

Activity 1: Warm-up

Pretend you're using a whiteboard during an interview (no internet, no code editor).

1. Programming Exercise

Write a function (or method if you're using Java) that takes in a list of integers. The function returns true if the list contains two or more of the same integer, false otherwise. Sample function stubs and provided below for clarity.

Java

```
public class PairChecker {  
  
    public static void main(String[] args) {  
        PairChecker.containsPair(Arrays.asList(1, 2, 3, 2)) // true  
        PairChecker.containsPair(Arrays.asList(5, 2, -10, 44, 90)) // false  
    }  
    public static boolean containsPair(List<Integer> l) {  
        return false;  
    }  
}
```

Python

```
def contains_pair(l:list):  
    return False  
  
contains_pair([1, 2, 3, 2]) # true  
contains_pair([5, 2, -10, 44, 90]) # false
```

Write your code here...

2. Design Question

Your boss asks you to implement a URL shortener. Specifically:

1. A user types a long URL into a textbox (e.g., https://docs.google.com/document/d/1mfXaWnXMQriL-Gwa2P_YMp0UhoOLh7jP/edit?usp=sharing&ouid=113376576186080604800&rtpof=true&sd=true)
2. The system gives the user back a shortened URL (e.g., <https://t.ly/V4c7l>)
3. Thereafter, if anyone clicks the shortened url, the page redirects to the original (long) URL.

What steps would you take to implement this system?