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https://lib-kaishi-pu.opac.jp/opac/Free_word_search/hlist?
q=%E5%AE%89%E5%AE%9A%E3%83%9E%E3%83%83%E3%83%81%E3%83%B3%E

上記応用：「ICT総合活用実習」

ゼミ生の研究室への配属問題の安定マッチング

- 1:N割当 1つの研究室に定員N名の学生が割当可能
- 研究室の希望順序よりも、学生の希望順序が優先される
- 学生の希望研究室リストについて、どの学生から割当ててもよい
- 学生は意図的に希望研究室リストを偽ったとしても得にならない

サンプル小問題

- 研究室：5
- 学生数：20名
- 研究室の定員: [4,4,4,4,4] # 5研究室 × 定員4名
- 研究室の選好 (Laboが希望するStudentの順序): ランダム (1-20) × 5研究室
- 学生の選好(Studentが希望するLaboの順序): ランダム (1-5) × 20学生

プログラム ロジックのおおまかな構成

- 各研究室の定員割当
- 乱数による希望順位作成 # 本番は、CSVファイルからpd.DataFrame
- 問題設定: `problem()`
- 安定マッチングによる学生の割当: `solve(); S2L();`
- 研究室からみた学生割当結果と学生からみた研究室割当結果を表示
- 割当結果の妥当性検証: `verify()`
- 学生の選好がどれくらい満たされたか評価: `eval_PS()`
- ラボの選好がどれくらい満たされたか評価: `eval_PL()`

```

In [1]: QUOTA = [0] + [4] * 5 # 各研究室の定員数 [0 4 4 4 4]

import copy
import numpy as np
np.random.seed(5731) # 乱数の再現性のため
import pandas as pd
pd.options.display.float_format = '{:.0f}'.format

def shuffled(n): # 乱数による順序生成
    a = np.arange(1,n+1)
    np.random.shuffle(a)
    return a.tolist() # Python List

def problem(): # 乱数を用いた問題設定
    lab_capa = QUOTA
    ns, nl = sum(lab_capa), len(lab_capa)-1
    prf_s = [shuffled(nl) for _ in range(ns)]
    prf_l = [shuffled(ns) for _ in range(nl)]

    return [[]]+prf_s, [[]]+prf_l

# リアルデータの場合は、CSVファイルからDataFrame生成

pS,pL = problem()

OpS = copy.deepcopy(pS) # 学生の選好リストのオリジナルをバックアップ
OpL = copy.deepcopy(pL) # ラボの選好リストのオリジナルをバックアップ

df_s = pd.DataFrame(pS)
df_l = pd.DataFrame(pL)

display('学生の選好(Studentが希望するLaboの順序):ランダム(1-5)×20学生')
display(df_s[1:])
display('研究室の選好 (Laboが希望するStudentの順序):ランダム(1-20)×5研究室')
display(df_l[1:])

display('リアルデータの場合は、CSVファイルからDataFrame生成')

# df_s = pd.read_csv('学生の選好リスト.csv')
# df_l = pd.read_csv('研究室の選好リスト.csv')

'学生の選好(Studentが希望するLaboの順序):ランダム(1-5)×20学生'

```

	0	1	2	3	4
1	4	5	3	1	2
2	2	3	1	4	5
3	2	4	1	3	5
4	3	4	1	5	2
5	3	1	4	5	2
6	3	1	4	2	5
7	2	5	3	4	1
8	1	3	2	4	5
9	4	5	1	3	2
10	5	2	3	4	1
11	5	3	4	1	2
12	3	2	5	1	4
13	5	1	3	2	4
14	3	1	2	4	5
15	2	1	4	3	5
16	5	2	3	1	4
17	3	2	5	1	4
18	1	3	5	2	4
19	1	5	4	3	2
20	3	2	5	4	1

'研究室の選好（Laboが希望するStudentの順序）：ランダム（1-20）×5 研究室'

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	4	7	6	15	3	12	16	8	11	5	14	10	20	9	18	1	13	2	17	19
2	20	14	11	18	7	16	12	3	17	9	2	6	19	5	15	8	4	1	10	13
3	19	2	16	4	20	6	11	9	10	3	15	17	18	13	1	5	14	12	8	7
4	7	15	16	9	19	4	6	14	20	2	10	18	11	8	3	12	5	13	1	17
5	12	3	15	5	14	19	10	6	20	7	17	2	1	11	13	8	4	18	16	9

'リアルデータの場合は、CSVファイルからDataFrame生成'

```

In [2]: # 安定マッチングによる学生の割当 (学生の希望を優先)
Monitoring = True # 割当プロセスの表示フラグ

def solve(A=pS, B=pL, quota=QUOTA):
    L2S = [[0]*q for q in quota] # Lab -> Student

    for s in range(1, len(A)):
        while A[s]:
            t = A[s].pop(0)
            if Monitoring:
                print(f'Try: Student#{s} -> Labo#{t}') # Process Monitor
            if s in B[t]:
                if 0 in L2S[t]: # Not FULL
                    L2S[t][ L2S[t].index(0) ] = s
                    s = 0
                else: # FULL, need to exchange
                    k = max(range(len(L2S[t])), key=lambda x: B[t].index(
                        L2S[t][x]))
                    if Monitoring:
                        print(f'FULL#{t} -> Overwrite {s}-->{L2S[t][k]}@[{t}
                            B[t].index(s) < B[t].index( L2S[t][k] ):
                            if Monitoring:
                                print(f'    Yes, Overwrite {s}-->{L2S[t][k]}@[
                                    L2S[t][k], s = s, L2S[t][k]
                                print(f'Need to Re-Assign Student#{s}')
                    print(L2S[1:])
            return L2S,A # Lab -> Student    研究室視点:    割り当てられた学生リスト

def S2L(L2S,a): # Student -> Lab    学生視点:    割り当てられた研究室リスト
    s2l = [0] * len(a)
    for t,s in enumerate(L2S):
        for k in s:
            s2l[k] = t
    print(s2l[1:])
    return L2S[1:] , s2l[1:] # Lab -> Student

L2s , S2l = S2L(*solve())

dfL = pd.DataFrame(L2s)
display('研究室視点:    割り当てられた学生リスト')
display(dfL)

dfS = pd.DataFrame(S2l)
display('学生視点:    割り当てられた研究室リスト')
display(dfS)

Try: Student#1 -> Labo#4
[[0, 0, 0, 0], [0, 0, 0, 0], [0, 0, 0, 0], [1, 0, 0, 0], [0, 0, 0, 0]]
Try: Student#2 -> Labo#2
[[0, 0, 0, 0], [2, 0, 0, 0], [0, 0, 0, 0], [1, 0, 0, 0], [0, 0, 0, 0]]
Try: Student#3 -> Labo#2
[[0, 0, 0, 0], [2, 3, 0, 0], [0, 0, 0, 0], [1, 0, 0, 0], [0, 0, 0, 0]]
Try: Student#4 -> Labo#3
[[0, 0, 0, 0], [2, 3, 0, 0], [4, 0, 0, 0], [1, 0, 0, 0], [0, 0, 0, 0]]

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```
Try: Student#5 -> Labo#3
[[0, 0, 0, 0], [2, 3, 0, 0], [4, 5, 0, 0], [1, 0, 0, 0], [0, 0, 0, 0]]
Try: Student#6 -> Labo#3
[[0, 0, 0, 0], [2, 3, 0, 0], [4, 5, 6, 0], [1, 0, 0, 0], [0, 0, 0, 0]]
Try: Student#7 -> Labo#2
[[0, 0, 0, 0], [2, 3, 7, 0], [4, 5, 6, 0], [1, 0, 0, 0], [0, 0, 0, 0]]
Try: Student#8 -> Labo#1
[[8, 0, 0, 0], [2, 3, 7, 0], [4, 5, 6, 0], [1, 0, 0, 0], [0, 0, 0, 0]]
Try: Student#9 -> Labo#4
[[8, 0, 0, 0], [2, 3, 7, 0], [4, 5, 6, 0], [1, 9, 0, 0], [0, 0, 0, 0]]
Try: Student#10 -> Labo#5
[[8, 0, 0, 0], [2, 3, 7, 0], [4, 5, 6, 0], [1, 9, 0, 0], [10, 0, 0, 0]]
Try: Student#11 -> Labo#5
[[8, 0, 0, 0], [2, 3, 7, 0], [4, 5, 6, 0], [1, 9, 0, 0], [10, 11, 0, 0]]
Try: Student#12 -> Labo#3
[[8, 0, 0, 0], [2, 3, 7, 0], [4, 5, 6, 12], [1, 9, 0, 0], [10, 11, 0, 0]]
Try: Student#13 -> Labo#5
[[8, 0, 0, 0], [2, 3, 7, 0], [4, 5, 6, 12], [1, 9, 0, 0], [10, 11, 13,
0]]
Try: Student#14 -> Labo#3
FULL#3 -> Overwrite 14-->12@[3][3]?
    Yes, Overwrite 14-->12@[3][3]!
Need to Re-Assign Student#12
[[8, 0, 0, 0], [2, 3, 7, 0], [4, 5, 6, 14], [1, 9, 0, 0], [10, 11, 13,
0]]
Try: Student#12 -> Labo#2
[[8, 0, 0, 0], [2, 3, 7, 12], [4, 5, 6, 14], [1, 9, 0, 0], [10, 11, 13,
0]]
Try: Student#15 -> Labo#2
FULL#2 -> Overwrite 15-->2@[2][0]?
[[8, 0, 0, 0], [2, 3, 7, 12], [4, 5, 6, 14], [1, 9, 0, 0], [10, 11, 13,
0]]
Try: Student#15 -> Labo#1
[[8, 15, 0, 0], [2, 3, 7, 12], [4, 5, 6, 14], [1, 9, 0, 0], [10, 11, 13,
0]]
Try: Student#16 -> Labo#5
[[8, 15, 0, 0], [2, 3, 7, 12], [4, 5, 6, 14], [1, 9, 0, 0], [10, 11, 13,
16]]
Try: Student#17 -> Labo#3
FULL#3 -> Overwrite 17-->14@[3][3]?
    Yes, Overwrite 17-->14@[3][3]!
Need to Re-Assign Student#14
[[8, 15, 0, 0], [2, 3, 7, 12], [4, 5, 6, 17], [1, 9, 0, 0], [10, 11, 13,
16]]
Try: Student#14 -> Labo#1
[[8, 15, 14, 0], [2, 3, 7, 12], [4, 5, 6, 17], [1, 9, 0, 0], [10, 11, 13,
16]]
Try: Student#18 -> Labo#1
[[8, 15, 14, 18], [2, 3, 7, 12], [4, 5, 6, 17], [1, 9, 0, 0], [10, 11, 1
3, 16]]
Try: Student#19 -> Labo#1
FULL#1 -> Overwrite 19-->18@[1][3]?
[[8, 15, 14, 18], [2, 3, 7, 12], [4, 5, 6, 17], [1, 9, 0, 0], [10, 11, 1
3, 16]]
```

```
Try: Student#19 -> Labo#5
FULL#5 -> Overwrite 19-->16@[5][3]?
    Yes, Overwrite 19-->16@[5][3]!
Need to Re-Assign Student#16
[[8, 15, 14, 18], [2, 3, 7, 12], [4, 5, 6, 17], [1, 9, 0, 0], [10, 11, 1
3, 19]]
Try: Student#16 -> Labo#2
FULL#2 -> Overwrite 16-->2@[2][0]?
    Yes, Overwrite 16-->2@[2][0]!
Need to Re-Assign Student#2
[[8, 15, 14, 18], [16, 3, 7, 12], [4, 5, 6, 17], [1, 9, 0, 0], [10, 11, 1
3, 19]]
Try: Student#2 -> Labo#3
FULL#3 -> Overwrite 2-->5@[3][1]?
    Yes, Overwrite 2-->5@[3][1]!
Need to Re-Assign Student#5
[[8, 15, 14, 18], [16, 3, 7, 12], [4, 2, 6, 17], [1, 9, 0, 0], [10, 11, 1
3, 19]]
Try: Student#5 -> Labo#1
FULL#1 -> Overwrite 5-->18@[1][3]?
    Yes, Overwrite 5-->18@[1][3]!
Need to Re-Assign Student#18
[[8, 15, 14, 5], [16, 3, 7, 12], [4, 2, 6, 17], [1, 9, 0, 0], [10, 11, 1
3, 19]]
Try: Student#18 -> Labo#3
FULL#3 -> Overwrite 18-->17@[3][3]?
[[8, 15, 14, 5], [16, 3, 7, 12], [4, 2, 6, 17], [1, 9, 0, 0], [10, 11, 1
3, 19]]
Try: Student#18 -> Labo#5
FULL#5 -> Overwrite 18-->13@[5][2]?
[[8, 15, 14, 5], [16, 3, 7, 12], [4, 2, 6, 17], [1, 9, 0, 0], [10, 11, 1
3, 19]]
Try: Student#18 -> Labo#2
FULL#2 -> Overwrite 18-->3@[2][1]?
    Yes, Overwrite 18-->3@[2][1]!
Need to Re-Assign Student#3
[[8, 15, 14, 5], [16, 18, 7, 12], [4, 2, 6, 17], [1, 9, 0, 0], [10, 11, 1
3, 19]]
Try: Student#3 -> Labo#4
[[8, 15, 14, 5], [16, 18, 7, 12], [4, 2, 6, 17], [1, 9, 3, 0], [10, 11, 1
3, 19]]
Try: Student#20 -> Labo#3
FULL#3 -> Overwrite 20-->17@[3][3]?
    Yes, Overwrite 20-->17@[3][3]!
Need to Re-Assign Student#17
[[8, 15, 14, 5], [16, 18, 7, 12], [4, 2, 6, 20], [1, 9, 3, 0], [10, 11, 1
3, 19]]
Try: Student#17 -> Labo#2
FULL#2 -> Overwrite 17-->12@[2][3]?
[[8, 15, 14, 5], [16, 18, 7, 12], [4, 2, 6, 20], [1, 9, 3, 0], [10, 11, 1
3, 19]]
Try: Student#17 -> Labo#5
FULL#5 -> Overwrite 17-->13@[5][2]?
    Yes, Overwrite 17-->13@[5][2]!
```

Need to Re-Assign Student#13

[[8, 15, 14, 5], [16, 18, 7, 12], [4, 2, 6, 20], [1, 9, 3, 0], [10, 11, 17, 19]]

Try: Student#13 -> Labo#1

FULL#1 -> Overwrite 13-->14@[1][2]?

[[8, 15, 14, 5], [16, 18, 7, 12], [4, 2, 6, 20], [1, 9, 3, 0], [10, 11, 17, 19]]

Try: Student#13 -> Labo#3

FULL#3 -> Overwrite 13-->6@[3][2]?

[[8, 15, 14, 5], [16, 18, 7, 12], [4, 2, 6, 20], [1, 9, 3, 0], [10, 11, 17, 19]]

Try: Student#13 -> Labo#2

FULL#2 -> Overwrite 13-->12@[2][3]?

[[8, 15, 14, 5], [16, 18, 7, 12], [4, 2, 6, 20], [1, 9, 3, 0], [10, 11, 17, 19]]

Try: Student#13 -> Labo#4

[[8, 15, 14, 5], [16, 18, 7, 12], [4, 2, 6, 20], [1, 9, 3, 13], [10, 11, 17, 19]]

[4, 3, 4, 3, 1, 3, 2, 1, 4, 5, 5, 2, 4, 1, 1, 2, 5, 2, 5, 3]

'研究室視点：\u3000割り当てられた学生リスト'

	0	1	2	3
0	8	15	14	5
1	16	18	7	12
2	4	2	6	20
3	1	9	3	13
4	10	11	17	19

'学生視点：割り当てられた研究室リスト'

0	
0	4
1	3
2	4
3	3
4	1
5	3
6	2
7	1
8	4
9	5
10	5
11	2
12	4
13	1
14	1
15	2
16	5
17	2
18	5
19	3

```
In [3]: ## アサイン結果の妥当性の検証
## print(L2s) # 研究室視点: 割り当てられた学生リスト
## print(S2l) # 学生視点: 割り当てられた研究室リスト

# ラボの定員制約を満たしているか?
def q2lst(quota=QUOTA):
    result = []
    for i in range(1, len(quota)):
        n = quota[i]
        result += ([i] * n)
    return result

def verify( l2s=L2s, s2l=S2l, quota=QUOTA):
    alls = [ v for x in l2s for v in x ]
    print(alls)
    set_alls = set(alls)
    print(set_alls)
    assert len(alls) == len(set_alls) # 全員が、重複なく1つの研究室にアサイン済か

    lab_all = sorted(s2l)
    print(lab_all)
    assert lab_all == q2lst() # 全てのラボに定員漏れ・溢れなく学生がアサイン済か?

verify()

[8, 15, 14, 5, 16, 18, 7, 12, 4, 2, 6, 20, 1, 9, 3, 13, 10, 11, 17, 19]
{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20}
[1, 1, 1, 1, 2, 2, 2, 2, 3, 3, 3, 3, 4, 4, 4, 4, 5, 5, 5, 5]
```

```
In [4]: def eval_PS(s2l=S2l, ops=OpS): # Studentsの選好がどれくらい満たされたか評価する
order = []
for i in range(1, len(s2l)+1):
    result = s2l[i-1]
    pref = ops[i]
    rank = pref.index(result)+1
    order += [rank]
    print(f'Student#{i} prefs {pref} --> results {result}; orders:{rank}')
return order # 配属結果に対する選好順位のリスト

orders = eval_PS()
print('学生からみた配属研究所の希望順位の全体平均: ')
sum(orders)/len(orders)
```

```

Student#1 prefs [4, 5, 3, 1, 2] --> results 4; orders:1
Student#2 prefs [2, 3, 1, 4, 5] --> results 3; orders:2
Student#3 prefs [2, 4, 1, 3, 5] --> results 4; orders:2
Student#4 prefs [3, 4, 1, 5, 2] --> results 3; orders:1
Student#5 prefs [3, 1, 4, 5, 2] --> results 1; orders:2
Student#6 prefs [3, 1, 4, 2, 5] --> results 3; orders:1
Student#7 prefs [2, 5, 3, 4, 1] --> results 2; orders:1
Student#8 prefs [1, 3, 2, 4, 5] --> results 1; orders:1
Student#9 prefs [4, 5, 1, 3, 2] --> results 4; orders:1
Student#10 prefs [5, 2, 3, 4, 1] --> results 5; orders:1
Student#11 prefs [5, 3, 4, 1, 2] --> results 5; orders:1
Student#12 prefs [3, 2, 5, 1, 4] --> results 2; orders:2
Student#13 prefs [5, 1, 3, 2, 4] --> results 4; orders:5
Student#14 prefs [3, 1, 2, 4, 5] --> results 1; orders:2
Student#15 prefs [2, 1, 4, 3, 5] --> results 1; orders:2
Student#16 prefs [5, 2, 3, 1, 4] --> results 2; orders:2
Student#17 prefs [3, 2, 5, 1, 4] --> results 5; orders:3
Student#18 prefs [1, 3, 5, 2, 4] --> results 2; orders:4
Student#19 prefs [1, 5, 4, 3, 2] --> results 5; orders:2
Student#20 prefs [3, 2, 5, 4, 1] --> results 3; orders:1
学生からみた配属研究所の希望順位の全体平均：

```

Out[4]: 1.85

```

In [5]: def eval_PL(l2s=L2s,opl=OpL[1:]): # Labsの選好がどれくらい満たされたか評価する
        orders = []
        for i in range(len(l2s)):
            pref , result = opl[i] , l2s[i]
            rank = []
            for r in result:
                rank += [pref.index(r)+1]
            print(f'Lab#{i+1} prefs {pref} --> results {result}/orders{rank}; ave
            orders += [sorted(rank)]
        return orders # 配属結果に対する選好順位のリスト

orders = eval_PL()
print('ラボからみた配属学生の希望順位の全体平均：')
sum([sum(s) for s in orders])/sum(QUOTA)

```

```

Lab#1 prefs [4, 7, 6, 15, 3, 12, 16, 8, 11, 5, 14, 10, 20, 9, 18, 1, 13,
2, 17, 19] --> results [8, 15, 14, 5]/orders[8, 4, 11, 10]; average=8.25
Lab#2 prefs [20, 14, 11, 18, 7, 16, 12, 3, 17, 9, 2, 6, 19, 5, 15, 8, 4,
1, 10, 13] --> results [16, 18, 7, 12]/orders[6, 4, 5, 7]; average=5.5
Lab#3 prefs [19, 2, 16, 4, 20, 6, 11, 9, 10, 3, 15, 17, 18, 13, 1, 5, 14,
12, 8, 7] --> results [4, 2, 6, 20]/orders[4, 2, 6, 5]; average=4.25
Lab#4 prefs [7, 15, 16, 9, 19, 4, 6, 14, 20, 2, 10, 18, 11, 8, 3, 12, 5,
13, 1, 17] --> results [1, 9, 3, 13]/orders[19, 4, 15, 18]; average=14.0
Lab#5 prefs [12, 3, 15, 5, 14, 19, 10, 6, 20, 7, 17, 2, 1, 11, 13, 8, 4,
18, 16, 9] --> results [10, 11, 17, 19]/orders[7, 14, 11, 6]; average=9.5
ラボからみた配属学生の希望順位の全体平均：

```

Out[5]: 8.3

現実的なスケールの問題設定

- 研究室: 14
- 学生数: 67名
- 研究室の定員: $[5] * 12 + [4, 3] \# [5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 4, 3]$
- 研究室の選好 (Laboが希望するStudentの順序): ランダム(1-67) × 14研究室
- 学生の選好(Studentが希望するLaboの順序): ランダム(1-14) × 67学生

QUOTA = $[0] + [5] * 12 + [4, 3]$

ゼミ生の研究室への配属問題の安定マッチング

- 1:N割当 1つの研究室に定員N名の学生が割当可能
- 研究室の希望順序よりも, 学生の希望順序が優先される
- 学生の希望研究室リストについて, どの学生から割当ててもよい
- 学生は意図的に希望研究室リストを偽ったとしても得にならない

プログラム ロジックのおおまかな構成

- 各研究室の定員割当
- 乱数による希望順位作成 # 本番は, CSVファイルからpd.DataFrame
- 問題設定: `problem()`
- 安定マッチングによる学生の割当: `solve(); S2L();`
- 研究室からみた学生割当結果と学生からみた研究室割当結果を表示
- 割当結果の妥当性検証: `verify()`
- 学生の選好がどれくらい満たされたか評価: `eval_PS()`
- ラボの選好がどれくらい満たされたか評価: `eval_PL()`

In [6]: QUOTA = [0] + [5] * 12 + [4,3]

```
import copy
import numpy as np
np.random.seed(5731) # 乱数の再現性のため
import pandas as pd
pd.options.display.float_format = '{:.0f}'.format

def shuffled(n): # 乱数による順序生成
    a = np.arange(1,n+1)
    np.random.shuffle(a)
    return a.tolist() # Python List

def problem(): # 乱数を用いた問題設定
    lab_capa = QUOTA
    ns, nl = sum(lab_capa), len(lab_capa)-1
    prf_s = [shuffled(nl) for _ in range(ns)]
    prf_l = [shuffled(ns) for _ in range(nl)]

    return [[]]+prf_s, [[]]+prf_l

# リアルデータの場合は、CSVファイルからDataFrame生成

pS, pL = problem()

OpS = copy.deepcopy(pS) # 学生の選好リストのオリジナルをバックアップ
OpL = copy.deepcopy(pL) # ラボの選好リストのオリジナルをバックアップ

df_s = pd.DataFrame(pS)
df_l = pd.DataFrame(pL)

display('学生の選好(Studentが希望するLaboの順序): ランダム(1-5)×20学生')
display(df_s[1:])
display('研究室の選好 (Laboが希望するStudentの順序): ランダム(1-20)×5研究室')
display(df_l[1:])

display('リアルデータの場合は、CSVファイルからDataFrame生成')

# df_s = pd.read_csv('学生の選好リスト.csv')
# df_l = pd.read_csv('研究室の選好リスト.csv')

'学生の選好(Studentが希望するLaboの順序): ランダム(1-5)×20学生'
```

	0	1	2	3	4	5	6	7	8	9	10	11	12	13
1	12	4	14	6	2	11	3	5	9	13	8	7	1	10
2	4	6	11	7	5	8	1	3	13	12	9	14	10	2
3	7	10	4	12	1	11	14	6	13	9	5	8	3	2
4	1	2	13	9	3	11	12	6	8	5	7	10	4	14
5	1	7	3	10	2	13	8	6	5	14	4	12	11	9
...
63	14	8	5	2	11	10	12	6	9	1	4	7	3	13
64	5	3	11	2	1	13	4	6	10	14	12	7	8	9
65	12	2	5	4	8	6	3	14	13	10	7	1	9	11
66	1	11	14	8	9	4	3	5	10	12	6	2	13	7
67	1	13	4	14	6	11	3	8	10	7	9	2	12	5

67 rows × 14 columns

'研究室の選好（Laboが希望するStudentの順序）： ランダム（1-20）× 5 研究室'

	0	1	2	3	4	5	6	7	8	9	...	57	58	59	60	61	62	63	64	65
1	16	19	31	21	22	62	30	66	41	28	...	35	54	45	59	26	43	64	14	33
2	45	52	62	23	30	24	8	29	51	60	...	49	33	5	4	14	3	12	21	63
3	39	43	33	10	54	18	3	5	50	4	...	21	57	9	47	8	36	23	16	42
4	9	48	35	10	25	49	28	26	4	20	...	45	57	27	31	6	32	14	36	42
5	64	9	3	42	28	54	22	1	4	34	...	38	19	46	53	66	13	24	31	50
6	57	53	9	47	5	55	20	4	26	58	...	49	48	1	51	14	24	45	37	22
7	29	10	46	58	20	48	52	35	43	15	...	40	27	57	21	39	47	59	4	38
8	66	35	27	30	39	52	29	37	51	65	...	64	18	62	5	43	25	8	19	67
9	27	7	17	26	12	19	30	10	47	51	...	39	28	2	63	55	8	20	50	46
10	32	18	54	42	56	41	33	4	59	8	...	11	21	35	63	22	34	45	58	60
11	27	21	34	17	37	4	35	1	12	41	...	22	24	62	23	19	44	20	56	15
12	63	51	3	2	25	1	28	35	59	42	...	45	4	32	22	48	6	31	26	15
13	63	16	34	49	61	51	26	39	66	67	...	53	55	29	33	30	10	19	36	17
14	49	65	47	8	2	37	18	57	56	11	...	33	67	50	31	21	10	44	36	28

14 rows × 67 columns

'リアルデータの場合は、 CSVファイルからDataFrame生成'

```

In [7]: # 安定マッチングによる学生の割当 (学生の希望を優先)
Monitoring = True # 割当プロセスの表示フラグ

def solve(A=pS, B=pL, quota=QUOTA):
    L2S = [[0]*q for q in quota] # Lab -> Student

    for s in range(1, len(A)):
        while A[s]:
            t = A[s].pop(0)
            if Monitoring:
                print(f'Try: Student#{s} -> Labo#{t}') # Process Monitor
            if s in B[t]:
                if 0 in L2S[t]: # Not FULL
                    L2S[t][ L2S[t].index(0) ] = s
                    s = 0
                else: # FULL, need to exchange
                    k = max(range(len(L2S[t])), key=lambda x: B[t].index(
                        L2S[t][x]))
                    if Monitoring:
                        print(f'FULL#{t} -> Overwrite {s}-->{L2S[t][k]}@[{t}
                            B[t].index(s) < B[t].index( L2S[t][k] ):
                            if Monitoring:
                                print(f'    Yes, Overwrite {s}-->{L2S[t][k]}@[
                                    L2S[t][k], s = s, L2S[t][k]
                                print(f'Need to Re-Assign Student#{s}')
                    print(L2S[1:])
            return L2S,A # Lab -> Student    研究室視点:    割り当てられた学生リスト

def S2L(L2S,a): # Student -> Lab    学生視点:    割り当てられた研究室リスト
    s2l = [0] * len(a)
    for t,s in enumerate(L2S):
        for k in s:
            s2l[k] = t
    print(s2l[1:])
    return L2S[1:] , s2l[1:] # Lab -> Student

L2s , S2l = S2L(*solve())

dfL = pd.DataFrame(L2s)
display('研究室視点:    割り当てられた学生リスト')
display(dfL)

dfS = pd.DataFrame(S2l)
display('学生視点:    割り当てられた研究室リスト')
display(dfS)

```

```
Try: Student#1 -> Labo#12
```

```
[[0, 0, 0, 0, 0], [0, 0, 0, 0, 0], [0, 0, 0, 0, 0], [0, 0, 0, 0, 0], [0,
0, 0, 0, 0], [0, 0, 0, 0, 0], [0, 0, 0, 0, 0], [0, 0, 0, 0, 0], [0, 0, 0,
0, 0], [0, 0, 0, 0, 0], [0, 0, 0, 0, 0], [1, 0, 0, 0, 0], [0, 0, 0, 0, 0], [
0, 0, 0]]
```

```
Try: Student#2 -> Labo#4
```

```
[[0, 0, 0, 0, 0], [0, 0, 0, 0, 0], [0, 0, 0, 0, 0], [2, 0, 0, 0, 0], [0,
0, 0, 0, 0], [0, 0, 0, 0, 0], [0, 0, 0, 0, 0], [0, 0, 0, 0, 0], [0, 0, 0,
```

```
0, 0], [0, 0, 0, 0, 0], [0, 0, 0, 0, 0], [1, 0, 0, 0, 0], [0, 0, 0, 0], [
0, 0, 0]]
Try: Student#3 -> Labo#7
[[0, 0, 0, 0, 0], [0, 0, 0, 0, 0], [0, 0, 0, 0, 0], [2, 0, 0, 0, 0], [0,
0, 0, 0, 0], [0, 0, 0, 0, 0], [3, 0, 0, 0, 0], [0, 0, 0, 0, 0], [0, 0, 0,
0, 0], [0, 0, 0, 0, 0], [0, 0, 0, 0, 0], [1, 0, 0, 0, 0], [0, 0, 0, 0], [
0, 0, 0]]
Try: Student#4 -> Labo#1
[[4, 0, 0, 0, 0], [0, 0, 0, 0, 0], [0, 0, 0, 0, 0], [2, 0, 0, 0, 0], [0,
0, 0, 0, 0], [0, 0, 0, 0, 0], [3, 0, 0, 0, 0], [0, 0, 0, 0, 0], [0, 0, 0,
0, 0], [0, 0, 0, 0, 0], [0, 0, 0, 0, 0], [1, 0, 0, 0, 0], [0, 0, 0, 0], [
0, 0, 0]]
Try: Student#5 -> Labo#1
[[4, 5, 0, 0, 0], [0, 0, 0, 0, 0], [0, 0, 0, 0, 0], [2, 0, 0, 0, 0], [0,
0, 0, 0, 0], [0, 0, 0, 0, 0], [3, 0, 0, 0, 0], [0, 0, 0, 0, 0], [0, 0, 0,
0, 0], [0, 0, 0, 0, 0], [0, 0, 0, 0, 0], [1, 0, 0, 0, 0], [0, 0, 0, 0], [
0, 0, 0]]
Try: Student#6 -> Labo#10
[[4, 5, 0, 0, 0], [0, 0, 0, 0, 0], [0, 0, 0, 0, 0], [2, 0, 0, 0, 0], [0,
0, 0, 0, 0], [0, 0, 0, 0, 0], [3, 0, 0, 0, 0], [0, 0, 0, 0, 0], [0, 0, 0,
0, 0], [6, 0, 0, 0, 0], [0, 0, 0, 0, 0], [1, 0, 0, 0, 0], [0, 0, 0, 0], [
0, 0, 0]]
Try: Student#7 -> Labo#4
[[4, 5, 0, 0, 0], [0, 0, 0, 0, 0], [0, 0, 0, 0, 0], [2, 7, 0, 0, 0], [0,
0, 0, 0, 0], [0, 0, 0, 0, 0], [3, 0, 0, 0, 0], [0, 0, 0, 0, 0], [0, 0, 0,
0, 0], [6, 0, 0, 0, 0], [0, 0, 0, 0, 0], [1, 0, 0, 0, 0], [0, 0, 0, 0], [
0, 0, 0]]
Try: Student#8 -> Labo#14
[[4, 5, 0, 0, 0], [0, 0, 0, 0, 0], [0, 0, 0, 0, 0], [2, 7, 0, 0, 0], [0,
0, 0, 0, 0], [0, 0, 0, 0, 0], [3, 0, 0, 0, 0], [0, 0, 0, 0, 0], [0, 0, 0,
0, 0], [6, 0, 0, 0, 0], [0, 0, 0, 0, 0], [1, 0, 0, 0, 0], [0, 0, 0, 0], [
8, 0, 0]]
Try: Student#9 -> Labo#1
[[4, 5, 9, 0, 0], [0, 0, 0, 0, 0], [0, 0, 0, 0, 0], [2, 7, 0, 0, 0], [0,
0, 0, 0, 0], [0, 0, 0, 0, 0], [3, 0, 0, 0, 0], [0, 0, 0, 0, 0], [0, 0, 0,
0, 0], [6, 0, 0, 0, 0], [0, 0, 0, 0, 0], [1, 0, 0, 0, 0], [0, 0, 0, 0], [
8, 0, 0]]
Try: Student#10 -> Labo#11
[[4, 5, 9, 0, 0], [0, 0, 0, 0, 0], [0, 0, 0, 0, 0], [2, 7, 0, 0, 0], [0,
0, 0, 0, 0], [0, 0, 0, 0, 0], [3, 0, 0, 0, 0], [0, 0, 0, 0, 0], [0, 0, 0,
0, 0], [6, 0, 0, 0, 0], [10, 0, 0, 0, 0], [1, 0, 0, 0, 0], [0, 0, 0, 0], [
8, 0, 0]]
Try: Student#11 -> Labo#2
[[4, 5, 9, 0, 0], [11, 0, 0, 0, 0], [0, 0, 0, 0, 0], [2, 7, 0, 0, 0], [0,
0, 0, 0, 0], [0, 0, 0, 0, 0], [3, 0, 0, 0, 0], [0, 0, 0, 0, 0], [0, 0, 0,
0, 0], [6, 0, 0, 0, 0], [10, 0, 0, 0, 0], [1, 0, 0, 0, 0], [0, 0, 0, 0], [
8, 0, 0]]
Try: Student#12 -> Labo#3
[[4, 5, 9, 0, 0], [11, 0, 0, 0, 0], [12, 0, 0, 0, 0], [2, 7, 0, 0, 0], [
0, 0, 0, 0, 0], [0, 0, 0, 0, 0], [3, 0, 0, 0, 0], [0, 0, 0, 0, 0], [0, 0,
0, 0, 0], [6, 0, 0, 0, 0], [10, 0, 0, 0, 0], [1, 0, 0, 0, 0], [0, 0, 0,
0], [8, 0, 0]]
Try: Student#13 -> Labo#7
[[4, 5, 9, 0, 0], [11, 0, 0, 0, 0], [12, 0, 0, 0, 0], [2, 7, 0, 0, 0], [
```



```
0, 0, 0, 0, 0], [0, 0, 0, 0, 0], [3, 13, 0, 0, 0], [0, 0, 0, 0, 0], [0,
0, 0, 0, 0], [6, 0, 0, 0, 0], [10, 0, 0, 0, 0], [1, 0, 0, 0, 0], [0, 0,
0, 0], [8, 0, 0]]
Try: Student#14 -> Labo#4
[[4, 5, 9, 0, 0], [11, 0, 0, 0, 0], [12, 0, 0, 0, 0], [2, 7, 14, 0, 0], [
0, 0, 0, 0, 0], [0, 0, 0, 0, 0], [3, 13, 0, 0, 0], [0, 0, 0, 0, 0], [0,
0, 0, 0, 0], [6, 0, 0, 0, 0], [10, 0, 0, 0, 0], [1, 0, 0, 0, 0], [0, 0,
0, 0], [8, 0, 0]]
Try: Student#15 -> Labo#6
[[4, 5, 9, 0, 0], [11, 0, 0, 0, 0], [12, 0, 0, 0, 0], [2, 7, 14, 0, 0], [
0, 0, 0, 0, 0], [15, 0, 0, 0, 0], [3, 13, 0, 0, 0], [0, 0, 0, 0, 0], [0,
0, 0, 0, 0], [6, 0, 0, 0, 0], [10, 0, 0, 0, 0], [1, 0, 0, 0, 0], [0, 0,
0, 0], [8, 0, 0]]
Try: Student#16 -> Labo#9
[[4, 5, 9, 0, 0], [11, 0, 0, 0, 0], [12, 0, 0, 0, 0], [2, 7, 14, 0, 0], [
0, 0, 0, 0, 0], [15, 0, 0, 0, 0], [3, 13, 0, 0, 0], [0, 0, 0, 0, 0], [16,
0, 0, 0, 0], [6, 0, 0, 0, 0], [10, 0, 0, 0, 0], [1, 0, 0, 0, 0], [0, 0,
0, 0], [8, 0, 0]]
Try: Student#17 -> Labo#4
[[4, 5, 9, 0, 0], [11, 0, 0, 0, 0], [12, 0, 0, 0, 0], [2, 7, 14, 17, 0],
[0, 0, 0, 0, 0], [15, 0, 0, 0, 0], [3, 13, 0, 0, 0], [0, 0, 0, 0, 0], [1
6, 0, 0, 0, 0], [6, 0, 0, 0, 0], [10, 0, 0, 0, 0], [1, 0, 0, 0, 0], [0,
0, 0, 0], [8, 0, 0]]
Try: Student#18 -> Labo#14
[[4, 5, 9, 0, 0], [11, 0, 0, 0, 0], [12, 0, 0, 0, 0], [2, 7, 14, 17, 0],
[0, 0, 0, 0, 0], [15, 0, 0, 0, 0], [3, 13, 0, 0, 0], [0, 0, 0, 0, 0], [1
6, 0, 0, 0, 0], [6, 0, 0, 0, 0], [10, 0, 0, 0, 0], [1, 0, 0, 0, 0], [0,
0, 0, 0], [8, 18, 0]]
Try: Student#19 -> Labo#5
[[4, 5, 9, 0, 0], [11, 0, 0, 0, 0], [12, 0, 0, 0, 0], [2, 7, 14, 17, 0],
[19, 0, 0, 0, 0], [15, 0, 0, 0, 0], [3, 13, 0, 0, 0], [0, 0, 0, 0, 0], [1
6, 0, 0, 0, 0], [6, 0, 0, 0, 0], [10, 0, 0, 0, 0], [1, 0, 0, 0, 0], [0,
0, 0, 0], [8, 18, 0]]
Try: Student#20 -> Labo#12
[[4, 5, 9, 0, 0], [11, 0, 0, 0, 0], [12, 0, 0, 0, 0], [2, 7, 14, 17, 0],
[19, 0, 0, 0, 0], [15, 0, 0, 0, 0], [3, 13, 0, 0, 0], [0, 0, 0, 0, 0], [1
6, 0, 0, 0, 0], [6, 0, 0, 0, 0], [10, 0, 0, 0, 0], [1, 20, 0, 0, 0], [0,
0, 0, 0], [8, 18, 0]]
Try: Student#21 -> Labo#6
[[4, 5, 9, 0, 0], [11, 0, 0, 0, 0], [12, 0, 0, 0, 0], [2, 7, 14, 17, 0],
[19, 0, 0, 0, 0], [15, 21, 0, 0, 0], [3, 13, 0, 0, 0], [0, 0, 0, 0, 0], [
16, 0, 0, 0, 0], [6, 0, 0, 0, 0], [10, 0, 0, 0, 0], [1, 20, 0, 0, 0], [0,
0, 0, 0], [8, 18, 0]]
Try: Student#22 -> Labo#10
[[4, 5, 9, 0, 0], [11, 0, 0, 0, 0], [12, 0, 0, 0, 0], [2, 7, 14, 17, 0],
[19, 0, 0, 0, 0], [15, 21, 0, 0, 0], [3, 13, 0, 0, 0], [0, 0, 0, 0, 0], [
16, 0, 0, 0, 0], [6, 22, 0, 0, 0], [10, 0, 0, 0, 0], [1, 20, 0, 0, 0], [
0, 0, 0, 0], [8, 18, 0]]
Try: Student#23 -> Labo#4
[[4, 5, 9, 0, 0], [11, 0, 0, 0, 0], [12, 0, 0, 0, 0], [2, 7, 14, 17, 23],
[19, 0, 0, 0, 0], [15, 21, 0, 0, 0], [3, 13, 0, 0, 0], [0, 0, 0, 0, 0], [
16, 0, 0, 0, 0], [6, 22, 0, 0, 0], [10, 0, 0, 0, 0], [1, 20, 0, 0, 0], [
0, 0, 0, 0], [8, 18, 0]]
Try: Student#24 -> Labo#4
```

```

FULL#4 -> Overwrite 24-->14@[4][2]?
[[4, 5, 9, 0, 0], [11, 0, 0, 0, 0], [12, 0, 0, 0, 0], [2, 7, 14, 17, 23],
[19, 0, 0, 0, 0], [15, 21, 0, 0, 0], [3, 13, 0, 0, 0], [0, 0, 0, 0, 0], [
16, 0, 0, 0, 0], [6, 22, 0, 0, 0], [10, 0, 0, 0, 0], [1, 20, 0, 0, 0], [
0, 0, 0, 0, 0], [8, 18, 0]]
Try: Student#24 -> Labo#6
[[4, 5, 9, 0, 0], [11, 0, 0, 0, 0], [12, 0, 0, 0, 0], [2, 7, 14, 17, 23],
[19, 0, 0, 0, 0], [15, 21, 24, 0, 0], [3, 13, 0, 0, 0], [0, 0, 0, 0, 0],
[16, 0, 0, 0, 0], [6, 22, 0, 0, 0], [10, 0, 0, 0, 0], [1, 20, 0, 0, 0], [
0, 0, 0, 0, 0], [8, 18, 0]]
Try: Student#25 -> Labo#7
[[4, 5, 9, 0, 0], [11, 0, 0, 0, 0], [12, 0, 0, 0, 0], [2, 7, 14, 17, 23],
[19, 0, 0, 0, 0], [15, 21, 24, 0, 0], [3, 13, 25, 0, 0], [0, 0, 0, 0, 0],
[16, 0, 0, 0, 0], [6, 22, 0, 0, 0], [10, 0, 0, 0, 0], [1, 20, 0, 0, 0], [
0, 0, 0, 0, 0], [8, 18, 0]]
Try: Student#26 -> Labo#4
FULL#4 -> Overwrite 26-->14@[4][2]?
    Yes, Overwrite 26-->14@[4][2]!
Need to Re-Assign Student#14
[[4, 5, 9, 0, 0], [11, 0, 0, 0, 0], [12, 0, 0, 0, 0], [2, 7, 26, 17, 23],
[19, 0, 0, 0, 0], [15, 21, 24, 0, 0], [3, 13, 25, 0, 0], [0, 0, 0, 0, 0],
[16, 0, 0, 0, 0], [6, 22, 0, 0, 0], [10, 0, 0, 0, 0], [1, 20, 0, 0, 0], [
0, 0, 0, 0, 0], [8, 18, 0]]
Try: Student#14 -> Labo#5
[[4, 5, 9, 0, 0], [11, 0, 0, 0, 0], [12, 0, 0, 0, 0], [2, 7, 26, 17, 23],
[19, 14, 0, 0, 0], [15, 21, 24, 0, 0], [3, 13, 25, 0, 0], [0, 0, 0, 0,
0], [16, 0, 0, 0, 0], [6, 22, 0, 0, 0], [10, 0, 0, 0, 0], [1, 20, 0, 0,
0], [0, 0, 0, 0, 0], [8, 18, 0]]
Try: Student#27 -> Labo#2
[[4, 5, 9, 0, 0], [11, 27, 0, 0, 0], [12, 0, 0, 0, 0], [2, 7, 26, 17, 2
3], [19, 14, 0, 0, 0], [15, 21, 24, 0, 0], [3, 13, 25, 0, 0], [0, 0, 0,
0, 0], [16, 0, 0, 0, 0], [6, 22, 0, 0, 0], [10, 0, 0, 0, 0], [1, 20, 0,
0, 0], [0, 0, 0, 0, 0], [8, 18, 0]]
Try: Student#28 -> Labo#7
[[4, 5, 9, 0, 0], [11, 27, 0, 0, 0], [12, 0, 0, 0, 0], [2, 7, 26, 17, 2
3], [19, 14, 0, 0, 0], [15, 21, 24, 0, 0], [3, 13, 25, 28, 0], [0, 0, 0,
0, 0], [16, 0, 0, 0, 0], [6, 22, 0, 0, 0], [10, 0, 0, 0, 0], [1, 20, 0,
0, 0], [0, 0, 0, 0, 0], [8, 18, 0]]
Try: Student#29 -> Labo#13
[[4, 5, 9, 0, 0], [11, 27, 0, 0, 0], [12, 0, 0, 0, 0], [2, 7, 26, 17, 2
3], [19, 14, 0, 0, 0], [15, 21, 24, 0, 0], [3, 13, 25, 28, 0], [0, 0, 0,
0, 0], [16, 0, 0, 0, 0], [6, 22, 0, 0, 0], [10, 0, 0, 0, 0], [1, 20, 0,
0, 0], [29, 0, 0, 0], [8, 18, 0]]
Try: Student#30 -> Labo#9
[[4, 5, 9, 0, 0], [11, 27, 0, 0, 0], [12, 0, 0, 0, 0], [2, 7, 26, 17, 2
3], [19, 14, 0, 0, 0], [15, 21, 24, 0, 0], [3, 13, 25, 28, 0], [0, 0, 0,
0, 0], [16, 30, 0, 0, 0], [6, 22, 0, 0, 0], [10, 0, 0, 0, 0], [1, 20, 0,
0, 0], [29, 0, 0, 0], [8, 18, 0]]
Try: Student#31 -> Labo#12
[[4, 5, 9, 0, 0], [11, 27, 0, 0, 0], [12, 0, 0, 0, 0], [2, 7, 26, 17, 2
3], [19, 14, 0, 0, 0], [15, 21, 24, 0, 0], [3, 13, 25, 28, 0], [0, 0, 0,
0, 0], [16, 30, 0, 0, 0], [6, 22, 0, 0, 0], [10, 0, 0, 0, 0], [1, 20, 31,
0, 0], [29, 0, 0, 0], [8, 18, 0]]
Try: Student#32 -> Labo#2

```

```
[[4, 5, 9, 0, 0], [11, 27, 32, 0, 0], [12, 0, 0, 0, 0], [2, 7, 26, 17, 23], [19, 14, 0, 0, 0], [15, 21, 24, 0, 0], [3, 13, 25, 28, 0], [0, 0, 0, 0, 0], [16, 30, 0, 0, 0], [6, 22, 0, 0, 0], [10, 0, 0, 0, 0], [1, 20, 31, 0, 0], [29, 0, 0, 0], [8, 18, 0]]
```

Try: Student#33 -> Labo#2

```
[[4, 5, 9, 0, 0], [11, 27, 32, 33, 0], [12, 0, 0, 0, 0], [2, 7, 26, 17, 23], [19, 14, 0, 0, 0], [15, 21, 24, 0, 0], [3, 13, 25, 28, 0], [0, 0, 0, 0, 0], [16, 30, 0, 0, 0], [6, 22, 0, 0, 0], [10, 0, 0, 0, 0], [1, 20, 31, 0, 0], [29, 0, 0, 0], [8, 18, 0]]
```

Try: Student#34 -> Labo#5

```
[[4, 5, 9, 0, 0], [11, 27, 32, 33, 0], [12, 0, 0, 0, 0], [2, 7, 26, 17, 23], [19, 14, 34, 0, 0], [15, 21, 24, 0, 0], [3, 13, 25, 28, 0], [0, 0, 0, 0, 0], [16, 30, 0, 0, 0], [6, 22, 0, 0, 0], [10, 0, 0, 0, 0], [1, 20, 31, 0, 0], [29, 0, 0, 0], [8, 18, 0]]
```

Try: Student#35 -> Labo#2

```
[[4, 5, 9, 0, 0], [11, 27, 32, 33, 35], [12, 0, 0, 0, 0], [2, 7, 26, 17, 23], [19, 14, 34, 0, 0], [15, 21, 24, 0, 0], [3, 13, 25, 28, 0], [0, 0, 0, 0, 0], [16, 30, 0, 0, 0], [6, 22, 0, 0, 0], [10, 0, 0, 0, 0], [1, 20, 31, 0, 0], [29, 0, 0, 0], [8, 18, 0]]
```

Try: Student#36 -> Labo#3

```
[[4, 5, 9, 0, 0], [11, 27, 32, 33, 35], [12, 36, 0, 0, 0], [2, 7, 26, 17, 23], [19, 14, 34, 0, 0], [15, 21, 24, 0, 0], [3, 13, 25, 28, 0], [0, 0, 0, 0, 0], [16, 30, 0, 0, 0], [6, 22, 0, 0, 0], [10, 0, 0, 0, 0], [1, 20, 31, 0, 0], [29, 0, 0, 0], [8, 18, 0]]
```

Try: Student#37 -> Labo#4

FULL#4 -> Overwrite 37-->23@[4][4]?

Yes, Overwrite 37-->23@[4][4]!

Need to Re-Assign Student#23

```
[[4, 5, 9, 0, 0], [11, 27, 32, 33, 35], [12, 36, 0, 0, 0], [2, 7, 26, 17, 37], [19, 14, 34, 0, 0], [15, 21, 24, 0, 0], [3, 13, 25, 28, 0], [0, 0, 0, 0, 0], [16, 30, 0, 0, 0], [6, 22, 0, 0, 0], [10, 0, 0, 0, 0], [1, 20, 31, 0, 0], [29, 0, 0, 0], [8, 18, 0]]
```

Try: Student#23 -> Labo#14

```
[[4, 5, 9, 0, 0], [11, 27, 32, 33, 35], [12, 36, 0, 0, 0], [2, 7, 26, 17, 37], [19, 14, 34, 0, 0], [15, 21, 24, 0, 0], [3, 13, 25, 28, 0], [0, 0, 0, 0, 0], [16, 30, 0, 0, 0], [6, 22, 0, 0, 0], [10, 0, 0, 0, 0], [1, 20, 31, 0, 0], [29, 0, 0, 0], [8, 18, 23]]
```

Try: Student#38 -> Labo#4

FULL#4 -> Overwrite 38-->2@[4][0]?

Yes, Overwrite 38-->2@[4][0]!

Need to Re-Assign Student#2

```
[[4, 5, 9, 0, 0], [11, 27, 32, 33, 35], [12, 36, 0, 0, 0], [38, 7, 26, 17, 37], [19, 14, 34, 0, 0], [15, 21, 24, 0, 0], [3, 13, 25, 28, 0], [0, 0, 0, 0, 0], [16, 30, 0, 0, 0], [6, 22, 0, 0, 0], [10, 0, 0, 0, 0], [1, 20, 31, 0, 0], [29, 0, 0, 0], [8, 18, 23]]
```

Try: Student#2 -> Labo#6

```
[[4, 5, 9, 0, 0], [11, 27, 32, 33, 35], [12, 36, 0, 0, 0], [38, 7, 26, 17, 37], [19, 14, 34, 0, 0], [15, 21, 24, 2, 0], [3, 13, 25, 28, 0], [0, 0, 0, 0, 0], [16, 30, 0, 0, 0], [6, 22, 0, 0, 0], [10, 0, 0, 0, 0], [1, 20, 31, 0, 0], [29, 0, 0, 0], [8, 18, 23]]
```

Try: Student#39 -> Labo#10

```
[[4, 5, 9, 0, 0], [11, 27, 32, 33, 35], [12, 36, 0, 0, 0], [38, 7, 26, 17, 37], [19, 14, 34, 0, 0], [15, 21, 24, 2, 0], [3, 13, 25, 28, 0], [0, 0, 0, 0, 0], [16, 30, 0, 0, 0], [6, 22, 39, 0, 0], [10, 0, 0, 0, 0], [1,
```

```
20, 31, 0, 0], [29, 0, 0, 0], [8, 18, 23]]
Try: Student#40 -> Labo#4
FULL#4 -> Overwrite 40-->17@[4][3]?
[[4, 5, 9, 0, 0], [11, 27, 32, 33, 35], [12, 36, 0, 0, 0], [38, 7, 26, 1
7, 37], [19, 14, 34, 0, 0], [15, 21, 24, 2, 0], [3, 13, 25, 28, 0], [0,
0, 0, 0, 0], [16, 30, 0, 0, 0], [6, 22, 39, 0, 0], [10, 0, 0, 0, 0], [1,
20, 31, 0, 0], [29, 0, 0, 0], [8, 18, 23]]
Try: Student#40 -> Labo#5
[[4, 5, 9, 0, 0], [11, 27, 32, 33, 35], [12, 36, 0, 0, 0], [38, 7, 26, 1
7, 37], [19, 14, 34, 40, 0], [15, 21, 24, 2, 0], [3, 13, 25, 28, 0], [0,
0, 0, 0, 0], [16, 30, 0, 0, 0], [6, 22, 39, 0, 0], [10, 0, 0, 0, 0], [1,
20, 31, 0, 0], [29, 0, 0, 0], [8, 18, 23]]
Try: Student#41 -> Labo#10
[[4, 5, 9, 0, 0], [11, 27, 32, 33, 35], [12, 36, 0, 0, 0], [38, 7, 26, 1
7, 37], [19, 14, 34, 40, 0], [15, 21, 24, 2, 0], [3, 13, 25, 28, 0], [0,
0, 0, 0, 0], [16, 30, 0, 0, 0], [6, 22, 39, 41, 0], [10, 0, 0, 0, 0], [1,
20, 31, 0, 0], [29, 0, 0, 0], [8, 18, 23]]
Try: Student#42 -> Labo#6
[[4, 5, 9, 0, 0], [11, 27, 32, 33, 35], [12, 36, 0, 0, 0], [38, 7, 26, 1
7, 37], [19, 14, 34, 40, 0], [15, 21, 24, 2, 42], [3, 13, 25, 28, 0], [0,
0, 0, 0, 0], [16, 30, 0, 0, 0], [6, 22, 39, 41, 0], [10, 0, 0, 0, 0], [1,
20, 31, 0, 0], [29, 0, 0, 0], [8, 18, 23]]
Try: Student#43 -> Labo#5
[[4, 5, 9, 0, 0], [11, 27, 32, 33, 35], [12, 36, 0, 0, 0], [38, 7, 26, 1
7, 37], [19, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 0], [
0, 0, 0, 0, 0], [16, 30, 0, 0, 0], [6, 22, 39, 41, 0], [10, 0, 0, 0, 0],
[1, 20, 31, 0, 0], [29, 0, 0, 0], [8, 18, 23]]
Try: Student#44 -> Labo#8
[[4, 5, 9, 0, 0], [11, 27, 32, 33, 35], [12, 36, 0, 0, 0], [38, 7, 26, 1
7, 37], [19, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 0], [4
4, 0, 0, 0, 0], [16, 30, 0, 0, 0], [6, 22, 39, 41, 0], [10, 0, 0, 0, 0],
[1, 20, 31, 0, 0], [29, 0, 0, 0], [8, 18, 23]]
Try: Student#45 -> Labo#7
[[4, 5, 9, 0, 0], [11, 27, 32, 33, 35], [12, 36, 0, 0, 0], [38, 7, 26, 1
7, 37], [19, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 45], [
44, 0, 0, 0, 0], [16, 30, 0, 0, 0], [6, 22, 39, 41, 0], [10, 0, 0, 0, 0],
[1, 20, 31, 0, 0], [29, 0, 0, 0], [8, 18, 23]]
Try: Student#46 -> Labo#8
[[4, 5, 9, 0, 0], [11, 27, 32, 33, 35], [12, 36, 0, 0, 0], [38, 7, 26, 1
7, 37], [19, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 45], [
44, 46, 0, 0, 0], [16, 30, 0, 0, 0], [6, 22, 39, 41, 0], [10, 0, 0, 0,
0], [1, 20, 31, 0, 0], [29, 0, 0, 0], [8, 18, 23]]
Try: Student#47 -> Labo#12
[[4, 5, 9, 0, 0], [11, 27, 32, 33, 35], [12, 36, 0, 0, 0], [38, 7, 26, 1
7, 37], [19, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 45], [
44, 46, 0, 0, 0], [16, 30, 0, 0, 0], [6, 22, 39, 41, 0], [10, 0, 0, 0,
0], [1, 20, 31, 47, 0], [29, 0, 0, 0], [8, 18, 23]]
Try: Student#48 -> Labo#10
[[4, 5, 9, 0, 0], [11, 27, 32, 33, 35], [12, 36, 0, 0, 0], [38, 7, 26, 1
7, 37], [19, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 45], [
44, 46, 0, 0, 0], [16, 30, 0, 0, 0], [6, 22, 39, 41, 48], [10, 0, 0, 0,
0], [1, 20, 31, 47, 0], [29, 0, 0, 0], [8, 18, 23]]
Try: Student#49 -> Labo#1
[[4, 5, 9, 49, 0], [11, 27, 32, 33, 35], [12, 36, 0, 0, 0], [38, 7, 26, 1
```

```
7, 37], [19, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 45], [
44, 46, 0, 0, 0], [16, 30, 0, 0, 0], [6, 22, 39, 41, 48], [10, 0, 0, 0,
0], [1, 20, 31, 47, 0], [29, 0, 0, 0], [8, 18, 23]]
Try: Student#50 -> Labo#13
[[4, 5, 9, 49, 0], [11, 27, 32, 33, 35], [12, 36, 0, 0, 0], [38, 7, 26, 1
7, 37], [19, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 45], [
44, 46, 0, 0, 0], [16, 30, 0, 0, 0], [6, 22, 39, 41, 48], [10, 0, 0, 0,
0], [1, 20, 31, 47, 0], [29, 50, 0, 0], [8, 18, 23]]
Try: Student#51 -> Labo#7
FULL#7 -> Overwrite 51-->3@[7][0]?
[[4, 5, 9, 49, 0], [11, 27, 32, 33, 35], [12, 36, 0, 0, 0], [38, 7, 26, 1
7, 37], [19, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 45], [
44, 46, 0, 0, 0], [16, 30, 0, 0, 0], [6, 22, 39, 41, 48], [10, 0, 0, 0,
0], [1, 20, 31, 47, 0], [29, 50, 0, 0], [8, 18, 23]]
Try: Student#51 -> Labo#3
[[4, 5, 9, 49, 0], [11, 27, 32, 33, 35], [12, 36, 51, 0, 0], [38, 7, 26,
17, 37], [19, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 45],
[44, 46, 0, 0, 0], [16, 30, 0, 0, 0], [6, 22, 39, 41, 48], [10, 0, 0, 0,
0], [1, 20, 31, 47, 0], [29, 50, 0, 0], [8, 18, 23]]
Try: Student#52 -> Labo#3
[[4, 5, 9, 49, 0], [11, 27, 32, 33, 35], [12, 36, 51, 52, 0], [38, 7, 26,
17, 37], [19, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 45],
[44, 46, 0, 0, 0], [16, 30, 0, 0, 0], [6, 22, 39, 41, 48], [10, 0, 0, 0,
0], [1, 20, 31, 47, 0], [29, 50, 0, 0], [8, 18, 23]]
Try: Student#53 -> Labo#12
[[4, 5, 9, 49, 0], [11, 27, 32, 33, 35], [12, 36, 51, 52, 0], [38, 7, 26,
17, 37], [19, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 45],
[44, 46, 0, 0, 0], [16, 30, 0, 0, 0], [6, 22, 39, 41, 48], [10, 0, 0, 0,
0], [1, 20, 31, 47, 53], [29, 50, 0, 0], [8, 18, 23]]
Try: Student#54 -> Labo#14
FULL#14 -> Overwrite 54-->23@[14][2]?
Yes, Overwrite 54-->23@[14][2]!
Need to Re-Assign Student#23
[[4, 5, 9, 49, 0], [11, 27, 32, 33, 35], [12, 36, 51, 52, 0], [38, 7, 26,
17, 37], [19, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 45],
[44, 46, 0, 0, 0], [16, 30, 0, 0, 0], [6, 22, 39, 41, 48], [10, 0, 0, 0,
0], [1, 20, 31, 47, 53], [29, 50, 0, 0], [8, 18, 54]]
Try: Student#23 -> Labo#10
FULL#10 -> Overwrite 23-->22@[10][1]?
Yes, Overwrite 23-->22@[10][1]!
Need to Re-Assign Student#22
[[4, 5, 9, 49, 0], [11, 27, 32, 33, 35], [12, 36, 51, 52, 0], [38, 7, 26,
17, 37], [19, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 45],
[44, 46, 0, 0, 0], [16, 30, 0, 0, 0], [6, 23, 39, 41, 48], [10, 0, 0, 0,
0], [1, 20, 31, 47, 53], [29, 50, 0, 0], [8, 18, 54]]
Try: Student#22 -> Labo#11
[[4, 5, 9, 49, 0], [11, 27, 32, 33, 35], [12, 36, 51, 52, 0], [38, 7, 26,
17, 37], [19, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 45],
[44, 46, 0, 0, 0], [16, 30, 0, 0, 0], [6, 23, 39, 41, 48], [10, 22, 0, 0,
0], [1, 20, 31, 47, 53], [29, 50, 0, 0], [8, 18, 54]]
Try: Student#55 -> Labo#14
FULL#14 -> Overwrite 55-->54@[14][2]?
[[4, 5, 9, 49, 0], [11, 27, 32, 33, 35], [12, 36, 51, 52, 0], [38, 7, 26,
17, 37], [19, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 45],
```

```
[44, 46, 0, 0, 0], [16, 30, 0, 0, 0], [6, 23, 39, 41, 48], [10, 22, 0, 0, 0], [1, 20, 31, 47, 53], [29, 50, 0, 0], [8, 18, 54]]
Try: Student#55 -> Labo#9
[[4, 5, 9, 49, 0], [11, 27, 32, 33, 35], [12, 36, 51, 52, 0], [38, 7, 26, 17, 37], [19, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 45], [44, 46, 0, 0, 0], [16, 30, 55, 0, 0], [6, 23, 39, 41, 48], [10, 22, 0, 0, 0], [1, 20, 31, 47, 53], [29, 50, 0, 0], [8, 18, 54]]
Try: Student#56 -> Labo#13
[[4, 5, 9, 49, 0], [11, 27, 32, 33, 35], [12, 36, 51, 52, 0], [38, 7, 26, 17, 37], [19, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 45], [44, 46, 0, 0, 0], [16, 30, 55, 0, 0], [6, 23, 39, 41, 48], [10, 22, 0, 0, 0], [1, 20, 31, 47, 53], [29, 50, 56, 0], [8, 18, 54]]
Try: Student#57 -> Labo#11
[[4, 5, 9, 49, 0], [11, 27, 32, 33, 35], [12, 36, 51, 52, 0], [38, 7, 26, 17, 37], [19, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 45], [44, 46, 0, 0, 0], [16, 30, 55, 0, 0], [6, 23, 39, 41, 48], [10, 22, 57, 0, 0], [1, 20, 31, 47, 53], [29, 50, 56, 0], [8, 18, 54]]
Try: Student#58 -> Labo#8
[[4, 5, 9, 49, 0], [11, 27, 32, 33, 35], [12, 36, 51, 52, 0], [38, 7, 26, 17, 37], [19, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 45], [44, 46, 58, 0, 0], [16, 30, 55, 0, 0], [6, 23, 39, 41, 48], [10, 22, 57, 0, 0], [1, 20, 31, 47, 53], [29, 50, 56, 0], [8, 18, 54]]
Try: Student#59 -> Labo#3
[[4, 5, 9, 49, 0], [11, 27, 32, 33, 35], [12, 36, 51, 52, 59], [38, 7, 26, 17, 37], [19, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 45], [44, 46, 58, 0, 0], [16, 30, 55, 0, 0], [6, 23, 39, 41, 48], [10, 22, 57, 0, 0], [1, 20, 31, 47, 53], [29, 50, 56, 0], [8, 18, 54]]
Try: Student#60 -> Labo#8
[[4, 5, 9, 49, 0], [11, 27, 32, 33, 35], [12, 36, 51, 52, 59], [38, 7, 26, 17, 37], [19, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 45], [44, 46, 58, 60, 0], [16, 30, 55, 0, 0], [6, 23, 39, 41, 48], [10, 22, 57, 0, 0], [1, 20, 31, 47, 53], [29, 50, 56, 0], [8, 18, 54]]
Try: Student#61 -> Labo#1
[[4, 5, 9, 49, 61], [11, 27, 32, 33, 35], [12, 36, 51, 52, 59], [38, 7, 26, 17, 37], [19, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 45], [44, 46, 58, 60, 0], [16, 30, 55, 0, 0], [6, 23, 39, 41, 48], [10, 22, 57, 0, 0], [1, 20, 31, 47, 53], [29, 50, 56, 0], [8, 18, 54]]
Try: Student#62 -> Labo#4
FULL#4 -> Overwrite 62-->17@[4][3]?
[[4, 5, 9, 49, 61], [11, 27, 32, 33, 35], [12, 36, 51, 52, 59], [38, 7, 26, 17, 37], [19, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 45], [44, 46, 58, 60, 0], [16, 30, 55, 0, 0], [6, 23, 39, 41, 48], [10, 22, 57, 0, 0], [1, 20, 31, 47, 53], [29, 50, 56, 0], [8, 18, 54]]
Try: Student#62 -> Labo#7
FULL#7 -> Overwrite 62-->3@[7][0]?
[[4, 5, 9, 49, 61], [11, 27, 32, 33, 35], [12, 36, 51, 52, 59], [38, 7, 26, 17, 37], [19, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 45], [44, 46, 58, 60, 0], [16, 30, 55, 0, 0], [6, 23, 39, 41, 48], [10, 22, 57, 0, 0], [1, 20, 31, 47, 53], [29, 50, 56, 0], [8, 18, 54]]
Try: Student#62 -> Labo#5
FULL#5 -> Overwrite 62-->19@[5][0]?
    Yes, Overwrite 62-->19@[5][0]!
Need to Re-Assign Student#19
[[4, 5, 9, 49, 61], [11, 27, 32, 33, 35], [12, 36, 51, 52, 59], [38, 7, 26, 17, 37], [19, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 45], [44, 46, 58, 60, 0], [16, 30, 55, 0, 0], [6, 23, 39, 41, 48], [10, 22, 57, 0, 0], [1, 20, 31, 47, 53], [29, 50, 56, 0], [8, 18, 54]]
```

```
6, 17, 37], [62, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 4
5], [44, 46, 58, 60, 0], [16, 30, 55, 0, 0], [6, 23, 39, 41, 48], [10, 2
2, 57, 0, 0], [1, 20, 31, 47, 53], [29, 50, 56, 0], [8, 18, 54]]
Try: Student#19 -> Labo#11
[[4, 5, 9, 49, 61], [11, 27, 32, 33, 35], [12, 36, 51, 52, 59], [38, 7, 2
6, 17, 37], [62, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 4
5], [44, 46, 58, 60, 0], [16, 30, 55, 0, 0], [6, 23, 39, 41, 48], [10, 2
2, 57, 19, 0], [1, 20, 31, 47, 53], [29, 50, 56, 0], [8, 18, 54]]
Try: Student#63 -> Labo#14
FULL#14 -> Overwrite 63-->54@[14][2]?
Yes, Overwrite 63-->54@[14][2]!
Need to Re-Assign Student#54
[[4, 5, 9, 49, 61], [11, 27, 32, 33, 35], [12, 36, 51, 52, 59], [38, 7, 2
6, 17, 37], [62, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 4
5], [44, 46, 58, 60, 0], [16, 30, 55, 0, 0], [6, 23, 39, 41, 48], [10, 2
2, 57, 19, 0], [1, 20, 31, 47, 53], [29, 50, 56, 0], [8, 18, 63]]
Try: Student#54 -> Labo#8
[[4, 5, 9, 49, 61], [11, 27, 32, 33, 35], [12, 36, 51, 52, 59], [38, 7, 2
6, 17, 37], [62, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 4
5], [44, 46, 58, 60, 54], [16, 30, 55, 0, 0], [6, 23, 39, 41, 48], [10, 2
2, 57, 19, 0], [1, 20, 31, 47, 53], [29, 50, 56, 0], [8, 18, 63]]
Try: Student#64 -> Labo#5
FULL#5 -> Overwrite 64-->62@[5][0]?
Yes, Overwrite 64-->62@[5][0]!
Need to Re-Assign Student#62
[[4, 5, 9, 49, 61], [11, 27, 32, 33, 35], [12, 36, 51, 52, 59], [38, 7, 2
6, 17, 37], [64, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 4
5], [44, 46, 58, 60, 54], [16, 30, 55, 0, 0], [6, 23, 39, 41, 48], [10, 2
2, 57, 19, 0], [1, 20, 31, 47, 53], [29, 50, 56, 0], [8, 18, 63]]
Try: Student#62 -> Labo#1
FULL#1 -> Overwrite 62-->9@[1][2]?
Yes, Overwrite 62-->9@[1][2]!
Need to Re-Assign Student#9
[[4, 5, 62, 49, 61], [11, 27, 32, 33, 35], [12, 36, 51, 52, 59], [38, 7,
26, 17, 37], [64, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 4
5], [44, 46, 58, 60, 54], [16, 30, 55, 0, 0], [6, 23, 39, 41, 48], [10, 2
2, 57, 19, 0], [1, 20, 31, 47, 53], [29, 50, 56, 0], [8, 18, 63]]
Try: Student#9 -> Labo#12
FULL#12 -> Overwrite 9-->31@[12][2]?
Yes, Overwrite 9-->31@[12][2]!
Need to Re-Assign Student#31
[[4, 5, 62, 49, 61], [11, 27, 32, 33, 35], [12, 36, 51, 52, 59], [38, 7,
26, 17, 37], [64, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 4
5], [44, 46, 58, 60, 54], [16, 30, 55, 0, 0], [6, 23, 39, 41, 48], [10, 2
2, 57, 19, 0], [1, 20, 9, 47, 53], [29, 50, 56, 0], [8, 18, 63]]
Try: Student#31 -> Labo#10
FULL#10 -> Overwrite 31-->6@[10][0]?
[[4, 5, 62, 49, 61], [11, 27, 32, 33, 35], [12, 36, 51, 52, 59], [38, 7,
26, 17, 37], [64, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 4
5], [44, 46, 58, 60, 54], [16, 30, 55, 0, 0], [6, 23, 39, 41, 48], [10, 2
2, 57, 19, 0], [1, 20, 9, 47, 53], [29, 50, 56, 0], [8, 18, 63]]
Try: Student#31 -> Labo#9
[[4, 5, 62, 49, 61], [11, 27, 32, 33, 35], [12, 36, 51, 52, 59], [38, 7,
26, 17, 37], [64, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 4
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5], [44, 46, 58, 60, 54], [16, 30, 55, 31, 0], [6, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 9, 47, 53], [29, 50, 56, 0], [8, 18, 63]]
Try: Student#65 -> Labo#12
FULL#12 -> Overwrite 65-->9@[12][2]?
    Yes, Overwrite 65-->9@[12][2]!
Need to Re-Assign Student#9
[[4, 5, 62, 49, 61], [11, 27, 32, 33, 35], [12, 36, 51, 52, 59], [38, 7,
26, 17, 37], [64, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 4
5], [44, 46, 58, 60, 54], [16, 30, 55, 31, 0], [6, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 65, 47, 53], [29, 50, 56, 0], [8, 18, 63]]
Try: Student#9 -> Labo#2
FULL#2 -> Overwrite 9-->33@[2][3]?
    Yes, Overwrite 9-->33@[2][3]!
Need to Re-Assign Student#33
[[4, 5, 62, 49, 61], [11, 27, 32, 9, 35], [12, 36, 51, 52, 59], [38, 7, 2
6, 17, 37], [64, 14, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 4
5], [44, 46, 58, 60, 54], [16, 30, 55, 31, 0], [6, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 65, 47, 53], [29, 50, 56, 0], [8, 18, 63]]
Try: Student#33 -> Labo#5
FULL#5 -> Overwrite 33-->14@[5][1]?
    Yes, Overwrite 33-->14@[5][1]!
Need to Re-Assign Student#14
[[4, 5, 62, 49, 61], [11, 27, 32, 9, 35], [12, 36, 51, 52, 59], [38, 7, 2
6, 17, 37], [64, 33, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 4
5], [44, 46, 58, 60, 54], [16, 30, 55, 31, 0], [6, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 65, 47, 53], [29, 50, 56, 0], [8, 18, 63]]
Try: Student#14 -> Labo#14
FULL#14 -> Overwrite 14-->63@[14][2]?
[[4, 5, 62, 49, 61], [11, 27, 32, 9, 35], [12, 36, 51, 52, 59], [38, 7, 2
6, 17, 37], [64, 33, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 4
5], [44, 46, 58, 60, 54], [16, 30, 55, 31, 0], [6, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 65, 47, 53], [29, 50, 56, 0], [8, 18, 63]]
Try: Student#14 -> Labo#3
FULL#3 -> Overwrite 14-->36@[3][1]?
    Yes, Overwrite 14-->36@[3][1]!
Need to Re-Assign Student#36
[[4, 5, 62, 49, 61], [11, 27, 32, 9, 35], [12, 14, 51, 52, 59], [38, 7, 2
6, 17, 37], [64, 33, 34, 40, 43], [15, 21, 24, 2, 42], [3, 13, 25, 28, 4
5], [44, 46, 58, 60, 54], [16, 30, 55, 31, 0], [6, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 65, 47, 53], [29, 50, 56, 0], [8, 18, 63]]
Try: Student#36 -> Labo#7
FULL#7 -> Overwrite 36-->3@[7][0]?
    Yes, Overwrite 36-->3@[7][0]!
Need to Re-Assign Student#3
[[4, 5, 62, 49, 61], [11, 27, 32, 9, 35], [12, 14, 51, 52, 59], [38, 7, 2
6, 17, 37], [64, 33, 34, 40, 43], [15, 21, 24, 2, 42], [36, 13, 25, 28, 4
5], [44, 46, 58, 60, 54], [16, 30, 55, 31, 0], [6, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 65, 47, 53], [29, 50, 56, 0], [8, 18, 63]]
Try: Student#3 -> Labo#10
FULL#10 -> Overwrite 3-->6@[10][0]?
[[4, 5, 62, 49, 61], [11, 27, 32, 9, 35], [12, 14, 51, 52, 59], [38, 7, 2
6, 17, 37], [64, 33, 34, 40, 43], [15, 21, 24, 2, 42], [36, 13, 25, 28, 4
5], [44, 46, 58, 60, 54], [16, 30, 55, 31, 0], [6, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 65, 47, 53], [29, 50, 56, 0], [8, 18, 63]]
```



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Try: Student#3 -> Labo#4
FULL#4 -> Overwrite 3-->17@[4][3]?
[[4, 5, 62, 49, 61], [11, 27, 32, 9, 35], [12, 14, 51, 52, 59], [38, 7, 2
6, 17, 37], [64, 33, 34, 40, 43], [15, 21, 24, 2, 42], [36, 13, 25, 28, 4
5], [44, 46, 58, 60, 54], [16, 30, 55, 31, 0], [6, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 65, 47, 53], [29, 50, 56, 0], [8, 18, 63]]
Try: Student#3 -> Labo#12
FULL#12 -> Overwrite 3-->65@[12][2]?
    Yes, Overwrite 3-->65@[12][2]!
Need to Re-Assign Student#65
[[4, 5, 62, 49, 61], [11, 27, 32, 9, 35], [12, 14, 51, 52, 59], [38, 7, 2
6, 17, 37], [64, 33, 34, 40, 43], [15, 21, 24, 2, 42], [36, 13, 25, 28, 4
5], [44, 46, 58, 60, 54], [16, 30, 55, 31, 0], [6, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 3, 47, 53], [29, 50, 56, 0], [8, 18, 63]]
Try: Student#65 -> Labo#2
FULL#2 -> Overwrite 65-->11@[2][0]?
[[4, 5, 62, 49, 61], [11, 27, 32, 9, 35], [12, 14, 51, 52, 59], [38, 7, 2
6, 17, 37], [64, 33, 34, 40, 43], [15, 21, 24, 2, 42], [36, 13, 25, 28, 4
5], [44, 46, 58, 60, 54], [16, 30, 55, 31, 0], [6, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 3, 47, 53], [29, 50, 56, 0], [8, 18, 63]]
Try: Student#65 -> Labo#5
FULL#5 -> Overwrite 65-->33@[5][1]?
[[4, 5, 62, 49, 61], [11, 27, 32, 9, 35], [12, 14, 51, 52, 59], [38, 7, 2
6, 17, 37], [64, 33, 34, 40, 43], [15, 21, 24, 2, 42], [36, 13, 25, 28, 4
5], [44, 46, 58, 60, 54], [16, 30, 55, 31, 0], [6, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 3, 47, 53], [29, 50, 56, 0], [8, 18, 63]]
Try: Student#65 -> Labo#4
FULL#4 -> Overwrite 65-->17@[4][3]?
[[4, 5, 62, 49, 61], [11, 27, 32, 9, 35], [12, 14, 51, 52, 59], [38, 7, 2
6, 17, 37], [64, 33, 34, 40, 43], [15, 21, 24, 2, 42], [36, 13, 25, 28, 4
5], [44, 46, 58, 60, 54], [16, 30, 55, 31, 0], [6, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 3, 47, 53], [29, 50, 56, 0], [8, 18, 63]]
Try: Student#65 -> Labo#8
FULL#8 -> Overwrite 65-->46@[8][1]?
    Yes, Overwrite 65-->46@[8][1]!
Need to Re-Assign Student#46
[[4, 5, 62, 49, 61], [11, 27, 32, 9, 35], [12, 14, 51, 52, 59], [38, 7, 2
6, 17, 37], [64, 33, 34, 40, 43], [15, 21, 24, 2, 42], [36, 13, 25, 28, 4
5], [44, 65, 58, 60, 54], [16, 30, 55, 31, 0], [6, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 3, 47, 53], [29, 50, 56, 0], [8, 18, 63]]
Try: Student#46 -> Labo#13
[[4, 5, 62, 49, 61], [11, 27, 32, 9, 35], [12, 14, 51, 52, 59], [38, 7, 2
6, 17, 37], [64, 33, 34, 40, 43], [15, 21, 24, 2, 42], [36, 13, 25, 28, 4
5], [44, 65, 58, 60, 54], [16, 30, 55, 31, 0], [6, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 3, 47, 53], [29, 50, 56, 46], [8, 18, 63]]
Try: Student#66 -> Labo#1
FULL#1 -> Overwrite 66-->61@[1][4]?
    Yes, Overwrite 66-->61@[1][4]!
Need to Re-Assign Student#61
[[4, 5, 62, 49, 66], [11, 27, 32, 9, 35], [12, 14, 51, 52, 59], [38, 7, 2
6, 17, 37], [64, 33, 34, 40, 43], [15, 21, 24, 2, 42], [36, 13, 25, 28, 4
5], [44, 65, 58, 60, 54], [16, 30, 55, 31, 0], [6, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 3, 47, 53], [29, 50, 56, 46], [8, 18, 63]]
Try: Student#61 -> Labo#10
```

FULL#10 -> Overwrite 61-->6@[10][0]?

Yes, Overwrite 61-->6@[10][0]!

Need to Re-Assign Student#6

[[4, 5, 62, 49, 66], [11, 27, 32, 9, 35], [12, 14, 51, 52, 59], [38, 7, 2
6, 17, 37], [64, 33, 34, 40, 43], [15, 21, 24, 2, 42], [36, 13, 25, 28, 4
5], [44, 65, 58, 60, 54], [16, 30, 55, 31, 0], [61, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 3, 47, 53], [29, 50, 56, 46], [8, 18, 63]]

Try: Student#6 -> Labo#7

FULL#7 -> Overwrite 6-->25@[7][2]?

[[4, 5, 62, 49, 66], [11, 27, 32, 9, 35], [12, 14, 51, 52, 59], [38, 7, 2
6, 17, 37], [64, 33, 34, 40, 43], [15, 21, 24, 2, 42], [36, 13, 25, 28, 4
5], [44, 65, 58, 60, 54], [16, 30, 55, 31, 0], [61, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 3, 47, 53], [29, 50, 56, 46], [8, 18, 63]]

Try: Student#6 -> Labo#5

FULL#5 -> Overwrite 6-->33@[5][1]?

Yes, Overwrite 6-->33@[5][1]!

Need to Re-Assign Student#33

[[4, 5, 62, 49, 66], [11, 27, 32, 9, 35], [12, 14, 51, 52, 59], [38, 7, 2
6, 17, 37], [64, 6, 34, 40, 43], [15, 21, 24, 2, 42], [36, 13, 25, 28, 4
5], [44, 65, 58, 60, 54], [16, 30, 55, 31, 0], [61, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 3, 47, 53], [29, 50, 56, 46], [8, 18, 63]]

Try: Student#33 -> Labo#3

FULL#3 -> Overwrite 33-->12@[3][0]?

Yes, Overwrite 33-->12@[3][0]!

Need to Re-Assign Student#12

[[4, 5, 62, 49, 66], [11, 27, 32, 9, 35], [33, 14, 51, 52, 59], [38, 7, 2
6, 17, 37], [64, 6, 34, 40, 43], [15, 21, 24, 2, 42], [36, 13, 25, 28, 4
5], [44, 65, 58, 60, 54], [16, 30, 55, 31, 0], [61, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 3, 47, 53], [29, 50, 56, 46], [8, 18, 63]]

Try: Student#12 -> Labo#6

FULL#6 -> Overwrite 12-->24@[6][2]?

Yes, Overwrite 12-->24@[6][2]!

Need to Re-Assign Student#24

[[4, 5, 62, 49, 66], [11, 27, 32, 9, 35], [33, 14, 51, 52, 59], [38, 7, 2
6, 17, 37], [64, 6, 34, 40, 43], [15, 21, 12, 2, 42], [36, 13, 25, 28, 4
5], [44, 65, 58, 60, 54], [16, 30, 55, 31, 0], [61, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 3, 47, 53], [29, 50, 56, 46], [8, 18, 63]]

Try: Student#24 -> Labo#1

FULL#1 -> Overwrite 24-->5@[1][1]?

[[4, 5, 62, 49, 66], [11, 27, 32, 9, 35], [33, 14, 51, 52, 59], [38, 7, 2
6, 17, 37], [64, 6, 34, 40, 43], [15, 21, 12, 2, 42], [36, 13, 25, 28, 4
5], [44, 65, 58, 60, 54], [16, 30, 55, 31, 0], [61, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 3, 47, 53], [29, 50, 56, 46], [8, 18, 63]]

Try: Student#24 -> Labo#7

FULL#7 -> Overwrite 24-->25@[7][2]?

Yes, Overwrite 24-->25@[7][2]!

Need to Re-Assign Student#25

[[4, 5, 62, 49, 66], [11, 27, 32, 9, 35], [33, 14, 51, 52, 59], [38, 7, 2
6, 17, 37], [64, 6, 34, 40, 43], [15, 21, 12, 2, 42], [36, 13, 24, 28, 4
5], [44, 65, 58, 60, 54], [16, 30, 55, 31, 0], [61, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 3, 47, 53], [29, 50, 56, 46], [8, 18, 63]]

Try: Student#25 -> Labo#10

FULL#10 -> Overwrite 25-->39@[10][2]?

[[4, 5, 62, 49, 66], [11, 27, 32, 9, 35], [33, 14, 51, 52, 59], [38, 7, 2

```
6, 17, 37], [64, 6, 34, 40, 43], [15, 21, 12, 2, 42], [36, 13, 24, 28, 4
5], [44, 65, 58, 60, 54], [16, 30, 55, 31, 0], [61, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 3, 47, 53], [29, 50, 56, 46], [8, 18, 63]]
Try: Student#25 -> Labo#13
FULL#13 -> Overwrite 25-->29@[13][0]?
    Yes, Overwrite 25-->29@[13][0]!
Need to Re-Assign Student#29
[[4, 5, 62, 49, 66], [11, 27, 32, 9, 35], [33, 14, 51, 52, 59], [38, 7, 2
6, 17, 37], [64, 6, 34, 40, 43], [15, 21, 12, 2, 42], [36, 13, 24, 28, 4
5], [44, 65, 58, 60, 54], [16, 30, 55, 31, 0], [61, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 3, 47, 53], [25, 50, 56, 46], [8, 18, 63]]
Try: Student#29 -> Labo#1
FULL#1 -> Overwrite 29-->5@[1][1]?
    Yes, Overwrite 29-->5@[1][1]!
Need to Re-Assign Student#5
[[4, 29, 62, 49, 66], [11, 27, 32, 9, 35], [33, 14, 51, 52, 59], [38, 7,
26, 17, 37], [64, 6, 34, 40, 43], [15, 21, 12, 2, 42], [36, 13, 24, 28, 4
5], [44, 65, 58, 60, 54], [16, 30, 55, 31, 0], [61, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 3, 47, 53], [25, 50, 56, 46], [8, 18, 63]]
Try: Student#5 -> Labo#7
FULL#7 -> Overwrite 5-->28@[7][3]?
[[4, 29, 62, 49, 66], [11, 27, 32, 9, 35], [33, 14, 51, 52, 59], [38, 7,
26, 17, 37], [64, 6, 34, 40, 43], [15, 21, 12, 2, 42], [36, 13, 24, 28, 4
5], [44, 65, 58, 60, 54], [16, 30, 55, 31, 0], [61, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 3, 47, 53], [25, 50, 56, 46], [8, 18, 63]]
Try: Student#5 -> Labo#3
FULL#3 -> Overwrite 5-->51@[3][2]?
    Yes, Overwrite 5-->51@[3][2]!
Need to Re-Assign Student#51
[[4, 29, 62, 49, 66], [11, 27, 32, 9, 35], [33, 14, 5, 52, 59], [38, 7, 2
6, 17, 37], [64, 6, 34, 40, 43], [15, 21, 12, 2, 42], [36, 13, 24, 28, 4
5], [44, 65, 58, 60, 54], [16, 30, 55, 31, 0], [61, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 3, 47, 53], [25, 50, 56, 46], [8, 18, 63]]
Try: Student#51 -> Labo#2
FULL#2 -> Overwrite 51-->11@[2][0]?
    Yes, Overwrite 51-->11@[2][0]!
Need to Re-Assign Student#11
[[4, 29, 62, 49, 66], [51, 27, 32, 9, 35], [33, 14, 5, 52, 59], [38, 7, 2
6, 17, 37], [64, 6, 34, 40, 43], [15, 21, 12, 2, 42], [36, 13, 24, 28, 4
5], [44, 65, 58, 60, 54], [16, 30, 55, 31, 0], [61, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 3, 47, 53], [25, 50, 56, 46], [8, 18, 63]]
Try: Student#11 -> Labo#10
FULL#10 -> Overwrite 11-->39@[10][2]?
[[4, 29, 62, 49, 66], [51, 27, 32, 9, 35], [33, 14, 5, 52, 59], [38, 7, 2
6, 17, 37], [64, 6, 34, 40, 43], [15, 21, 12, 2, 42], [36, 13, 24, 28, 4
5], [44, 65, 58, 60, 54], [16, 30, 55, 31, 0], [61, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 3, 47, 53], [25, 50, 56, 46], [8, 18, 63]]
Try: Student#11 -> Labo#8
FULL#8 -> Overwrite 11-->44@[8][0]?
    Yes, Overwrite 11-->44@[8][0]!
Need to Re-Assign Student#44
[[4, 29, 62, 49, 66], [51, 27, 32, 9, 35], [33, 14, 5, 52, 59], [38, 7, 2
6, 17, 37], [64, 6, 34, 40, 43], [15, 21, 12, 2, 42], [36, 13, 24, 28, 4
5], [11, 65, 58, 60, 54], [16, 30, 55, 31, 0], [61, 23, 39, 41, 48], [10,
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22, 57, 19, 0], [1, 20, 3, 47, 53], [25, 50, 56, 46], [8, 18, 63]]
Try: Student#44 -> Labo#2
FULL#2 -> Overwrite 44-->27@[2][1]?
[[4, 29, 62, 49, 66], [51, 27, 32, 9, 35], [33, 14, 5, 52, 59], [38, 7, 2
6, 17, 37], [64, 6, 34, 40, 43], [15, 21, 12, 2, 42], [36, 13, 24, 28, 4
5], [11, 65, 58, 60, 54], [16, 30, 55, 31, 0], [61, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 3, 47, 53], [25, 50, 56, 46], [8, 18, 63]]
Try: Student#44 -> Labo#7
FULL#7 -> Overwrite 44-->28@[7][3]?
    Yes, Overwrite 44-->28@[7][3]!
Need to Re-Assign Student#28
[[4, 29, 62, 49, 66], [51, 27, 32, 9, 35], [33, 14, 5, 52, 59], [38, 7, 2
6, 17, 37], [64, 6, 34, 40, 43], [15, 21, 12, 2, 42], [36, 13, 24, 44, 4
5], [11, 65, 58, 60, 54], [16, 30, 55, 31, 0], [61, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 3, 47, 53], [25, 50, 56, 46], [8, 18, 63]]
Try: Student#28 -> Labo#4
FULL#4 -> Overwrite 28-->17@[4][3]?
    Yes, Overwrite 28-->17@[4][3]!
Need to Re-Assign Student#17
[[4, 29, 62, 49, 66], [51, 27, 32, 9, 35], [33, 14, 5, 52, 59], [38, 7, 2
6, 28, 37], [64, 6, 34, 40, 43], [15, 21, 12, 2, 42], [36, 13, 24, 44, 4
5], [11, 65, 58, 60, 54], [16, 30, 55, 31, 0], [61, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 3, 47, 53], [25, 50, 56, 46], [8, 18, 63]]
Try: Student#17 -> Labo#2
FULL#2 -> Overwrite 17-->27@[2][1]?
[[4, 29, 62, 49, 66], [51, 27, 32, 9, 35], [33, 14, 5, 52, 59], [38, 7, 2
6, 28, 37], [64, 6, 34, 40, 43], [15, 21, 12, 2, 42], [36, 13, 24, 44, 4
5], [11, 65, 58, 60, 54], [16, 30, 55, 31, 0], [61, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 3, 47, 53], [25, 50, 56, 46], [8, 18, 63]]
Try: Student#17 -> Labo#7
FULL#7 -> Overwrite 17-->24@[7][2]?
    Yes, Overwrite 17-->24@[7][2]!
Need to Re-Assign Student#24
[[4, 29, 62, 49, 66], [51, 27, 32, 9, 35], [33, 14, 5, 52, 59], [38, 7, 2
6, 28, 37], [64, 6, 34, 40, 43], [15, 21, 12, 2, 42], [36, 13, 17, 44, 4
5], [11, 65, 58, 60, 54], [16, 30, 55, 31, 0], [61, 23, 39, 41, 48], [10,
22, 57, 19, 0], [1, 20, 3, 47, 53], [25, 50, 56, 46], [8, 18, 63]]
Try: Student#24 -> Labo#11
[[4, 29, 62, 49, 66], [51, 27, 32, 9, 35], [33, 14, 5, 52, 59], [38, 7, 2
6, 28, 37], [64, 6, 34, 40, 43], [15, 21, 12, 2, 42], [36, 13, 17, 44, 4
5], [11, 65, 58, 60, 54], [16, 30, 55, 31, 0], [61, 23, 39, 41, 48], [10,
22, 57, 19, 24], [1, 20, 3, 47, 53], [25, 50, 56, 46], [8, 18, 63]]
Try: Student#67 -> Labo#1
FULL#1 -> Overwrite 67-->49@[1][3]?
    Yes, Overwrite 67-->49@[1][3]!
Need to Re-Assign Student#49
[[4, 29, 62, 67, 66], [51, 27, 32, 9, 35], [33, 14, 5, 52, 59], [38, 7, 2
6, 28, 37], [64, 6, 34, 40, 43], [15, 21, 12, 2, 42], [36, 13, 17, 44, 4
5], [11, 65, 58, 60, 54], [16, 30, 55, 31, 0], [61, 23, 39, 41, 48], [10,
22, 57, 19, 24], [1, 20, 3, 47, 53], [25, 50, 56, 46], [8, 18, 63]]
Try: Student#49 -> Labo#8
FULL#8 -> Overwrite 49-->54@[8][4]?
    Yes, Overwrite 49-->54@[8][4]!
Need to Re-Assign Student#54
```

```
[[4, 29, 62, 67, 66], [51, 27, 32, 9, 35], [33, 14, 5, 52, 59], [38, 7, 2  
6, 28, 37], [64, 6, 34, 40, 43], [15, 21, 12, 2, 42], [36, 13, 17, 44, 4  
5], [11, 65, 58, 60, 49], [16, 30, 55, 31, 0], [61, 23, 39, 41, 48], [10,  
22, 57, 19, 24], [1, 20, 3, 47, 53], [25, 50, 56, 46], [8, 18, 63]]
```

Try: Student#54 -> Labo#2

FULL#2 -> Overwrite 54-->27@[2][1]?

```
[[4, 29, 62, 67, 66], [51, 27, 32, 9, 35], [33, 14, 5, 52, 59], [38, 7, 2  
6, 28, 37], [64, 6, 34, 40, 43], [15, 21, 12, 2, 42], [36, 13, 17, 44, 4  
5], [11, 65, 58, 60, 49], [16, 30, 55, 31, 0], [61, 23, 39, 41, 48], [10,  
22, 57, 19, 24], [1, 20, 3, 47, 53], [25, 50, 56, 46], [8, 18, 63]]
```

Try: Student#54 -> Labo#7

FULL#7 -> Overwrite 54-->44@[7][3]?

```
[[4, 29, 62, 67, 66], [51, 27, 32, 9, 35], [33, 14, 5, 52, 59], [38, 7, 2  
6, 28, 37], [64, 6, 34, 40, 43], [15, 21, 12, 2, 42], [36, 13, 17, 44, 4  
5], [11, 65, 58, 60, 49], [16, 30, 55, 31, 0], [61, 23, 39, 41, 48], [10,  
22, 57, 19, 24], [1, 20, 3, 47, 53], [25, 50, 56, 46], [8, 18, 63]]
```

Try: Student#54 -> Labo#10

FULL#10 -> Overwrite 54-->39@[10][2]?

Yes, Overwrite 54-->39@[10][2]!

Need to Re-Assign Student#39

```
[[4, 29, 62, 67, 66], [51, 27, 32, 9, 35], [33, 14, 5, 52, 59], [38, 7, 2  
6, 28, 37], [64, 6, 34, 40, 43], [15, 21, 12, 2, 42], [36, 13, 17, 44, 4  
5], [11, 65, 58, 60, 49], [16, 30, 55, 31, 0], [61, 23, 54, 41, 48], [10,  
22, 57, 19, 24], [1, 20, 3, 47, 53], [25, 50, 56, 46], [8, 18, 63]]
```

Try: Student#39 -> Labo#1

FULL#1 -> Overwrite 39-->67@[1][3]?

```
[[4, 29, 62, 67, 66], [51, 27, 32, 9, 35], [33, 14, 5, 52, 59], [38, 7, 2  
6, 28, 37], [64, 6, 34, 40, 43], [15, 21, 12, 2, 42], [36, 13, 17, 44, 4  
5], [11, 65, 58, 60, 49], [16, 30, 55, 31, 0], [61, 23, 54, 41, 48], [10,  
22, 57, 19, 24], [1, 20, 3, 47, 53], [25, 50, 56, 46], [8, 18, 63]]
```

Try: Student#39 -> Labo#12

FULL#12 -> Overwrite 39-->53@[12][4]?

```
[[4, 29, 62, 67, 66], [51, 27, 32, 9, 35], [33, 14, 5, 52, 59], [38, 7, 2  
6, 28, 37], [64, 6, 34, 40, 43], [15, 21, 12, 2, 42], [36, 13, 17, 44, 4  
5], [11, 65, 58, 60, 49], [16, 30, 55, 31, 0], [61, 23, 54, 41, 48], [10,  
22, 57, 19, 24], [1, 20, 3, 47, 53], [25, 50, 56, 46], [8, 18, 63]]
```

Try: Student#39 -> Labo#9

```
[[4, 29, 62, 67, 66], [51, 27, 32, 9, 35], [33, 14, 5, 52, 59], [38, 7, 2  
6, 28, 37], [64, 6, 34, 40, 43], [15, 21, 12, 2, 42], [36, 13, 17, 44, 4  
5], [11, 65, 58, 60, 49], [16, 30, 55, 31, 39], [61, 23, 54, 41, 48], [1  
0, 22, 57, 19, 24], [1, 20, 3, 47, 53], [25, 50, 56, 46], [8, 18, 63]]  
[12, 6, 12, 1, 3, 5, 4, 14, 2, 11, 8, 6, 7, 3, 6, 9, 7, 14, 11, 12, 6, 1  
1, 10, 11, 13, 4, 2, 4, 1, 9, 9, 2, 3, 5, 2, 7, 4, 4, 9, 5, 10, 6, 5, 7,  
7, 13, 12, 10, 8, 13, 2, 3, 12, 10, 9, 13, 11, 8, 3, 8, 10, 1, 14, 5, 8,  
1, 1]
```

'研究室視点：\u3000割り当てられた学生リスト'

	0	1	2	3	4
0	4	29	62	67	66
1	51	27	32	9	35
2	33	14	5	52	59
3	38	7	26	28	37
4	64	6	34	40	43
5	15	21	12	2	42
6	36	13	17	44	45
7	11	65	58	60	49
8	16	30	55	31	39
9	61	23	54	41	48
10	10	22	57	19	24
11	1	20	3	47	53
12	25	50	56	46	NaN
13	8	18	63	NaN	NaN

'学生視点：割り当てられた研究室リスト'

0
0 12
1 6
2 12
3 1
4 3
... ...
62 14
63 5
64 8
65 1
66 1

67 rows x 1 columns

```
In [8]: ## アサイン結果の妥当性の検証
## print(L2s) # 研究室視点: 割り当てられた学生リスト
## print(S2l) # 学生視点: 割り当てられた研究室リスト

# ラボの定員制約を満たしているか?
def q2lst(quota=QUOTA):
    result = []
    for i in range(1, len(quota)):
        n = quota[i]
        result += ([i] * n)
    return result

def verify( l2s=L2s, s2l=S2l, quota=QUOTA):
    alls = [ v for x in l2s for v in x ]
    print(alls)
    set_alls = set(alls)
    print(set_alls)
    assert len(alls) == len(set_alls) # 全員が、重複なく1つの研究室にアサイン済か

    lab_all = sorted(s2l)
    print(lab_all)
    assert lab_all == q2lst() # 全てのラボに定員漏れ・溢れなく学生がアサイン済か?

verify()
```

```
[4, 29, 62, 67, 66, 51, 27, 32, 9, 35, 33, 14, 5, 52, 59, 38, 7, 26, 28,
37, 64, 6, 34, 40, 43, 15, 21, 12, 2, 42, 36, 13, 17, 44, 45, 11, 65, 58,
60, 49, 16, 30, 55, 31, 39, 61, 23, 54, 41, 48, 10, 22, 57, 19, 24, 1, 2
0, 3, 47, 53, 25, 50, 56, 46, 8, 18, 63]
{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 2
1, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 3
9, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 5
7, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67}
[1, 1, 1, 1, 1, 2, 2, 2, 2, 2, 3, 3, 3, 3, 3, 4, 4, 4, 4, 4, 5, 5, 5, 5,
5, 6, 6, 6, 6, 6, 7, 7, 7, 7, 7, 8, 8, 8, 8, 8, 9, 9, 9, 9, 9, 10, 10, 1
0, 10, 10, 11, 11, 11, 11, 11, 12, 12, 12, 12, 12, 13, 13, 13, 13, 14, 1
4, 14]
```

```
In [9]: def eval_PS(s2l=S2l, ops=OpS): # Studentsの選好がどれくらい満たされたか評価する
order = []
for i in range(1, len(s2l)+1):
    result = s2l[i-1]
    pref = ops[i]
    rank = pref.index(result)+1
    order += [rank]
    print(f'Student#{i} prefs {pref} --> results {result}; orders:{rank}')
return order # 配属結果に対する選好順位のリスト

orders = eval_PS()
sum(orders)/len(orders)
```

```
Student#1 prefs [12, 4, 14, 6, 2, 11, 3, 5, 9, 13, 8, 7, 1, 10] --> resul
ts 12; orders:1
Student#2 prefs [4, 6, 11, 7, 5, 8, 1, 3, 13, 12, 9, 14, 10, 2] --> resul
```

```
ts 6; orders:2
Student#3 prefs [7, 10, 4, 12, 1, 11, 14, 6, 13, 9, 5, 8, 3, 2] --> resul
ts 12; orders:4
Student#4 prefs [1, 2, 13, 9, 3, 11, 12, 6, 8, 5, 7, 10, 4, 14] --> resul
ts 1; orders:1
Student#5 prefs [1, 7, 3, 10, 2, 13, 8, 6, 5, 14, 4, 12, 11, 9] --> resul
ts 3; orders:3
Student#6 prefs [10, 7, 5, 2, 6, 1, 14, 13, 11, 4, 9, 8, 12, 3] --> resul
ts 5; orders:3
Student#7 prefs [4, 7, 6, 14, 3, 12, 1, 8, 11, 5, 13, 10, 9, 2] --> resul
ts 4; orders:1
Student#8 prefs [14, 12, 9, 6, 2, 5, 7, 8, 4, 3, 11, 1, 10, 13] --> resul
ts 14; orders:1
Student#9 prefs [1, 12, 2, 13, 5, 9, 7, 3, 10, 8, 6, 14, 4, 11] --> resul
ts 2; orders:3
Student#10 prefs [11, 4, 2, 9, 6, 13, 3, 14, 10, 1, 12, 5, 8, 7] --> resu
lts 11; orders:1
Student#11 prefs [2, 10, 8, 9, 3, 14, 5, 7, 12, 11, 13, 6, 1, 4] --> resu
lts 8; orders:3
Student#12 prefs [3, 6, 9, 12, 4, 13, 14, 1, 7, 11, 8, 5, 2, 10] --> resu
lts 6; orders:2
Student#13 prefs [7, 6, 10, 12, 1, 3, 5, 14, 13, 8, 11, 9, 2, 4] --> resu
lts 7; orders:1
Student#14 prefs [4, 5, 14, 3, 2, 13, 10, 6, 1, 11, 8, 9, 12, 7] --> resu
lts 3; orders:4
Student#15 prefs [6, 7, 13, 2, 11, 10, 14, 1, 3, 8, 4, 5, 9, 12] --> resu
lts 6; orders:1
Student#16 prefs [9, 12, 8, 6, 10, 3, 7, 2, 1, 11, 13, 14, 4, 5] --> resu
lts 9; orders:1
Student#17 prefs [4, 2, 7, 10, 6, 5, 8, 3, 1, 13, 9, 12, 14, 11] --> resu
lts 7; orders:3
Student#18 prefs [14, 12, 5, 1, 2, 6, 7, 11, 4, 8, 3, 9, 13, 10] --> resu
lts 14; orders:1
Student#19 prefs [5, 11, 1, 4, 10, 12, 9, 7, 2, 13, 8, 6, 3, 14] --> resu
lts 11; orders:2
Student#20 prefs [12, 3, 5, 11, 4, 13, 7, 2, 14, 6, 10, 9, 8, 1] --> resu
lts 12; orders:1
Student#21 prefs [6, 10, 7, 9, 12, 8, 3, 11, 13, 14, 4, 2, 5, 1] --> resu
lts 6; orders:1
Student#22 prefs [10, 11, 4, 2, 5, 7, 13, 8, 9, 6, 12, 14, 1, 3] --> resu
lts 11; orders:2
Student#23 prefs [4, 14, 10, 3, 2, 7, 9, 13, 11, 5, 12, 6, 8, 1] --> resu
lts 10; orders:3
Student#24 prefs [4, 6, 1, 7, 11, 13, 9, 8, 10, 12, 2, 5, 3, 14] --> resu
lts 11; orders:5
Student#25 prefs [7, 10, 13, 1, 12, 11, 4, 3, 6, 14, 2, 9, 5, 8] --> resu
lts 13; orders:3
Student#26 prefs [4, 6, 10, 2, 5, 12, 11, 9, 3, 13, 1, 14, 8, 7] --> resu
lts 4; orders:1
Student#27 prefs [2, 1, 9, 6, 14, 13, 12, 11, 10, 4, 5, 7, 8, 3] --> resu
lts 2; orders:1
Student#28 prefs [7, 4, 5, 9, 11, 2, 1, 8, 13, 6, 12, 3, 10, 14] --> resu
lts 4; orders:2
Student#29 prefs [13, 1, 3, 2, 9, 7, 14, 11, 5, 6, 10, 8, 12, 4] --> resu
```



```
lts 1; orders:2
Student#30 prefs [9, 5, 11, 2, 7, 4, 10, 3, 12, 1, 13, 14, 6, 8] --> resu
lts 9; orders:1
Student#31 prefs [12, 10, 9, 6, 11, 14, 5, 4, 7, 2, 1, 3, 13, 8] --> resu
lts 9; orders:3
Student#32 prefs [2, 10, 5, 11, 6, 4, 14, 13, 7, 12, 8, 1, 3, 9] --> resu
lts 2; orders:1
Student#33 prefs [2, 5, 3, 14, 7, 11, 8, 1, 13, 9, 12, 4, 6, 10] --> resu
lts 3; orders:3
Student#34 prefs [5, 9, 7, 3, 1, 10, 13, 4, 11, 6, 14, 12, 2, 8] --> resu
lts 5; orders:1
Student#35 prefs [2, 3, 10, 7, 4, 11, 13, 8, 14, 9, 1, 12, 6, 5] --> resu
lts 2; orders:1
Student#36 prefs [3, 7, 13, 6, 4, 10, 8, 1, 2, 11, 9, 14, 12, 5] --> resu
lts 7; orders:2
Student#37 prefs [4, 13, 10, 6, 7, 5, 3, 12, 2, 9, 1, 8, 14, 11] --> resu
lts 4; orders:1
Student#38 prefs [4, 13, 6, 8, 11, 7, 2, 12, 9, 14, 5, 10, 3, 1] --> resu
lts 4; orders:1
Student#39 prefs [10, 1, 12, 9, 4, 14, 7, 2, 11, 8, 5, 13, 3, 6] --> resu
lts 9; orders:4
Student#40 prefs [4, 5, 8, 10, 14, 13, 11, 3, 1, 12, 2, 9, 7, 6] --> resu
lts 5; orders:2
Student#41 prefs [10, 13, 14, 5, 7, 4, 12, 2, 1, 11, 9, 6, 8, 3] --> resu
lts 10; orders:1
Student#42 prefs [6, 10, 7, 12, 13, 14, 2, 11, 3, 8, 9, 5, 1, 4] --> resu
lts 6; orders:1
Student#43 prefs [5, 6, 13, 7, 4, 11, 9, 14, 12, 8, 2, 10, 1, 3] --> resu
lts 5; orders:1
Student#44 prefs [8, 2, 7, 9, 13, 11, 10, 4, 12, 14, 1, 3, 6, 5] --> resu
lts 7; orders:3
Student#45 prefs [7, 10, 6, 9, 5, 12, 8, 11, 1, 2, 14, 4, 13, 3] --> resu
lts 7; orders:1
Student#46 prefs [8, 13, 1, 6, 14, 9, 12, 11, 3, 7, 10, 5, 2, 4] --> resu
lts 13; orders:2
Student#47 prefs [12, 4, 6, 7, 13, 9, 10, 14, 3, 1, 5, 8, 2, 11] --> resu
lts 12; orders:1
Student#48 prefs [10, 7, 1, 4, 13, 9, 3, 12, 2, 14, 5, 11, 6, 8] --> resu
lts 10; orders:1
Student#49 prefs [1, 8, 11, 7, 3, 14, 2, 9, 4, 5, 6, 10, 13, 12] --> resu
lts 8; orders:2
Student#50 prefs [13, 8, 7, 12, 9, 6, 10, 4, 3, 14, 11, 2, 1, 5] --> resu
lts 13; orders:1
Student#51 prefs [7, 3, 2, 9, 4, 12, 6, 10, 11, 5, 13, 14, 8, 1] --> resu
lts 2; orders:3
Student#52 prefs [3, 12, 7, 13, 10, 5, 4, 6, 1, 2, 11, 14, 8, 9] --> resu
lts 3; orders:1
Student#53 prefs [12, 9, 3, 6, 7, 1, 14, 11, 2, 13, 5, 10, 8, 4] --> resu
lts 12; orders:1
Student#54 prefs [14, 8, 2, 7, 10, 6, 3, 12, 13, 1, 4, 11, 5, 9] --> resu
lts 10; orders:5
Student#55 prefs [14, 9, 10, 13, 6, 11, 5, 8, 3, 2, 4, 1, 12, 7] --> resu
lts 9; orders:2
Student#56 prefs [13, 1, 12, 3, 9, 2, 4, 11, 6, 7, 14, 5, 8, 10] --> resu
```

```

lts 13; orders:1
Student#57 prefs [11, 13, 2, 9, 14, 8, 12, 4, 6, 7, 1, 5, 3, 10] --> resu
lts 11; orders:1
Student#58 prefs [8, 1, 9, 3, 2, 11, 7, 5, 12, 4, 14, 13, 6, 10] --> resu
lts 8; orders:1
Student#59 prefs [3, 10, 2, 5, 14, 9, 7, 11, 8, 13, 6, 12, 1, 4] --> resu
lts 3; orders:1
Student#60 prefs [8, 2, 7, 9, 12, 14, 5, 6, 3, 11, 13, 4, 10, 1] --> resu
lts 8; orders:1
Student#61 prefs [1, 10, 8, 2, 7, 4, 14, 12, 11, 5, 3, 6, 9, 13] --> resu
lts 10; orders:2
Student#62 prefs [4, 7, 5, 1, 12, 6, 3, 10, 14, 9, 2, 8, 11, 13] --> resu
lts 1; orders:4
Student#63 prefs [14, 8, 5, 2, 11, 10, 12, 6, 9, 1, 4, 7, 3, 13] --> resu
lts 14; orders:1
Student#64 prefs [5, 3, 11, 2, 1, 13, 4, 6, 10, 14, 12, 7, 8, 9] --> resu
lts 5; orders:1
Student#65 prefs [12, 2, 5, 4, 8, 6, 3, 14, 13, 10, 7, 1, 9, 11] --> resu
lts 8; orders:5
Student#66 prefs [1, 11, 14, 8, 9, 4, 3, 5, 10, 12, 6, 2, 13, 7] --> resu
lts 1; orders:1
Student#67 prefs [1, 13, 4, 14, 6, 11, 3, 8, 10, 7, 9, 2, 12, 5] --> resu
lts 1; orders:1

```

Out[9]: 1.8656716417910448

```

In [10]: def eval_PL(l2s=L2s,opl=OpL[1:]): # Labsの選好がどれくらい満たされたか評価する
orders = []
for i in range(len(l2s)):
    pref , result = opl[i] , l2s[i]
    rank = []
    for r in result:
        rank += [pref.index(r)+1]
    print(f'Lab#{i+1} prefs {pref} --> results {result}/orders{rank}; ave
orders += [sorted(rank)]
return orders # 配属結果に対する選好順位のリスト

orders = eval_PL()
print('ラボからみた配属学生の希望順位の全体平均：')
sum([sum(s) for s in orders])/sum(QUOTA)

```

```

Lab#1 prefs [16, 19, 31, 21, 22, 62, 30, 66, 41, 28, 60, 6, 56, 29, 27, 1
0, 37, 15, 2, 4, 63, 11, 58, 53, 18, 34, 67, 49, 44, 25, 39, 48, 38, 50,
3, 12, 51, 42, 23, 1, 46, 40, 65, 55, 20, 5, 7, 24, 36, 32, 57, 17, 61, 5
2, 8, 47, 13, 35, 54, 45, 59, 26, 43, 64, 14, 33, 9] --> results [4, 29,
62, 67, 66]/orders[20, 14, 6, 27, 8]; average=15.0
Lab#2 prefs [45, 52, 62, 23, 30, 24, 8, 29, 51, 60, 39, 19, 10, 35, 37,
9, 66, 59, 32, 6, 40, 26, 27, 64, 20, 38, 2, 31, 67, 58, 34, 11, 44, 1, 1
7, 13, 16, 22, 61, 48, 50, 47, 36, 7, 65, 28, 55, 18, 25, 56, 42, 54, 43,
41, 53, 57, 46, 49, 33, 5, 4, 14, 3, 12, 21, 63, 15] --> results [51, 27,
32, 9, 35]/orders[9, 23, 19, 16, 14]; average=16.2
Lab#3 prefs [39, 43, 33, 10, 54, 18, 3, 5, 50, 4, 30, 40, 44, 37, 13, 48,
27, 26, 46, 19, 29, 28, 17, 14, 38, 2, 60, 22, 56, 24, 41, 63, 65, 15, 3
1, 53, 35, 62, 6, 55, 34, 61, 20, 49, 25, 59, 11, 67, 52, 51, 12, 64, 1,

```

45, 7, 66, 32, 21, 57, 9, 47, 8, 36, 23, 16, 42, 58] --> results [33, 14, 5, 52, 59]/orders[3, 24, 8, 49, 46]; average=26.0

Lab#4 prefs [9, 48, 35, 10, 25, 49, 28, 26, 4, 20, 7, 61, 30, 21, 46, 38, 1, 33, 63, 58, 11, 37, 41, 44, 67, 52, 13, 47, 66, 17, 55, 5, 51, 29, 43, 39, 60, 65, 53, 2, 12, 19, 3, 18, 54, 62, 56, 8, 22, 50, 59, 15, 16, 34, 40, 23, 64, 45, 57, 27, 31, 6, 32, 14, 36, 42, 24] --> results [38, 7, 2 6, 28, 37]/orders[16, 11, 8, 7, 22]; average=12.8

Lab#5 prefs [64, 9, 3, 42, 28, 54, 22, 1, 4, 34, 48, 59, 8, 6, 27, 11, 2 9, 43, 15, 30, 45, 10, 63, 5, 55, 20, 18, 57, 17, 32, 36, 16, 40, 60, 25, 37, 33, 12, 44, 39, 67, 49, 58, 14, 65, 2, 21, 26, 35, 41, 56, 52, 7, 23, 51, 61, 62, 38, 19, 46, 53, 66, 13, 24, 31, 50, 47] --> results [64, 6, 3 4, 40, 43]/orders[1, 14, 10, 33, 18]; average=15.2

Lab#6 prefs [57, 53, 9, 47, 5, 55, 20, 4, 26, 58, 31, 17, 16, 11, 39, 28, 6, 33, 19, 12, 32, 3, 38, 13, 59, 10, 41, 21, 34, 15, 44, 40, 30, 52, 23, 36, 64, 67, 46, 66, 61, 18, 8, 65, 54, 2, 35, 29, 50, 27, 43, 7, 60, 56, 62, 42, 63, 49, 48, 1, 51, 14, 24, 45, 37, 22, 25] --> results [15, 21, 1 2, 2, 42]/orders[30, 28, 20, 46, 56]; average=36.0

Lab#7 prefs [29, 10, 46, 58, 20, 48, 52, 35, 43, 15, 64, 18, 8, 45, 13, 6 5, 36, 17, 61, 49, 44, 24, 50, 12, 28, 67, 5, 54, 30, 55, 11, 7, 60, 31, 34, 14, 23, 37, 25, 63, 53, 42, 3, 41, 51, 66, 62, 22, 19, 6, 9, 16, 1, 3 2, 2, 33, 56, 40, 27, 57, 21, 39, 47, 59, 4, 38, 26] --> results [36, 13, 17, 44, 45]/orders[17, 15, 18, 21, 14]; average=17.0

Lab#8 prefs [66, 35, 27, 30, 39, 52, 29, 37, 51, 65, 47, 61, 22, 21, 49, 17, 48, 13, 55, 53, 33, 38, 58, 60, 11, 3, 41, 31, 54, 23, 10, 28, 20, 3 2, 4, 44, 1, 34, 46, 7, 14, 26, 50, 56, 59, 42, 57, 15, 12, 6, 36, 40, 2, 63, 45, 24, 16, 64, 18, 62, 5, 43, 25, 8, 19, 67, 9] --> results [11, 65, 58, 60, 49]/orders[25, 10, 23, 24, 15]; average=19.4

Lab#9 prefs [27, 7, 17, 26, 12, 19, 30, 10, 47, 51, 25, 53, 65, 14, 42, 4 9, 31, 44, 3, 54, 45, 32, 40, 52, 48, 18, 4, 62, 61, 33, 41, 34, 66, 37, 67, 13, 38, 35, 16, 15, 60, 59, 58, 22, 9, 11, 36, 6, 23, 21, 43, 1, 56, 64, 5, 29, 57, 39, 28, 2, 63, 55, 8, 20, 50, 46, 24] --> results [16, 30, 55, 31, 39]/orders[39, 7, 62, 17, 58]; average=36.6

Lab#10 prefs [32, 18, 54, 42, 56, 41, 33, 4, 59, 8, 17, 48, 23, 13, 61, 2 7, 26, 52, 12, 39, 25, 20, 50, 6, 44, 1, 2, 15, 5, 29, 57, 43, 55, 62, 6 5, 67, 24, 28, 38, 46, 49, 31, 53, 3, 10, 64, 9, 66, 30, 36, 47, 14, 19, 7, 37, 16, 40, 11, 21, 35, 63, 22, 34, 45, 58, 60, 51] --> results [61, 2 3, 54, 41, 48]/orders[15, 13, 3, 6, 12]; average=9.8

Lab#11 prefs [27, 21, 34, 17, 37, 4, 35, 1, 12, 41, 54, 51, 28, 55, 60, 4 2, 48, 13, 50, 18, 61, 25, 38, 59, 31, 43, 65, 58, 36, 49, 57, 32, 63, 6, 52, 8, 5, 7, 67, 33, 14, 64, 3, 30, 40, 47, 2, 53, 46, 45, 16, 26, 9, 10, 39, 66, 29, 22, 24, 62, 23, 19, 44, 20, 56, 15, 11] --> results [10, 22, 57, 19, 24]/orders[54, 58, 31, 62, 59]; average=52.8

Lab#12 prefs [63, 51, 3, 2, 25, 1, 28, 35, 59, 42, 20, 47, 37, 24, 13, 1 2, 8, 61, 43, 50, 29, 53, 62, 10, 36, 5, 11, 34, 19, 49, 17, 30, 27, 33, 18, 21, 52, 67, 65, 41, 9, 54, 66, 57, 56, 38, 60, 16, 14, 64, 55, 40, 7, 46, 39, 58, 23, 45, 4, 32, 22, 48, 6, 31, 26, 15, 44] --> results [1, 20, 3, 47, 53]/orders[6, 11, 3, 12, 22]; average=10.8

Lab#13 prefs [63, 16, 34, 49, 61, 51, 26, 39, 66, 67, 13, 31, 37, 28, 60, 23, 54, 62, 48, 7, 15, 3, 20, 18, 5, 25, 14, 47, 8, 59, 21, 50, 44, 56, 3 8, 35, 43, 32, 52, 65, 1, 24, 11, 64, 40, 46, 45, 2, 27, 9, 6, 57, 4, 42, 58, 12, 22, 53, 55, 29, 33, 30, 10, 19, 36, 17, 41] --> results [25, 50, 56, 46]/orders[26, 32, 34, 46]; average=34.5

Lab#14 prefs [49, 65, 47, 8, 2, 37, 18, 57, 56, 11, 6, 63, 16, 14, 3, 34, 26, 22, 59, 66, 58, 42, 53, 1, 12, 39, 54, 45, 27, 30, 51, 62, 7, 25, 61,

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9, 17, 29, 19, 52, 15, 35, 55, 48, 40, 64, 5, 46, 41, 43, 60, 32, 23, 38,  
24, 4, 20, 33, 67, 50, 31, 21, 10, 44, 36, 28, 13] --> results [8, 18, 6  
3]/orders[4, 7, 12]; average=7.666666666666667  
ラボからみた配属学生の希望順位の全体平均：
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Out[10]: 22.37313432835821
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