Group

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import random

import copy

def fuzzy\_interval\_sort(fuzzy\_pairs, p, r):

if (p < r):

pivot = partitioning(fuzzy\_pairs, p, r)

fuzzy\_interval\_sort(fuzzy\_pairs, p, pivot[0])

fuzzy\_interval\_sort(fuzzy\_pairs, pivot[1], r)

def partitioning(fuzzy\_pairs, p, r):

selected\_point = random.randint(p, r)

fuzzy\_pairs[selected\_point], fuzzy\_pairs[r] = fuzzy\_pairs[r], fuzzy\_pairs[selected\_point]

overlap = copy.deepcopy(fuzzy\_pairs[r])

for i in range(p, r):

if intersections(overlap, fuzzy\_pairs[i]):

if fuzzy\_pairs[i][0] > overlap[0]:

overlap[0] = fuzzy\_pairs[i][0]

if fuzzy\_pairs[i][1] < overlap[1]:

overlap[1] = fuzzy\_pairs[i][1]

s = p

for i in range(p, r):

if overlap\_check(fuzzy\_pairs[i], overlap):

fuzzy\_pairs[i], fuzzy\_pairs[s] = fuzzy\_pairs[s], fuzzy\_pairs[i]

s += 1

fuzzy\_pairs[r], fuzzy\_pairs[s] = fuzzy\_pairs[s], fuzzy\_pairs[r]

t = s + 1

while t <= i:

if intersections(fuzzy\_pairs[i], overlap):

fuzzy\_pairs[t], fuzzy\_pairs[i] = fuzzy\_pairs[i], fuzzy\_pairs[t]

t += 1

else:

i -= 1

return (s, t)

def intersections(a, b):

return a[0] <= b[1] and b[0] <= a[1]

def overlap\_check(a, b):

return a[1] < b[0]

fuzzy\_pairs=[]

p=int(input('Enter Fuzzy Interval Sort Range: '))

for i in range(0,p):

fuzzy\_input\_list=[]

x=int(input('Enter start point of fuzzy pair: '))

y=int(input('Enter end point of fuzzy pair: '))

fuzzy\_input\_list.append(x)

fuzzy\_input\_list.append(y)

fuzzy\_pairs.append(fuzzy\_input\_list)

print (fuzzy\_pairs)

fuzzy\_interval\_sort(fuzzy\_pairs, 0, len(fuzzy\_pairs)-1)

print (fuzzy\_pairs)

Output

Test Case 1 :

Enter Fuzzy Interval Sort Range: 4

Enter start point of fuzzy pair: 5

Enter end point of fuzzy pair: 7

Enter start point of fuzzy pair: 1

Enter end point of fuzzy pair: 3

Enter start point of fuzzy pair: 4

Enter end point of fuzzy pair: 6

Enter start point of fuzzy pair: 8

Enter end point of fuzzy pair: 10

[[5, 7], [1, 3], [4, 6], [8, 10]]

[[1, 3], [5, 7], [4, 6], [8, 10]]