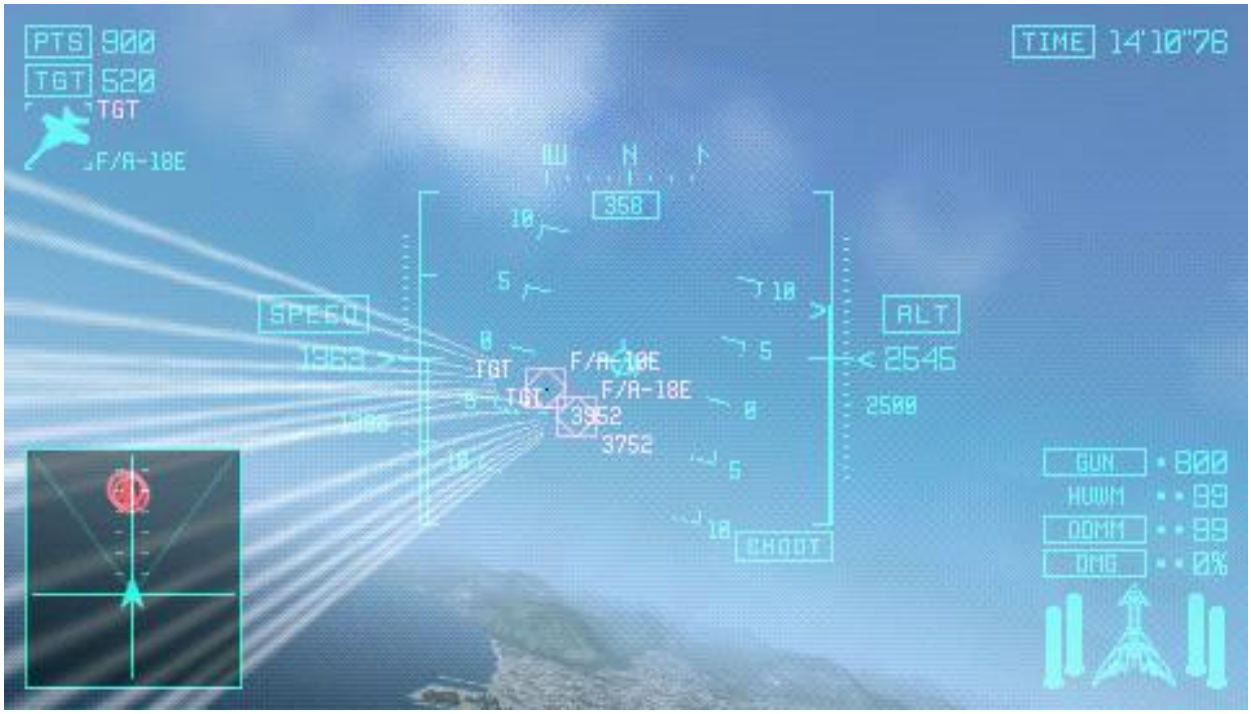
Fighter Jet Target Locking

(Time limit 2 seconds)

A fighter jet will be able to lock a target that can be shot using a missile if its target is within a certain distance and a certain coordinate area. Although the pilot presses a firing button a missile will not be launched if the target hasn't been locked.



T (x, y, z) are target coordinates where x and y are target's 2-dimensional (horizontal and vertical) projections on the radar monitor screen, and z is the target distance.

Range coordinates are squares with positions P1 (x1, y1) and P2 (x2, y2). The distance the missile can reach is j. Range coordinates and missile shooting range are always changing depending on many things like weather, airplane speed, wind direction, altitude, temperature, humidity etc.

You are required to create a system to assist the pilot by automatically locking the target and then telling him whether he can fire a missile or not, for each set of data T, P1 P2 and j.

Input

n
x y z x1 y1 x2 y2 j
…

where:

- number of data to proceed: 1 <= n <= 100000
- target coordinates, coordinate range & distance: 0 <= x, y, z, x1, y1, x2, y2, j <= 1000
- all data is in integer

Output

If goal can be locked & shot: 'shoot', but if the target can't be shot: 'hold'.

Sample input	Output for sample input
3 5 7 10 2 3 8 11 15 15 31 15 3 7 21 40 10 12 7 5 15 5 24 15 8	shoot hold hold