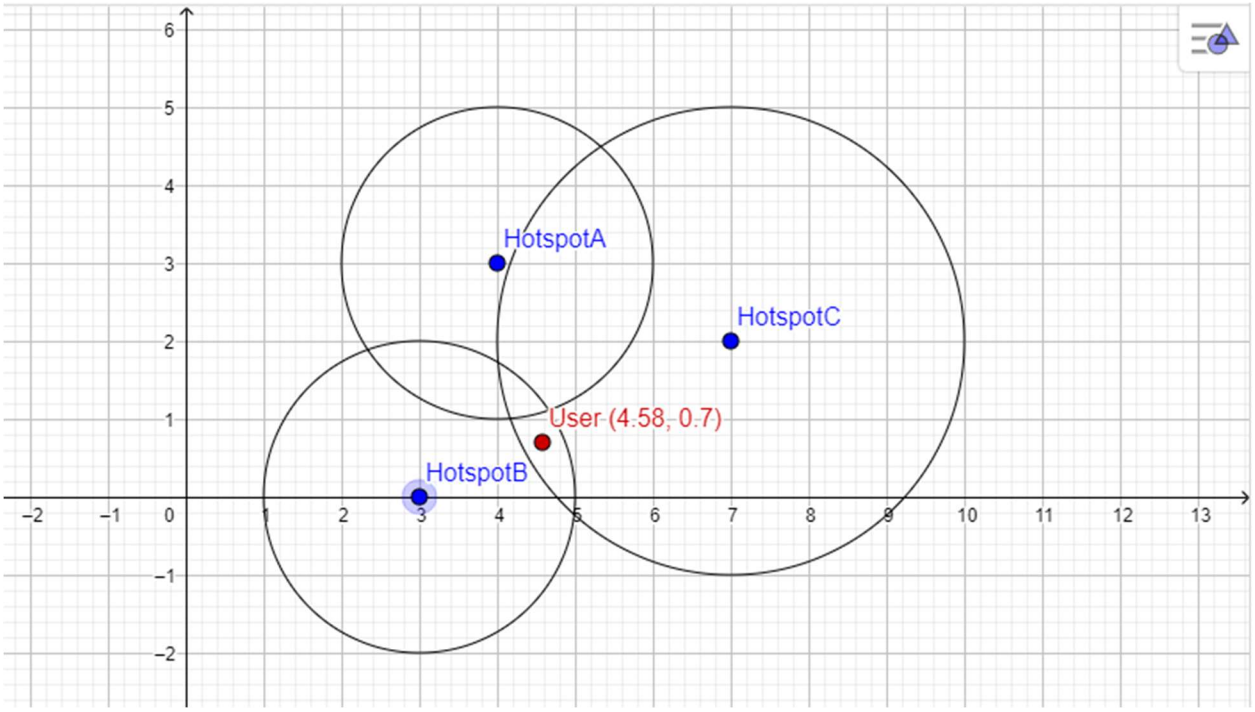
H. WI-FI Detector

Time Limit: 3 seconds

Problem description

Assume that in a flat space there are N Wi-Fi hotspots. Each hotspot, is marked at a coordinate in the Cartesian coordinate system, with the name and the maximum distance the wave can travel.

If you know the coordinates at which the user is standing, indicate the number of hotspots he (or she) can connect to and list them. Note that, user can connect to a hotspot if their distance from this point is less than or equal to the maximum distance the wave can travel.



With three hotspot and the user's location as shown in Figure above, user can receive waves from two hotspot: HotspotB and HostpotC

Input:

User uses standard input stream (stdin) to enter input using the format:

- Line 1: the coordinates of user.
- Line 2: the number of hotspot (<= 1000)
- Every next two lines information of each hotspot, include: name, coordinates, maximum broadcasting distance.
  Note: coordinates and distances can be real numbers.

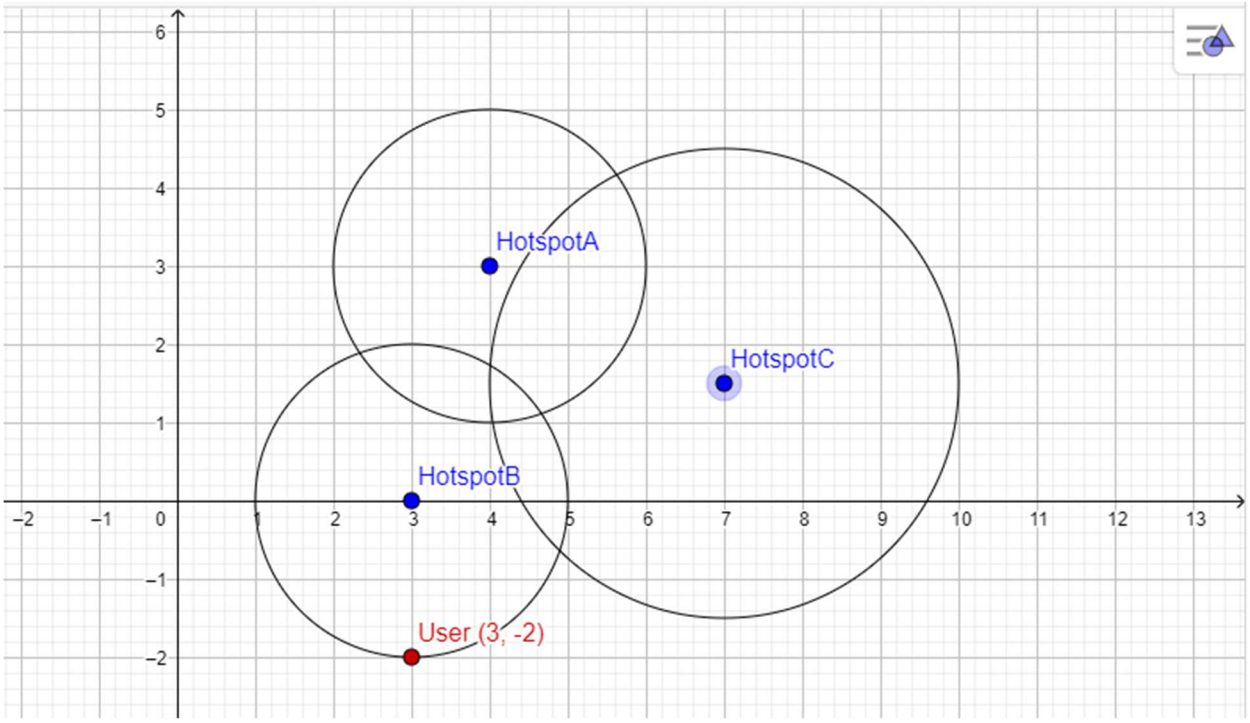
Output:

The system displays the number of hotspot user can connect to on line 1 and list their names on next lines.

Example 1

Input	Output
4.58 0.7 3 HotspotA 4 3 2 HotspotB 3 0 2 HotspotC 7 2 3	2 HotspotB HotspotC

Example 2



Input	Output
3 -2 3 HotspotA 4 3 2 HotspotB 3 0 2 HotspotC 7 1.5 3	1 HotspotB