You-Are-Here App

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1 Introduction

In this assignment I developed a web app, which shows the user's current location. This app is an installed shortcut that can be run on a standalone mobile web browser. Hence, the app can be launched like a native app. Developing such an app has several advantages compared to developing a native app. Both advantages and disadvantages of both app types are elucidated in the following.

A native app is built specifically for one operating system (iOS vs. Android).The advantage of native apps are that they can also be used offline, all the built in functionalities of the mobile phone can be used and all native APIs can be used. However, one needs to choose the operating system, on which the app should run because the app needs to be programmed in an operation system specific programming language. Hence, an app programmed in Java is only supported by Android and not by iOS. Thus, the app needs to be programmed twice, once in Java for Android and once in Objective-C for iOS, which is rather time-consuming. Mobile apps on the other hand are supported by multiple platforms and hence, the development costs are lower. A disadvantage of such mobile apps is that the OS API's have a limited access and the app can only be used when online capabilities are available. (Huang, 2019)

2 Methods

As stated above, mobile apps are supported by multiple platforms because they are programmed using HTML, CSS and JavaScript. For this assignment Leaflet API was used to incorporate map features into the app. Thanks to Leaflet API, various basemaps can be chosen to be displayed in the app (Leaflet API, 2017). For my app, I used *Cartocdn*'s light and dark (no label) basemaps. In a next step I added a custom marker to denote the user's current location. To add some more information to the map, I also added all the restaurant POI's available on Open Street Map (OSM) as a geojson layer (Overpass API, 2019). Both location marker and restaurant markers show a popup if clicked (Figure 1). To enhance the view of the map, I clustered the restaurant markers. When zooming in, the individual markers are displayed, when zooming out, the number of restaurants in a region are displayed in a coloured circle. The colour of the cluster circle depends on the number of restaurants in the region. Green denotes only few restaurants, orange on the other hand signifies that there are many restaurants in a region. Lastly, I added several control elements, such as a toggle to switch the basemaps and to turn on/ off the layers. I also added a legend using a HTML *div* element to explain the markers on the map (legend).

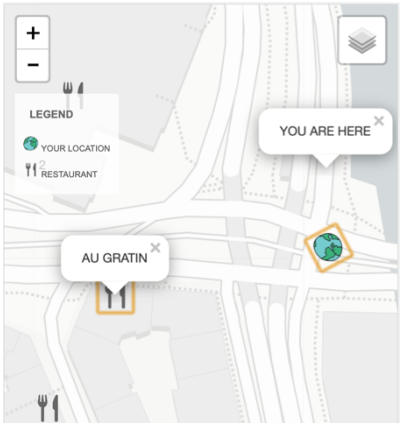

Figure 1: Snippet of map view with displayed popups of location and restaurant layer.

3 Results

When opening the app, the map view is zoomed to the current location of the user. As stated above, the location is marked with a custom marker (globe), which is rotated based on the device's orientation (Figure 2). To show the accuracy of the location, a blue circle of one hundred metres is displayed below the location marker. The app enables the user to zoom either with the zoom buttons or using zoom-gestures with your finger. The map's legend is displayed below these zoom buttons. On the upper right side is the toggle button visible, which enables changing the basemaps and layer visibility. On the bottom left of the app is the map scale. Another functionality is placed on the bottom right: this "take a picture" button enables the user to take a picture of the current location and display the picture in a popup.

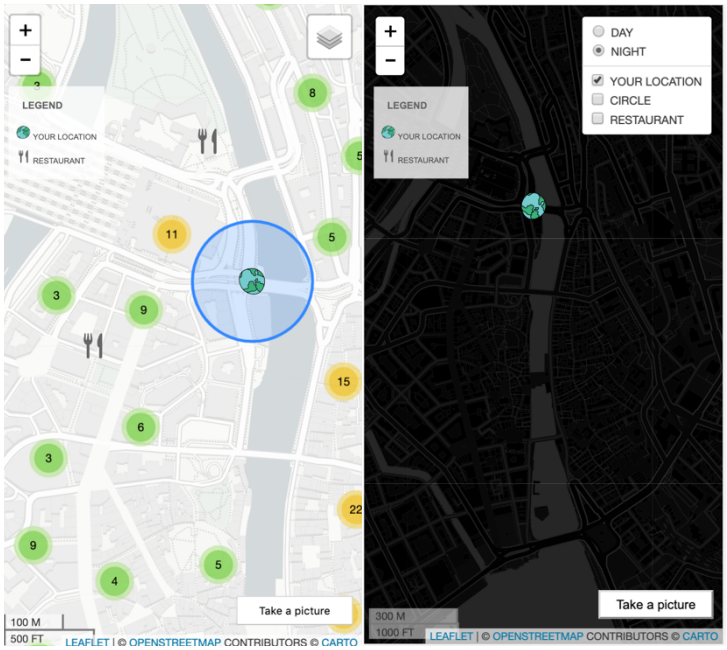

Figure 2: App interface with light (left) and dark (right) basemap. The view on the left has all layers turned on and most of the restaurants are shown in a cluster (numbers on map). The map on the right side has only the location marker turned on, all other layers are hidden.

4 Concluding Discussion

As described above, my "You are here" app includes some basic functionalities. It also features a legend to denote the map's symbols. However, this legend could be improved by introducing a toggle to hide the legend.

5 References

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