**Practical No: 6**

**Implement a Fuzzy based application.**

**AIM: Design a Fuzzy based operations using Python / R.**

**Code:**

A = dict()

B = dict()

Y = dict()

# Initialize the dictionaries for fuzzy sets A, B, and the result

A = {"a": 0.2, "b": 0.3, "c": 0.6, "d": 0.6}

B = {"a": 0.9, "b": 0.9, "c": 0.4, "d": 0.5}

result = {}

# Display the fuzzy sets A and B

print('The First Fuzzy Set is:', A)

print('The Second Fuzzy Set is:', B)

# Fuzzy Set Union

for i in A:

if A[i] > B[i]:

result[i] = A[i]

else:

result[i] = B[i]

print("Union of two sets is", result)

# Fuzzy Set Intersection

result = {}

for i in A:

if A[i] < B[i]:

result[i] = A[i]

else:

result[i] = B[i]

print("Intersection of two sets is", result)

# Fuzzy Set Complement

result = {}

for i in A:

result[i] = round(1 - A[i], 2)

print("Complement of First set is", result)

# Fuzzy Set Difference

result = {}

for i in A:

result[i] = round(min(A[i], 1 - B[i]), 2)

print("Difference of two sets is", result)

**Output:**

**A screen shot of a computer screen

Description automatically generated**

**b) Design a Fuzzy based application using Python / R.**

**Code:**

# AAI 6B: AIM: Design a Fuzzy based application using Python / R.

# !pip install fuzzywuzzy

from fuzzywuzzy import fuzz

from fuzzywuzzy import process

s1 = "I love GeeksforGeeks"

s2 = "I am loving GeeksforGeeks"

print("FuzzyWuzzy Ratio: ", fuzz.ratio(s1, s2))

print("FuzzyWuzzy PartialRatio: ", fuzz.partial\_ratio(s1, s2))

print("FuzzyWuzzy TokenSortRatio: ", fuzz.token\_sort\_ratio(s1, s2))

print("FuzzyWuzzy TokenSetRatio: ", fuzz.token\_set\_ratio(s1, s2))

print("FuzzyWuzzy WRatio: ", fuzz.WRatio(s1, s2), "\n\n")

# for process library,

query = "geeks for geeks"

choices = ["geek for geek", "geek geek", "g. for geeks"]

print("List of ratios: ")

print(process.extract(query, choices), "\n")

print("Best among the above list: ", process.extractOne(query, choices))

**Output:**

**A computer screen shot of a black screen

Description automatically generated**