

Тренировочный контест — бэкенд

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Е. Занимательная алхимия

✓ Полное решение </> OK Python 3.12.3

^ Исходный код



```
1 CAP_LIMIT = 10**9
2
3
4 def build_recipes(lines: list[list[int]]):
5     unreachable = set()
6     saved = {1: [1, 0], 2: [0, 1]}
7
8     for ind, line in enumerate(lines):
9         potion = ind + 3
10        if potion in unreachable or potion in saved:
11            continue
12
13        stack = [potion]
14        temp = {potion: [len(line) - 1, [0, 0]]}
15
16        while stack:
17            curr_potion = stack[-1]
18            curr_index, curr_reqs = temp[curr_potion]
19
20            if curr_index < 0:
21                saved[curr_potion] = curr_reqs
22
23                stack.pop()
24                temp.pop(curr_potion)
25
26            if stack:
27                parent_potion = stack[-1]
28                parent_reqs = temp[parent_potion][1]
29
30                parent_reqs[0] += curr_reqs[0]
31                parent_reqs[1] += curr_reqs[1]
32
33                if parent_reqs[0] > CAP_LIMIT or parent_reqs[1] > CAP_LIMIT:
34                    unreachable.update(stack)
35                    break
36            continue
37
38        recipe_line = lines[curr_potion - 3]
39        x = recipe_line[curr_index]
40        temp[curr_potion][0] -= 1
41
42        if x in saved:
43            curr_reqs[0] += saved[x][0]
44            curr_reqs[1] += saved[x][1]
45
46            if curr_reqs[0] > CAP_LIMIT or curr_reqs[1] > CAP_LIMIT:
47                unreachable.update(stack)
48                break
49        elif x in unreachable or x in temp:
50            unreachable.update(stack)
51            break
```

```

52         else:
53             stack.append(x)
54             new_line = lines[x - 3]
55             temp[x] = [len(new_line) - 1, [0, 0]]
56
57     return saved, unreachable
58
59
60 def main():
61     with open("input.txt") as f:
62         N = int(f.readline())
63         lines = [[int(x) for x in f.readline().split()[1:]] for i in range(N - 2)]
64         recipes, unreachable = build_recipes(lines)
65
66         # пропускаем кол-во вопросов
67         f.readline()
68
69         for line in f:
70             a, b, potion = (int(x) for x in line.split())
71
72             if potion in unreachable:
73                 print("0", end="")
74             elif a >= recipes[potion][0] and b >= recipes[potion][1]:
75                 print("1", end="")
76             else:
77                 print("0", end="")
78
79
80 if __name__ == "__main__":
81     main()
82

```

✓ Отличия от предыдущей посылки

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7	ok	45ms / 4.64Mb	—	
8	ok	45ms / 4.64Mb	—	
9	ok	46ms / 4.64Mb	—	
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13	ok	45ms / 4.64Mb	—	
14	ok	45ms / 4.64Mb	—	
15	ok	45ms / 4.64Mb	—	
16	ok	46ms / 4.64Mb	—	
17	ok	46ms / 4.64Mb	—	

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20	ok	45ms / 4.64Mb	—
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22	ok	45ms / 4.64Mb	—
23	ok	45ms / 4.64Mb	—
24	ok	45ms / 4.64Mb	—
25	ok	46ms / 4.64Mb	—
26	ok	45ms / 4.64Mb	—
27	ok	45ms / 4.64Mb	—
28	ok	45ms / 4.64Mb	—
29	ok	46ms / 4.64Mb	—
30	ok	45ms / 4.64Mb	—
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32	ok	45ms / 4.64Mb	—
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51	ok	1.025s / 59.93Mb	—

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