

```
#!/bin/python3
```

```
import math
```

```
import os
```

```
import random
```

```
import re
```

```
import sys
```

```
#
```

```
# Complete the 'familyTree' function below.
```

```
#
```

```
# The function is expected to return a STRING.
```

```
# The function accepts following parameters:
```

```
# 1. 2D_STRING_ARRAY parent_child
```

```
# 2. STRING request
```

```
#
```

```
parent = {}
```

```
parents = []
```

```
spouse = {}
```

```
def union(a, b):
```

```
    return list(set(a + b))
```

```
def intersect(a, b):
```

```
    return any(x in b for x in a)
```

```
def isSpouse(a, b):
```

```
    if a not in parents or b not in parents:
```

```
    return False
```

```
    return intersect(parent[a], parent[b])
```

```
def isParent(a, b):
```

```
    for p in parent:
```

```
        if p == a and any(b == i or spouse[b] == i for i in parent[p]):
```

```
            return True
```

```
    return False
```

```
def isGrandParent(a, b):
```

```
    if a not in parents:
```

```
        return False
```

```
    for p in parent[a]:
```

```
        if isParent(p, b):
```

```
            return True
```

```
    return False
```

```
def isGreatGrandParent(a, b):
```

```
    if a not in parents:
```

```
        return False
```

```
    for p in parent[a]:
```

```
        if isGrandParent(p, b):
```

```
            return True
```

```
    return False
```

```
def isSibling(a, b):
```

```
    for p in parent:
```

```
        if (a in parent[p] or spouse[a] in parent[p]) and (b in parent[p] or spouse[b] in parent[p]):
```

```
            return True
```

```
    return False
```

```
def isCousin(a, b):
```

```
    for p in getParents(a):
```

```
        for q in getParents(b):
```

```
            if isSibling(p, q):
```

```
                return True
```

```
    return False
```

```
def isSecondCousin(a, b):
```

```
    for p in getParents(a):
```

```
        for q in getParents(b):
```

```
            if isCousin(p, q):
```

```
                return True
```

```
    return False
```

```
def isPibling(a, b):
```

```
    for p in getParents(b):
```

```
        if isSibling(a, p):
```

```
            return True
```

```
    return False
```

```
def isGrandPibling(a, b):
```

```
    for p in parents:
```

```
        if isGrandParent(p, b) and isSibling(p, a):
```

```
            return True
```

```
    return False
```

```
def getParents(a):
```

```
return [p for p in parent if isParent(p, a)]
```

```
def familyTree(parent_child, request):
```

```
    for p in parent_child:
```

```
        if p[0] not in [k for k in parent]:
```

```
            parent[p[0]] = []
```

```
            parent[p[0]].append(p[1])
```

```
            spouse[p[0]], spouse[p[1]] = "", ""
```

```
    parents.extend([k for k in parent])
```

```
    [a, b] = request.split()
```

```
    if isSpouse(a, b):
```

```
        return "spouse"
```

```
    for i in range(len(parents)):
```

```
        for j in range(i+1, len(parents)):
```

```
            p, q = parents[i], parents[j]
```

```
            if isSpouse(p, q):
```

```
                u = union(parent[p], parent[q])
```

```
                parent[p], parent[q] = u, u
```

```
                spouse[p], spouse[q] = q, p
```

```
    if isParent(a, b):
```

```
        return "child"
```

```
    if isParent(b, a):
```

```
        return "parent"
```

```
if isGrandParent(a, b):
```

```
    return "grandchild"
```

```
if isGrandParent(b, a):
```

```
    return "grandparent"
```

```
if isGreatGrandParent(a, b):
```

```
    return "great-grandchild"
```

```
if isGreatGrandParent(b, a):
```

```
    return "great-grandparent"
```

```
if isSibling(a, b):
```

```
    return "sibling"
```

```
if isCousin(a, b):
```

```
    return "cousin"
```

```
if isSecondCousin(a, b):
```

```
    return "second cousin"
```

```
if isPibling(a, b):
```

```
    return "nibling"
```

```
if isPibling(b, a):
```

```
    return "pibling"
```

```
if isGrandPibling(a, b):
```

```
    return "grandnibling"
```

```
if isGrandPibling(b, a):
```

```
    return "grandpibling"
```

```
if __name__ == '__main__':
```

```
    fptr = open(os.environ['OUTPUT_PATH'], 'w')
```

```
    numInputs = int(input().strip())
```

```
    parent_child = []
```

```
    for _ in range(numInputs):
```

```
        parent_child.append(input().rstrip().split())
```

```
    request = input()
```

```
    result = familyTree(parent_child, request)
```

```
    fptr.write(result + '\n')
```

```
    fptr.close()
```