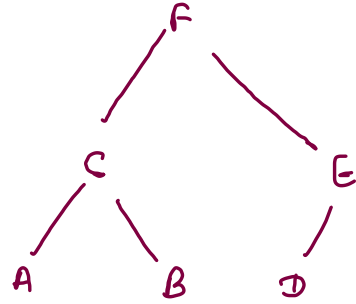


Number Of Employees Under Every Manager

1. You are given number N and $2*N$ number of strings that contains mapping of the employee and his manager.
2. An employee directly reports to only one manager.
3. All managers are employees but the reverse is not true.
4. An employee reporting to himself is the CEO of the company.
5. You have to find the number of employees under each manager in the hierarchy not just their direct reports.

A - 0
B - 0
C - 2
D - 0
E - 1
F - 5

A → C
B → C
C → F
D → E
E → F
F → F



data → generic tree → size

e m

A → C

B → C

C → F

D → E

E → F

F → F

emp vs Man

```
for(String emp : empMan.keySet()) {  
    String man = empMan.get(emp);  
  
    if(emp.equals(man) == true) {  
        ceo = emp;  
        ArrayList<String>list = gt.getDefault(man,new ArrayList<>());  
        gt.put(emp,list);  
        continue;  
    }  
  
    ArrayList<String>list = gt.getDefault(man,new ArrayList<>());  
    list.add(emp);  
    gt.put(man,list);  
  
    ArrayList<String>list1 = gt.getDefault(emp,new ArrayList<>());  
    gt.put(emp,list1);  
}
```

ceo = " / F

gt

C → [A, B]

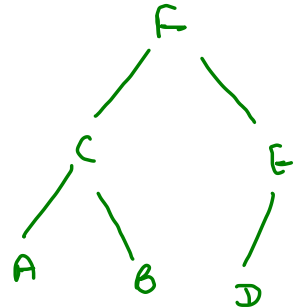
A → .

B → .

F → [C, E]

E → D

D → .



```

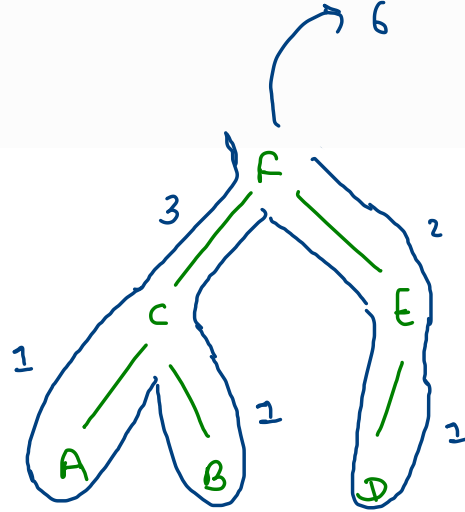
public static int getSize(String node, HashMap<String, ArrayList<String>>gt, HashMap<String, Integer>ans) {
    int s = 0;

    for(String child : gt.get(node)) {
        s += getSize(child,gt,ans);
    }

    ans.put(node,s);
    return s+1;
}

```

A - 0
 B - 0
 C - 2
 D - 0
 E - 1
 F - 3

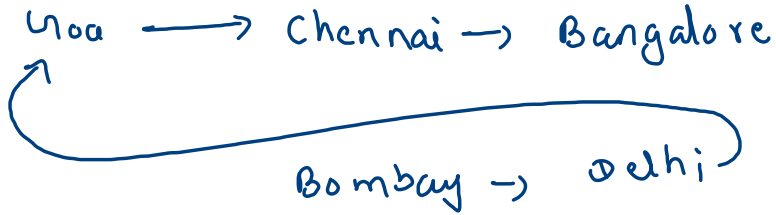


C - [A, B]
 A - .
 B - .
 D - .
 E - [D]
 F - [C, E]

Find Itinerary From Tickets

4

- ✓ Chennai Bangalore
- ✓ Bombay Delhi
- ✓ Goa Chennai
- ✓ Delhi Goa



linked list.

HashMap < String, Boolean > sp;

city: ~~Bombay~~ ~~Delhi~~ ~~Goa~~ ~~Chen~~ ~~Bangalore~~

Bombay -> Delhi -> Goa -> Chennai -> Bangalore

Chennai -> false
Bangalore -> false
Bombay -> true
Delhi -> false
Goa -> false

1497. Check If Array Pairs Are Divisible by k

Medium

802

52

Add to List

Share

Given an array of integers `arr` of even length `n` and an integer `k`.

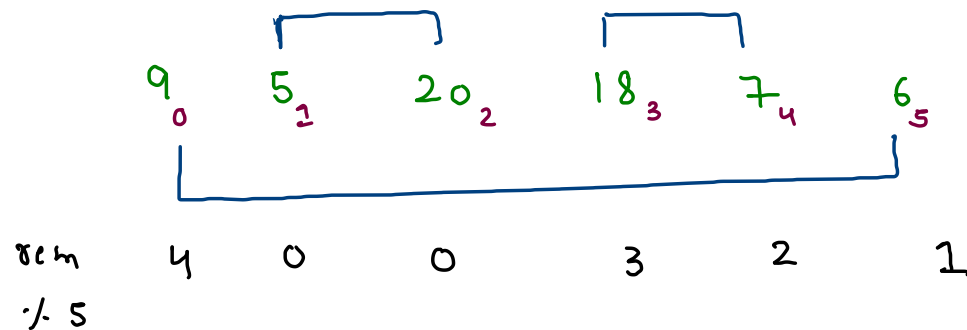
We want to divide the array into exactly $n / 2$ pairs such that the sum of each pair is divisible by `k`.

↳ rem

Return `true` if you can find a way to do that or `false` otherwise.

$$n = 6$$

$$k = 5$$



rem vs count

Pair:

$$a = nk + x$$

$$b = mk + (k - x)$$

$$n = 10, k = 8$$

18 7 80 62 40 32 9 29 8 163

rem
ele % k

2 7 0 6 0 0 1 5 0 3

~~2 → 1~~

~~7 → 1~~

~~0 → 4~~

~~6 → 1~~

~~5 → 1~~

~~3 → 1~~

~~1 → 1~~

$$k == 0$$

check if count is even

$$k \rightarrow \text{even, at } x = \frac{k}{2}$$

$$k - x == x$$

check if count is even

```

for(int rem : map.keySet()) {
    if(rem == 0 || (k % 2 == 0 && rem == k/2)) {
        int f = map.get(rem);

        if(f % 2 == 1) {
            return false;
        }
        else {
            continue;
        }
    }

    int f1 = map.get(rem);
    int f2 = map.getOrDefault(k - rem, -1);

    if(f2 == -1 || f1 != f2) {
        return false;
    }
}

return true;
}

```

$k = 8$

rem

40	23	80	161	76	32	16	164
0	7	0	1	4	0	0	4

$0 \rightarrow 4$

$4 \rightarrow 2$

$7 \rightarrow 1$

$1 \rightarrow 1$