Hi,

Thank you for taking the time to complete our programming exercise, you will find all the details below.

**Hacker detection system**

A system provided by a company allows customers to sign in using their username and password. There is a requirement for an automated system to be developed to help identify attempts to hack the system and compromise accounts. Activity log files are recorded and the new system will need to process these logs to identify suspicious activity.

Write a Java (or Groovy or Scala) program implementing the HackerDetector interface (outlined below) which defines a single method 'parseLine'. The method should take one line of the log file at a time and return the IP address if any suspicious activity is identified or null if the activity appears to be normal.

**package com.sky.detector;**

**public interface HackerDetector {**

**public String parseLine(String line);**

**}**

The parseline method will be called each time a new log line is produced, log lines are passed in chronological order.

The log lines will be in the following format:

ip,date,action,username

IP look like **80.238.9.179**

Date is in the epoch format like **1336129471**

Action is one of the following: **SIGNIN\_SUCCESS** or **SIGNIN\_FAILURE**

Username is a String like Dave.Branning

A log line will therefore look like this:

**80.238.9.179,133612947,SIGNIN\_SUCCESS,Dave.Branning**

The first detection method will be to identify a single IP address that has attempted a **failed login 5 or more times within a 5 minute period**. On detection you should return the suspicious IP.

Our signin page can generate around 100,000 failed signing a day so memory consumption should considered and managed.

Please bear in mind all the best practices you would normally employ when producing "done" production code:

\* A well factored object oriented domain model

\* Testing

\* Clean code

Feel free to use any testing and mocking framework, but please refrain from using any other framework (inversion of control, data stores, caches, etc.) as they are not needed for the assignment.

Please return your solution as a zip file as a reply to this email.

Good luck!