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

```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

```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/V4c7I)
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?