

n = int(input("Enter the number of elements: "))

arr = [int(input(f"Enter element {i + 1}: ")) for i in range(n)]

print("Array elements:", arr)

for i in range(n):

print(f"Element at index {i}: {arr[i]}")

**6. Write a python program to get the number of occurrences of specified elements in an array.**

n = int(input("Enter the number of elements in the array: "))

arr = [int(input(f"Enter element {i + 1}: ")) for i in range(n)]

element = int(input("Enter the element to count occurrences for: "))

count = arr.count(element)

print(f"The element {element} occurs {count} times in the array.")

**7. Write a python program to reverse the order of the items in the array.**

n=int(input("enter the number of element:"))

arr=[int(input(f"enter the element {i+1}:")) for i in range(n)]

arr.reverse()

print("reverse array:",arr)

**8. Write a python program to find sum of all the elements in a list.**

l1=(1,2,3,4)

print(l1)

sum=sum(l1)

print(sum)

**9. Write a python function to calculate the factorial of a number. The function accepts the**

**number as an argument.**

def factorial(n):

if n == 0 or n == 1:

return 1

return n \* factorial(n - 1)

num = int(input("Enter a number: "))

print("Factorial:", factorial(num))

**10. Write a program to generate Fibonacci numbers using function.**

def fibonacci(n):

fib\_sequence = [0, 1]

for i in range(2, n):

fib\_sequence.append(fib\_sequence[-1] + fib\_sequence[-2])

return fib\_sequence[:n]

num = int(input("Enter the number of Fibonacci numbers to generate: "))

print("Fibonacci sequence:", fibonacci(num))

**11. Write a Python script to generate and print a dictionary that contains a number (Between**

**1 and n) in the form (x : x\*x).**

**Sample Dictionary (n = 5)**

**Expected Output: {1: 1, 2: 4, 3: 9, 4: 16, 5: 25}.**

n = int(input("Enter a number: "))

squared\_dict = {x: x \* x for x in range(1, n + 1)}

print("Generated Dictionary:", squared\_dict)

**12. Write a Python script to sort (ascending and descending) a dictionary by value.**

my\_dict = {'a': 3, 'b': 1, 'c': 2}

# Ascending order

asc\_sorted = dict(sorted(my\_dict.items(), key=lambda item: item[1]))

print("Ascending:", asc\_sorted)

# Descending order

desc\_sorted = dict(sorted(my\_dict.items(), key=lambda item: item[1], reverse=True))

print("Descending:", desc\_sorted)

**13. Write a Python program to combine two dictionary adding values for common**

**keys. Sample Dictionary:**

**d1={&#39;a&#39;:100,&#39;b&#39;:200,&#39;c&#39;:300}**

**d2={&#39;a&#39;:300,&#39;b&#39;:200,&#39;d&#39;:400}**

**Sample output: Counter ({&#39;a&#39;: 400, &#39;b&#39;: 400, &#39;d&#39;: 400, &#39;c&#39;: 300})**

from collections import Counter

d1 = {'a': 100, 'b': 200, 'c': 300}

d2 = {'a': 300, 'b': 200, 'd': 400}

combined = Counter(d1) + Counter(d2)

print("Combined Dictionary:", dict(combined))

**14. Write a Python program to create a list of tuples with the first element as the number and**

**second element as the square of the number, also display original list in reverse.**

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

squared\_tuples = [(num, num\*\*2) for num in numbers]

print("List of tuples (number, square):", squared\_tuples)

print("Original list in reverse:", numbers[::-1])

**15. Write a python code to copy element 44 and 55 from the following tuple into a new tuple**

**tuple1 = (11, 22, 33, 44, 55, 66), also display the same tuple in reverse order.**

tuple1 = (11, 22, 33, 44, 55, 66)

new\_tuple = tuple1[3:5]

print("New tuple with elements 44 and 55:", new\_tuple)

print("Original tuple in reverse:", tuple1[::-1])

**16. Write a Python program to get the 5th element from front and 5th element from last of a**

**tuple.**

tuple1 = (10, 20, 30, 40, 50, 60, 70, 80, 90, 100)

fifth\_from\_front = tuple1[4]

fifth\_from\_last = tuple1[-5]

print("5th element from the front:", fifth\_from\_front)

print("5th element from the last:", fifth\_from\_last)

**17. Write a program to display following pattern.**

**1**

**2 3**

**4 5 6**

**7 8 9 10**

num = 1

for i in range(1, 5):

for j in range(i):

print(num, end=" ")

num += 1

print()

**18. Write a Python program to find repeated items in a tuple.**

tuple1 = (10, 20, 30, 20, 40, 30, 50)

repeated\_items = [item for item in set(tuple1) if tuple1.count(item) > 1]

print("Repeated items:", repeated\_items)