ZooberX
Your ride hailing service for the great Wildebeest migration

Introduction

Thank you for your interest in joining our team. The purpose of this exercise is to give us a sense of what you can build at your leisure and when the technical decision-making is totally up to you. We do not have one right answer in mind. You are not timed on this exercise. While depending on how you tackle the problem it may take significantly less time, we recommend you set aside a weekend to work on this. We understand this takes some effort and give your work on this considerable weight in our final decision.

Background

Each year close to two million animals migrate from the Serengeti ecosystem in Tanzania to the greener pastures of the Maasai Mara reserve in Kenya. Their journey runs in a clockwise circle and covers roughly 1800 miles. For the Oxpeckers traveling on Wildebeest backs this is a grand opportunity to explore Africa without having to flutter their wings too much.

Credits: J. Crittle

What you are building

ZooberX is a mobile app that allows Oxpeckers to get a ride with a passing Wildebeest on its way between Tanzania and Kenya. You will be implementing a POC backend for the app that exposes a predefined API, and then consuming this API from a basic web frontend.

For the purpose of this exercise, we will assume three things:
1. Wildebeests walk in a straight line between two points:
    - Meatu, Tanzania (LAT -3.603450, LNG 34.732605)
    - Narok, Kenya (LAT -1.261154, LNG 34.997316)
2. Wildebeests walk in both directions along this line. Collisions are none of your concern; you may treat each Wildebeest as if they are the only animal on that road.
3. A Wildebeest can carry any number of Oxpeckers.

How you are building

Quick is the name of the game. We need it to work as required; the stack and architecture is your call. We WILL be looking at low-level design, code quality, tests and documentation. We WILL NOT be looking at

scalability and time\space efficiency, but please be prepared to discuss improvements in detail with a member of our team.

Part I - ZooberX backend

In this part you will implement the server-side functionality of ZooberX. Your deliverable is a working web application backend running on your local machine, that exposes an API with two methods:

```
/*When called, returns a dictionary that contains all the available
Wildebeests by name, with their current GPS location.*/
getWildebeests(): dictionary<string,GPS coordinates>
```

```
/*Given GPS coordinates and a destination (Kenya or Tanzania), this method
returns the name of the Wildebeest that is closest to the coordinates at the
moment of the call (Euclidean distance) and is going in the right direction.
*/
getYourWildebeest(GPS coordinates, destination): string
```

Part II - ZooberX frontend

In this part you will implement the client-side functionality of ZooberX. Your deliverable is a working web application frontend running on your local machine, that consumes the backend API. Specifically, it will:

- Display a map of the area discussed in “What you are building”.
- Refresh the location of the Wildebeests constantly and display their names in the appropriate locations on the map.
- Allow the user to enter coordinates and destination and then tell them the name of the closest Wildebeest going in their direction.

The overall visual design is to your discretion. While this is a basic POC, do remember this task should also give us some insight into your UI skills.

General recommendations

- Store a fixed, pre-populated list of 10 Wildebeest names. Say: Abe, Tony, Dan, Robert, Moses, Dana, Sandra, Michelle, Beth and Ashley.
- Generate new **randomly selected** locations\directions for the Wildebeests as specified above every **3 seconds**. These will replace the actual location data in this POC.

Submission and next steps

Here is what we need from you:

1. Your code and tests.
2. A concise PDF document that explains the code structure, architecture and design.
3. A 15-seconds recorded demo, showing us the functionality is working.
4. For those who will be invited for an onsite interview: The laptop running your code. We may want to work through the problem with you.

GOOD LUCK!