Central Department

of

Computer Science and Information Technology

Tribhuvan University

Lab Report

on

Implementation of Fuzzy Relation

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MSc. CSIT 2020

Third Semester

Rollno 14

Date: 5th Feb 2022

#4

CODE

```python
#Lab 4 Implementation of Fuzzy Relation
def enter(name):
    list={}
    n=int(input("Enter the number of elements in set"+name))
    for i in range(n):
        name=input("Enter the name: ")
        while 1:
            value=float(input("Enter the value: "))
            if(value>=0 and value<=1):
                list[name]=value
                break;
            else:
                print("Value must be >= 0 and <=1")
    return list

def enteralpha(name):
    while 1:
        alpha=float(input("Enter the value of "+name+":"))
        if(alpha>=0 and alpha<=1):
            return alpha
        else:
            print("Value must be >= 0 and <=1")

def Relation(A,B):
    R={}
    for i in A:
        for j in B:
            if(A[i]<B[j]):
                R[(i,j)]=A[i]
            else:
                R[(i,j)]=B[j]

    return R

def acutR(R):
    alpha=enteralpha("alpha")
    Ralpha={}
    for i in R:
        if R[i]>=alpha:
            Ralpha[i] = 1
        else:
            Ralpha[i] = 0
    return Ralpha

def sacutR(R):
    alpha=enteralpha("strict alpha")
    Ralpha={}
    for i in R:
        if R[i]>alpha:
            Ralpha[i] = 1
        else:
            Ralpha[i] = 0
```

```python
    return Ralpha

Rab={}
A=enter("A")
B=enter("B")

print("Set A:",A)
print("Set B:",B)
print("---------------------------------------------------------------------")
Rab=Relation(A,B)
print("The Relation of set A and B",Rab)
print("---------------------------------------------------------------------")
print("The relation of set A and B after alpha cut",acutR(Rab))
print("---------------------------------------------------------------------")
print("The relation of set A and B after strict alpha cut",sacutR(Rab))
```

OUTPUT
```
Enter the number of elements in setA4
Enter the name: a
Enter the value: 4
Value must be >= 0 and <=1
Enter the value: 0.3
Enter the name: b
Enter the value: 0.6
Enter the name: c
Enter the value: 0.5
Enter the name: d
Enter the value: 0.5
Enter the number of elements in setB2
Enter the name: a
Enter the value: 0.5
Enter the name: c
Enter the value: 0.6
Set A: {'a': 0.3, 'b': 0.6, 'c': 0.5, 'd': 0.5}
Set B: {'a': 0.5, 'c': 0.6}
----------------------------------------------------------------------
The Relation of set A and B {('a', 'a'): 0.3, ('a', 'c'): 0.3, ('b', 'a'):
0.5, ('b', 'c'): 0.6, ('c', 'a'): 0.5, ('c', 'c'): 0.5, ('d', 'a'): 0.5, (
'd', 'c'): 0.5}
----------------------------------------------------------------------
Enter the value of alpha:0.5
The relation of set A and B after alpha cut {('a', 'a'): 0, ('a', 'c'): 0,
('b', 'a'): 1, ('b', 'c'): 1, ('c', 'a'): 1, ('c', 'c'): 1, ('d', 'a'): 1,
('d', 'c'): 1}
----------------------------------------------------------------------
Enter the value of strict alpha:0.5
The relation of set A and B after strict alpha cut {('a', 'a'): 0, ('a', '
c'): 0, ('b', 'a'): 0, ('b', 'c'): 1, ('c', 'a'): 0, ('c', 'c'): 0, ('d',
'a'): 0, ('d', 'c'): 0}
```