INTRODUCTION

You do not need to prepare anything written in advance but read through the current assignment text and get a good understanding of the feature we want to build, think about how it could be built and potential problems that we might face in the future.

The goal of the assignment is to have a high-level discussion about possible implementations of the feature, get to know what your areas of expertise are, how would you start investigating some problems and how would you solve them. Depending on your skills and the role, the conversation will go into the direction where you can prove certain knowledge (example: if you are applying for a frontend role, we will not ask about databases, but we might ask what you would expect from an API).

REQUIREMENTS

We are currently running a multi-tenant web application on a public cloud platform, and we want to implement a feature that would allow us to track the activity of all our users in the application. Users need to login to access our product. We want to expose the tracking data to certain users of each tenant. You can assume an authentication/authorization system exists, so you do not have to design it here. Only users with administrative access rights can view this tracking data, and they can only see data for their own tenant. We have plans to also have an internal page for our own employees that would show data across all tenants.

You can think of **Google Analytics** as a point of reference. However, we do not want to share the data with third-party services, so we are aiming to build something similar, at a smaller scale.

We want to display the following charts to the administrative users of each tenant:
- the number of views per page
- average time spent per page
- total number of logins per day and out of the total number how many of them are first time logins
- number of logins per country

The charts should be grouped into 2 tabs:
- *page performance*, which contains number of views and average time
- *user activity*, which contains number of logins per day and the number of logins per country.

We plan to expand the number of charts and tabs, and requirements for that are still

being gathered.
The default timespan for the data is currently “last 30 days”, but they can select whatever other timespan they want. You do not need to consider timespans shorter than one day.
How do you think this tracking system should be implemented? Think about the best way you could build it and what are the possible challenges that you will face. Focus on your own field of expertise. We are not trying to build everything from scratch, it is possible to use cloud services, libraries and other tools that are helpful. This will be the main point of the conversation in the interview.

In the following image you can see an example design of what the charts could look like. Most pages in the application in question are various dashboards, so the word “dashboard” shown in the charts is synonymous with “page”.