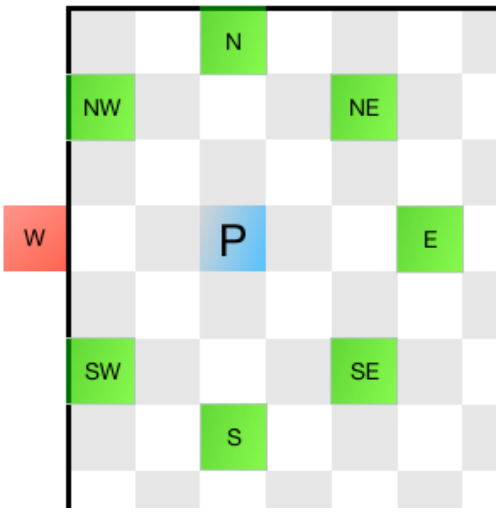
Technical Assignment - Backend

Truecaller 2019

Thanks for your interest in Truecaller! This document details the next part of the interview process, a chance for you to demonstrate your experience by implementing a solution to an algorithmic problem. The sections below contain background information for the assignment, instructions for what to build, as well as guidelines for when and how to submit your assignment. Good luck!

A Piece's Tour

The assignment is to write a program that finds at least one tour for a chess piece on a 10-by-10 chessboard. A tour is a path for a piece to visit all tiles on the board, following a set of rules for movement. Assume the piece can start in any tile.



The four rules of movement for the piece are:

a) The piece can move 3 spaces either North, East, South, or West.
b) The piece can move 2 spaces diagonally: Northeast, Southeast, Southwest, or Northwest.
c) Each space can only be visited once.

The diagram shows the seven valid moves and one invalid move for the piece at P, assuming none of them have been visited previously.

Instructions

Your task is to implement a Scala or Java application that finds such tours. The input should be the starting location, and the output a tour a piece could make from that location. Your solution should draw or otherwise present the outcome.

What we hope to see in your submitted assignment is an ability to follow a specification, model a domain, and use it to solve a non-trivial problem. We value readability and clear, consistent style in your code. Tests are a great way to show that your implementation is correct. Also, make sure to document your assignment. For instance, instructions for how to build, run, or test your program are useful, as are notes describing your approach.

Your submission will also be used as a starting point for design or coding questions during subsequent interviews.

Submission Guidelines

Please submit your assignment via email. Include all relevant files — code, instructions, build files, but no binaries — in a compressed folder. You can use the format <initials>_backend.tgz, as in "jbd_backend.tgz", to name the attachment.