

Flow Online – Section C
The Shelby Company Limited: Strategic Partnerships
Time – 30 Minutes

Problem Statement

Tommy Shelby runs the Peaky Blinders gang and needs to form strategic partnerships between his gang members and potential business associates for various illegal operations across Birmingham. Each partnership must satisfy certain criteria to ensure successful operations and maintain the gang's reputation.

You are given profiles of Peaky Blinders members and potential business partners. Your task is to arrange the maximum number of partnerships considering the following criteria:

1. **Experience Gap:** No partnership can be formed if the experience gap between the two individuals is greater than 12 years (neither can be more than 12 years more experienced than the other).
2. **Age Compatibility:** No partnership can be formed if the age gap between the two individuals is greater than 5 years (to ensure generational understanding).
3. **Criminal Record Matching:** A partnership can be formed if either both have clean records with the police or both have criminal records.
4. **Territory Familiarity:** A partnership can be formed if either both are from Birmingham or both are outsiders.
5. **Weapon Proficiency:** At least one person in the partnership must be proficient with firearms (marked as 1 for proficient, 0 for not proficient).
6. **Trust Level:** The sum of their trust levels must be at least 10 (trust level ranges from 1 to 10).
7. **Language Compatibility:** They must share at least one common language. Each person speaks between 1 to 3 languages encoded as a bitmask (English=1, Irish=2, Romani=4).

Input Format

Input starts with an integer T (≤ 200), denoting the number of test cases.

Each case contains two integers m, n ($1 \leq m, n \leq 50$), where m is the number of gang members and n is the number of potential partners.

Each of the next m lines contains information for a gang member, and each of the next n lines contains information for a potential partner. Each line contains:

- Experience (in years, between 0 and 30)
- Age (in years, between 20 and 50)
- Criminal record (1 if yes, 0 if no)
- Origin (1 if from Birmingham, 0 if outsider)
- Weapon proficiency (1 if proficient, 0 if not)
- Trust level (between 1 and 10)
- Language bitmask (between 1 and 7)

Output Format

For each case, print the case number and the maximum number of partnerships you can arrange.

Sample Input

```
5
2 2
10 30 0 1 1 8 7
5 20 0 1 0 6 3
11 25 0 1 1 7 5
15 35 0 0 0 5 1
1 1
10 30 1 1 1 5 7
10 30 0 0 1 6 3
3 3
15 35 1 1 1 9 7
8 28 1 0 1 8 5
20 40 0 1 0 7 3
10 30 1 1 1 6 7
18 38 1 0 0 5 5
5 25 0 0 1 8 1
2 3
12 32 1 1 1 8 6
5 25 0 0 1 7 4
8 28 1 1 0 6 7
15 35 0 1 1 5 2
20 30 1 0 1 4 3
4 4
10 30 1 1 1 9 7
15 35 0 0 1 8 5
8 28 1 1 0 7 3
12 32 0 0 1 6 1
12 32 1 1 1 8 7
10 30 0 0 0 7 5
14 34 1 0 1 5 3
5 25 0 1 1 9 2
```

Sample Output

```
Case 1: 1
Case 2: 0
Case 3: 1
Case 4: 1
Case 5: 2
```