Redundant Connection 2

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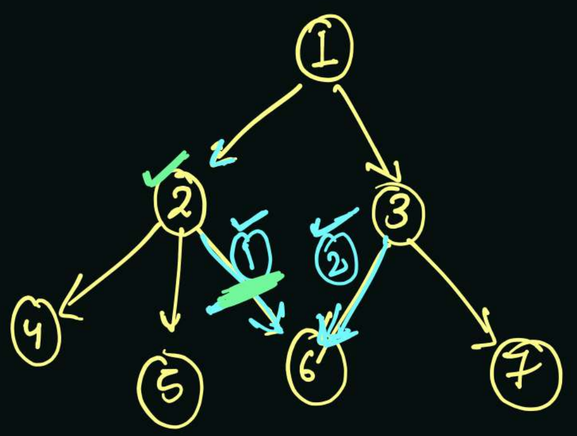


How to find blacklist Edge index →

blacklist 1 = (4)

blacklist 2 = 1

order of edge →
0. 1→2
1. 1→3
2. 2→4
3. 2→5
4. 3→6
5. 2→6
6. 3→7

blacklist 1 = (5)

Indegree array →

0	1	2	3	4	5	6	7
-1	1	✗	✗	✗	✗	(4)	1
0	1	2	3				

Have two parent

blacklist 1

2 6

3 → 6

blacklist 2

(4)

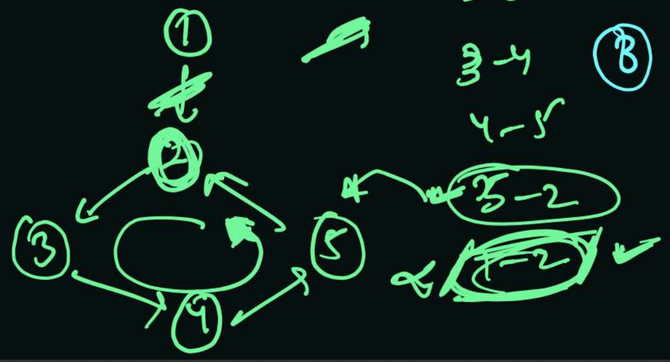
Steps of Implementation:-

(1) Indegree and find blacklist 1 and blacklist 2 Edge.

blacklist 1 → ignore

blacklist 2 || → cyclic.

(2) Now ignore blacklist 1 Edge index (if any) and find if graph is cyclic or not.



(3) Now if graph is cyclic then blacklist 2 is redundant connection.

otherwise, blacklist 1 is redundant connection.

Kruskal Algorithms

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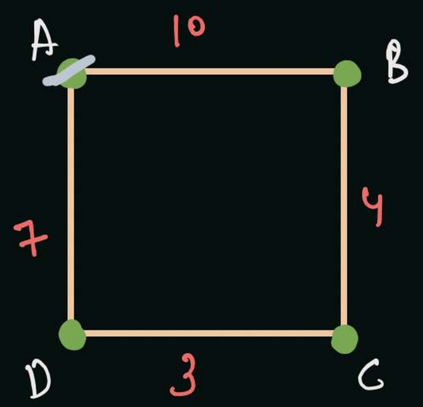
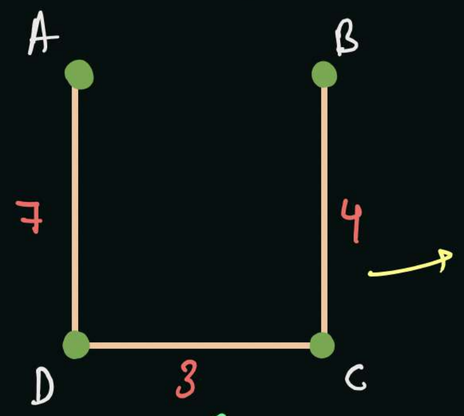
MST → "Minimum Spanning Tree"

Tree → connected and Acyclic graph

All are spanning Tree

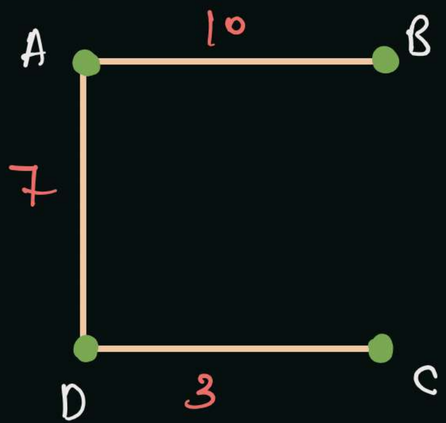
graph



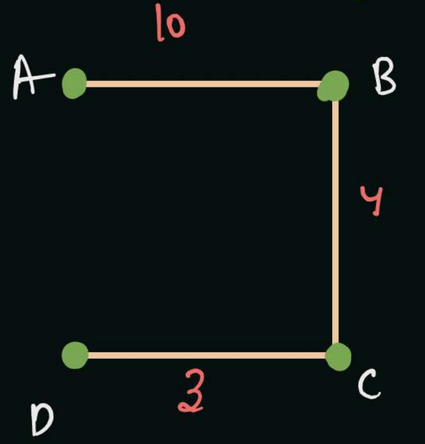


Sum = 7+3+4 = 14

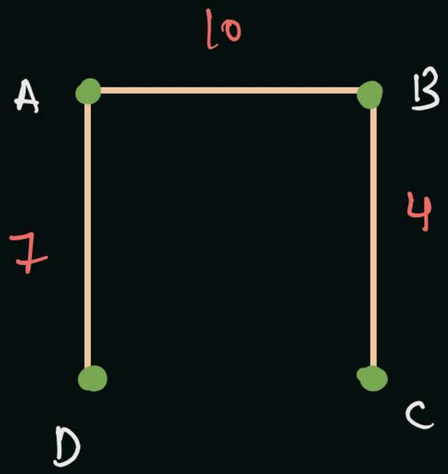
This is Minimum spanning Tree



Sum = 7+10+3 = 20



Sum = 10+4+3 = 17

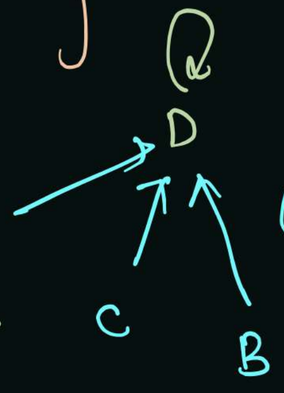


Sum = 7+10+4 = 21

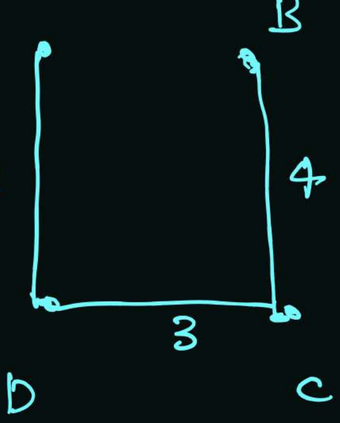
A - B → 10
A - D → 7
B - C → 4
C - D → 3

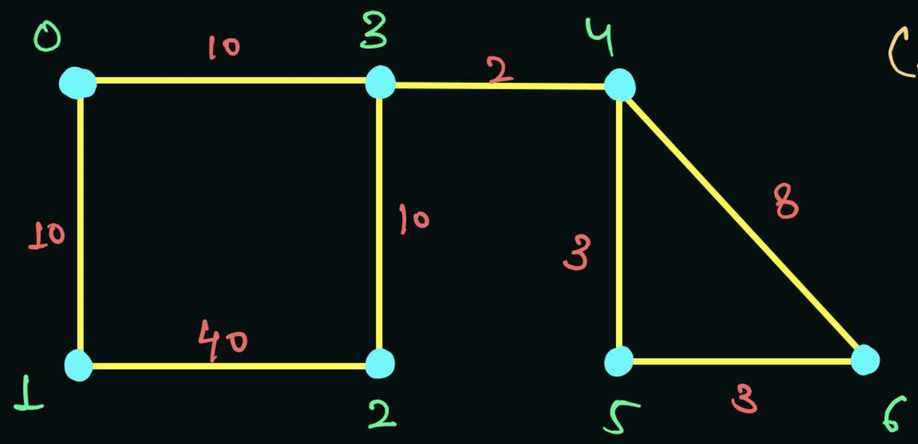
} sort on the basis of weight →

C ↔ D → 3 ✓
B ↔ C → 4 ✓
A ↔ D → 7
A ↔ B → 10 → A → D, B → D] Both have same set, so each → skip this edge



Sum = 14

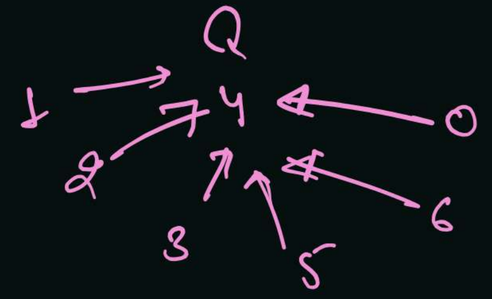




Edge (sorted)

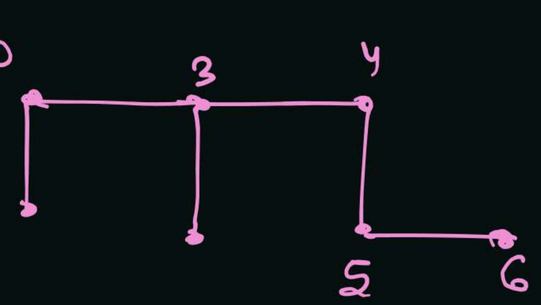
3-4 @2 ✓
4-5 @3 ✓
5-1 @3 ✓
4-6 @8 ✓] skip
0-3 @10 ✓
3-2 @10 ✓
1-0 @10 ✓
1-2 @40 ✓] skip

cost = ~~0~~ ~~2~~ ~~5~~ ~~8~~ ~~18~~ ~~28~~ 88



cost

MST



0 1 2 3 4

[0,0] , [2,2] , [3,10] , [5,2] , [7,0]

5 · $^{n}C_{2}$

Sum = ~~0~~ ~~8~~ ~~4~~ 4 (20)

u	v	dist
0	1	4
0	2	13
0	3	7
0	4	7
1	2	9
1	3	3
1	4	7
2	3	10
2	4	14
3	4	4

sort

n coordinates

1 - 3 3

0 - 1 4

3 - 4 4

0 - 3 7 skip

0 - 4 7 skip

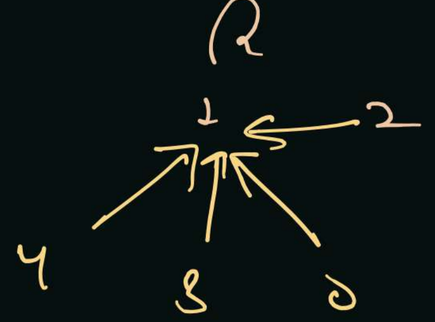
1 - 4 7 skip.

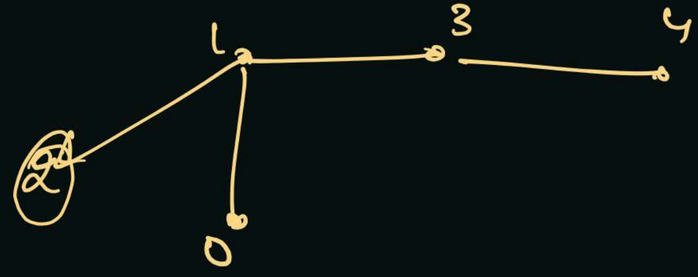
1 - 2 9

2 - 3 10 skip.

0 - 2 13 skip

2 - 4 14 skip.





points = $\frac{n(n-1)}{2}$ = $\frac{5 \times 4}{2}$ = 10

Satisfiability of Equality Equations

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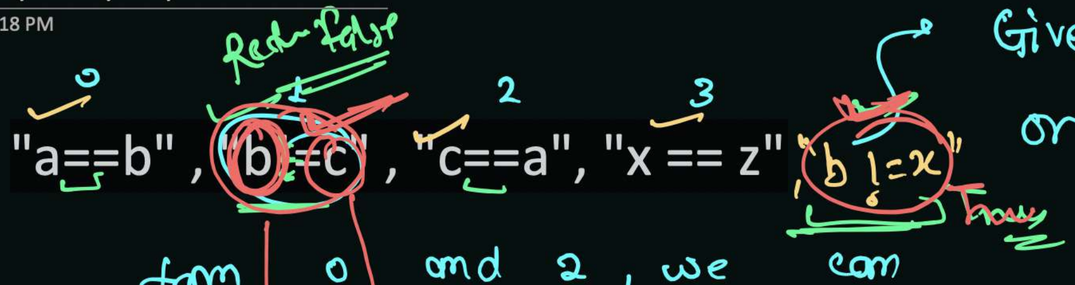


Given conditions are simultaneously true or false?

from 0 and 2, we can say $b == c$

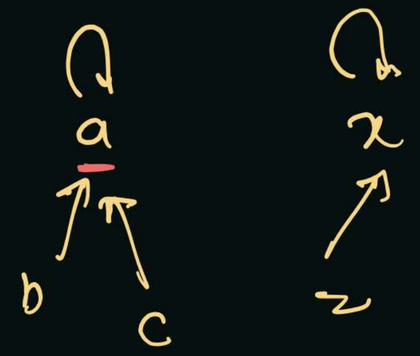
$a == b$
$a == c$
$\Rightarrow b == c$

↳ transitive similarity.

Set a leader 'a'

Steps: → ① Approach for DSU in "==" equality first.

② Check for equality "!=" if both operand belong from same set leader, return false.



parent, rank → 26 sized Array

operands are of small case of Alphabet.

Sentence Similarity

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words1 = great acting skills great drama "test"
words2 = fine drama talent tears sense "test"

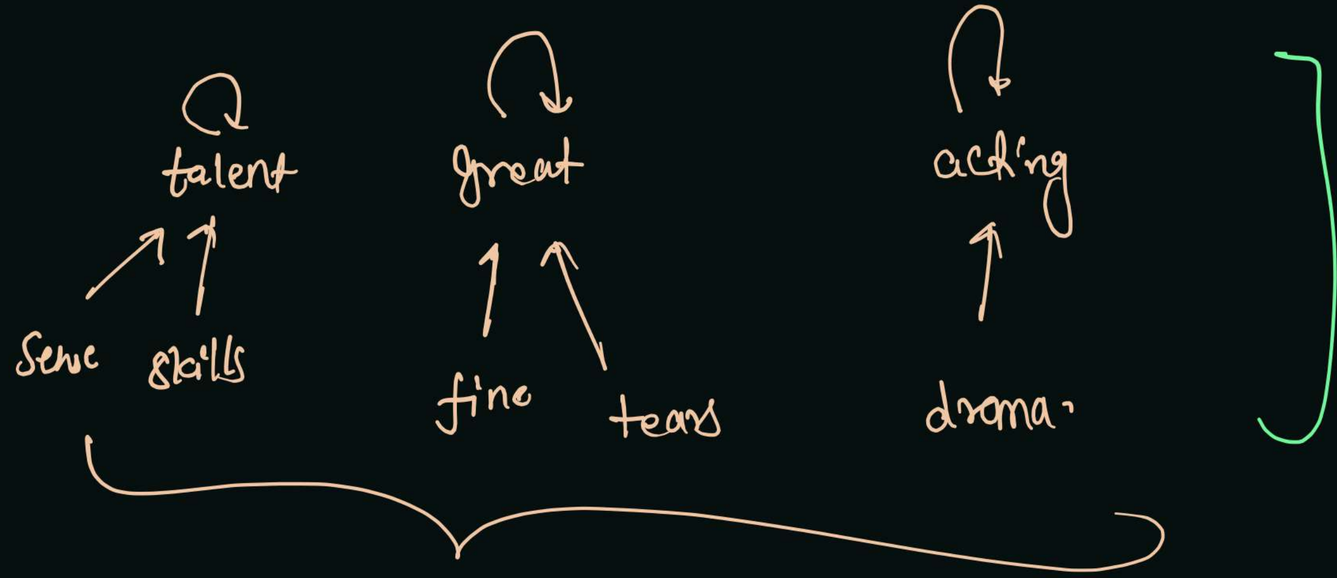
Either they are equal or belong to same set

↳ different set leader] → return false

given

pairs = ["great" , "fine"],
["acting" , "drama"],
["skills" , "talent"]

("fine , "tears"]
["sense", "skills"]



DSU

→ otherwise return true