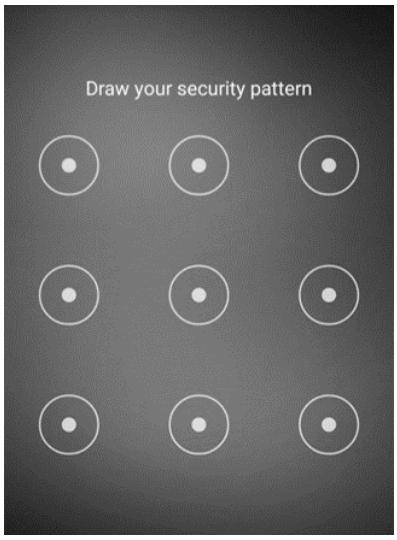
23 Lock pattern checker

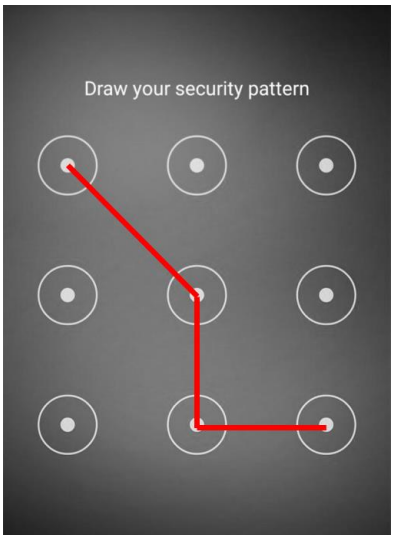
13 points

Introduction

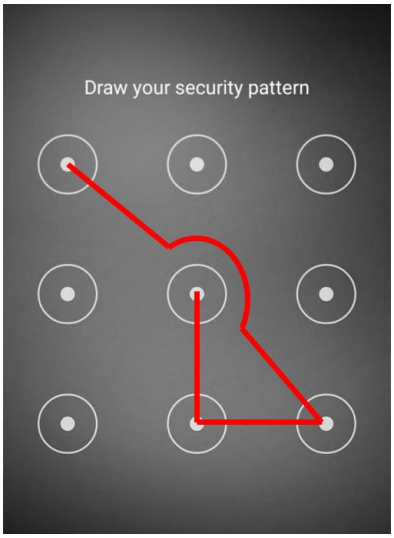
While configuring your new smartphone, you decided to set the safest gesture pattern to unlock it over a grid of 9 circles like this.



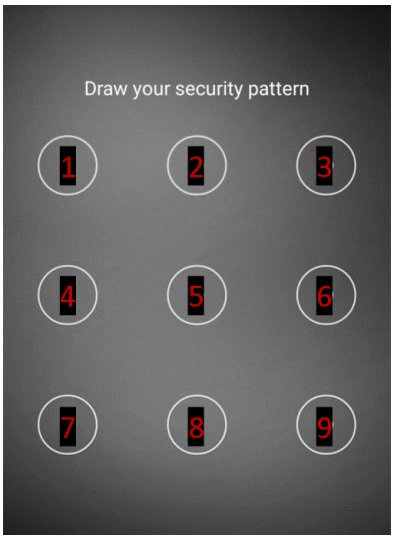
But before setting it you want to be sure that your candidate lock pattern is feasible and follows the restrictions of your smartphone operating system (A circle only can be connected with an adjacent circle and is allowed to connect the same circle more than once) for example a correct pattern is:



There will be patterns that do not follow the OS restrictions like in this example:



So to avoid any surprise you decided to code a program that checks whether a lock pattern is correct. To do so, the grid of 9 circles is numbered following this scheme:



The sequences defined by the lock pattern in the previous examples are:

1-5-8-9 for the correct lock pattern

1-9-8-5 for the incorrect lock pattern

Also take into account that it is necessary to have at least 2 circles connected to have a safe gesture pattern.

Input

The input will be a single line containing a sequence of numbers ranging from 1 to 9 (one per each circle) separated by minus sign.

Output

The output will be a single line stating whether the pattern is ok, otherwise print the first pair of circles that cannot be connected in the pattern.

Example 1

Input

```
1-5-8-9
```

Output

```
Pattern is ok
```

Example 2

Input

```
1-9-8-5
```

Output

```
Circle 1 can not connect with circle 9
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