

Тренировочный контест — бэкенд

[Задачи](#) [Посылки](#) [Сообщения](#)

E. 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

№	Вердикт	Ресурсы	Баллы
1	ok	45ms / 4.64Mb	—
2	ok	46ms / 4.64Mb	—
3	ok	45ms / 4.64Mb	—
4	ok	45ms / 4.64Mb	—
5	ok	45ms / 4.64Mb	—
6	ok	45ms / 4.64Mb	—
7	ok	45ms / 4.64Mb	—
8	ok	45ms / 4.64Mb	—
9	ok	46ms / 4.64Mb	—
10	ok	47ms / 4.51Mb	—
11	ok	46ms / 4.64Mb	—
12	ok	45ms / 4.64Mb	—
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	—

Nº	Вердикт	Ресурсы	Баллы
18	ok	46ms / 4.64Mb	—
19	ok	46ms / 4.64Mb	—
20	ok	45ms / 4.64Mb	—
21	ok	46ms / 4.64Mb	—
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	—
31	ok	45ms / 4.64Mb	—
32	ok	45ms / 4.64Mb	—
33	ok	46ms / 4.64Mb	—
34	ok	1.07s / 52.80Mb	—
35	ok	1.049s / 50.27Mb	—
36	ok	1.158s / 62.92Mb	—
37	ok	1.095s / 57.81Mb	—
38	ok	1.198s / 67.07Mb	—
39	ok	1.182s / 66.42Mb	—
40	ok	1.183s / 65.77Mb	—
41	ok	1.143s / 67.07Mb	—
42	ok	1.175s / 66.18Mb	—
43	ok	0.901s / 63.86Mb	—
44	ok	1.05s / 65.93Mb	—
45	ok	1.004s / 65.45Mb	—
46	ok	1.076s / 66.27Mb	—
47	ok	0.91s / 61.77Mb	—
48	ok	0.734s / 57.70Mb	—
49	ok	0.929s / 59.52Mb	—
50	ok	0.892s / 58.30Mb	—
51	ok	1.025s / 59.93Mb	—

Nº	Вердикт	Ресурсы	Баллы
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55	ok	0.823s / 56.53Mb	—
56	ok	0.986s / 58.24Mb	—
57	ok	0.615s / 53.74Mb	—
58	ok	1.069s / 55.28Mb	—
59	ok	1.029s / 51.53Mb	—
60	ok	1.044s / 51.37Mb	—
61	ok	1.151s / 57.03Mb	—
62	ok	1.143s / 47.60Mb	—
63	ok	1.178s / 63.55Mb	—
64	ok	0.892s / 38.18Mb	—
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67	ok	0.937s / 42.88Mb	—
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