



CSE215 Lab Quiz-01

Programming Language II (North South University)



CSE 215L: Programming language II Lab

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Lab Quiz - 01 [Summer-2021] Time: 45 Minutes

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Instructions:

- You must upload the .java files in Google Classroom.
- **Late submission** will not be allowed.

Problem Specification:

Due to the Covid-19 pandemic, the public health experts prognosticate that there will soon be a scarcity of beds if the detected cases continue to increase in the coming days. The country's leading business conglomerate Bashundhara Group has extended its hand to support the government in building a 2,000-bed hospital to treat coronavirus patients in Bangladesh. The hospital management has decided to clear a large square area for the patients and the beds cannot be too near to each other.

The area is of dimension $N \times N$

The whole area is divided into blocks. 1 is used to denote a bed in the block and 0 is used to denote no bed in the block. Note, beds that are placed on consecutive diagonal blocks are safe.

This is a SAFE example:

```
1 0
0 1
```

This is an UNSAFE example:

```
0 1 1
0 0 0
1 0 0
```

To avoid spreading the virus even further, you have to make sure no two adjacent blocks have beds in them. This is done to maintain distance between beds.

Return an output of "SAFE" if you find the workers have arranged the beds with due consideration to the distance needed. Return "UNSAFE" otherwise.

Input Specification:

- The first line of the input contains an integer N, denoting the dimension of the square.
- Next N lines will contain N number of space-separated integers A_i which denotes the beds in the area.

Output Specification:

- Your program should determine whether the total arrangement is "SAFE" or "UNSAFE" and print thereby.
- Even if there's a single unsafe bed in the whole area, report the whole area as "UNSAFE".

Sample Input	Sample Output
4 1 0 1 0 0 1 0 1 0 0 1 0 1 0 0 1	SAFE
4 1 0 1 0 1 0 0 0 1 0 1 1 0 1 0 0	UNSAFE
4 0 1 0 1 1 0 0 0 0 0 1 0 1 0 0 1	SAFE
4 1 0 1 0 0 1 0 1 0 0 1 0 1 0 1 1	UNSAFE

You may follow these steps:

1. Create a 2D array and take inputs from the keyboard using for loops
2. For each entry in the array, check if it is safe (there would not be any bed in UP, DOWN, LEFT, or RIGHT direction). you have to use for loops again.
3. Whenever it is Unsafe, return UNSAFE.

Any form of cheating will be penalized heavily. Duplicate codes (no matter if full or partial) will not be marked regardless of which one the original is.