Assignment 1

Question:

In a party of n people, a celebrity is defined as someone who:

- Doesn't know anyone at the party and
- Everyone else at the party knows the celebrity

Your task is to find the celebrity in the party (if one exists).

- Write a program in python to accomplish that task.
- Use a helper function `knows(A, B)` which returns true if person `A` knows person `B`, and false otherwise.
- Assume that the relationships among participants can be represented by a digraph `G(V, E)` where there is a vertex for each of the n participants and an edge from `u` to `v` if `u` knows `v`.

Solution:

code.py

```
1.   def knows(matrix, n):
2.       i = 0
3.       for j in range(1, n):
4.            if matrix[i][j]:
5.                 i = j
6.       for j in range(n):
7.            if j == i:
8.                 continue
9.            if matrix[i][j] or not matrix[j][i]:
10.                return -1
11.           return i
12.
13.  n = int(input("Enter the number of persons: "))
14.  matrix = [list(map(int, input(f"Enter the details about person-{i+1}: ").split()))
   for i in range(n)]
15.  celeb = knows(matrix, n)
16.  if celeb == -1:
17.      print("There is no celebrity")
18.  else:
19.      print(f"Person {celeb+1} is a celebrity")
20.
```

input

```
Enter the number of persons: 3
Enter the details about person-1: 1 1 0
Enter the details about person-2: 0 1 0
Enter the details about person-3: 1 1 1
```

output

```
Person 2 is a celebrity
```

input

```
Enter the number of persons: 3
Enter the details about person-1: 1 1 0
Enter the details about person-2: 0 1 1
Enter the details about person-3: 1 1 1
```

output

```
There is no celebrity
```