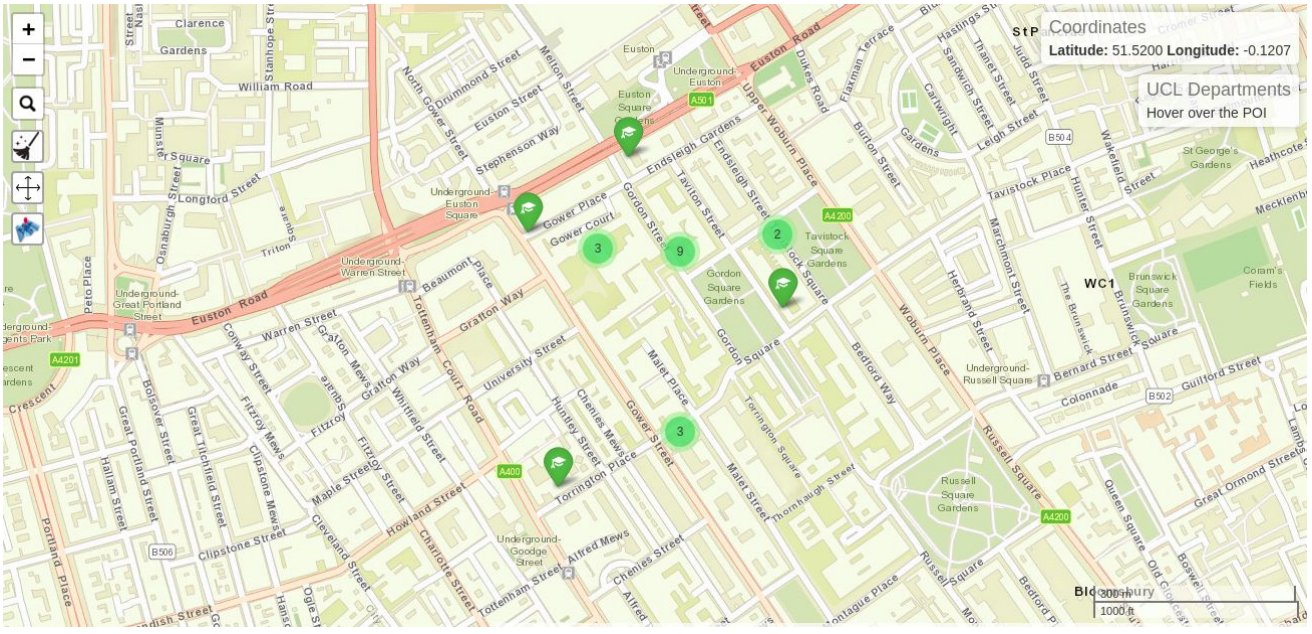

1. Introduction

1.1 What is UCL Question System app?

The **UCL Question System app** is a browsed-based web application that works in conjunction with the UCL Quiz app. The main operation of the application is data collection and the population of the back-end database that is used by the UCL Quiz app. In particular, it enables to a user to record POIs in which information has been attached that is employed by the quiz app.

1.2 Which browsers do support the web app?

The web application is compatible with the following browsers:

1) Google Chrome Version 66.0.3359.139 (64-bit)
2) Google Chrome Version 48.0.2564.109 (64-bit)
3) Mozilla Firefox Quantum Version 59.0.2 (64-bit)
4) Mozilla Firefox Quantum Version 45.2.0 (64-bit)
5) Internet Explorer 11 Version 11.0.9600.18920 (64-bit)

1.3 How does it works?

The app automatically loads a POI (point of interest) dataset of UCL's buildings and zoom the map display on them. Double-clicking on the map display, a pop up window appears that prompts a user to store a POI at the location that he/she has chosen. Therefore, the user needs to fill a form and submit it. After that process, the selected point is stored in the dataset, and refreshing the website it can be seen that the dataset is now updated.

1.4 How much does the mobile app cost?

The app is available on any user.

1.5 Who can use it?

The web application can be used by anyone of any age. The user does not need to have any experience in order to be able to use the application.

2. How to access the UCL Question System app?

The user can access the application in the following link:

http://developer.cege.ucl.ac.uk:31277/

3. Web App Features

Besides the main purpose of the app to collect data for the UCL Quiz application, a variety of map-based commands are accessible from the user that assist him/her to have better experience using the application.

3.1 Map-based Options

The app is also equipped with more commands that operate over the UCL POI dataset. These commands are described below:

Search Command

A building might be searched based on its corresponded **question** using this command. A marker is used to represent the building that is found.

Clean Command

Markers that may remain from a search process or the geolocation are cleaned from the map.

Full Zoom Command

The map zoom changes so that a full display of the data is given.

Geolocation Command

Enables the geolocation of the user and marks his/her location on a map. The accuracy of the geolocation is shown with a buffer around the marked position of the user. Based on the user desire, the geolocation command can be activated or deactivated.

3.2 More Capabilities

When a user clicks on a POI, a pop up that contains information related to the clicked point is shown. The pop up contains information such as the department **name,** the **question** that is asked for that point, its **correct** answer, and its **geographical coordinates** [Fig 2 (A)].

Hovering over the map and the POI dataset, information related to their content is shown at the bottom-left corner of the map [Fig. 2 (B)]. This information is similar with what is given in the pop up window.

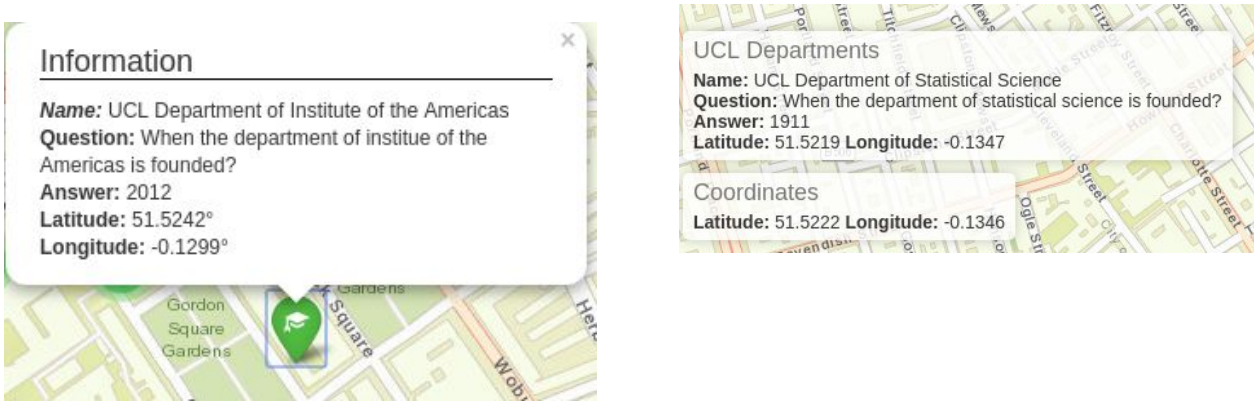

Fig. 2: (A) A pop up window that contains information related to the selected point is shown on the left image. (B) While a user hovers over the map and the buildings of UCL, related information is displayed on the top-right corner.

In order to make the map display more visually attractive, the buildings of UCL are concentrated in small clusters (Fig. 3). Each building that may fell within the buffer zone of a cluster, is added on that cluster and removed from the display. As a zoom level of the map changes, and the display reaches to its maximum zoom level, the cluster dissolves.

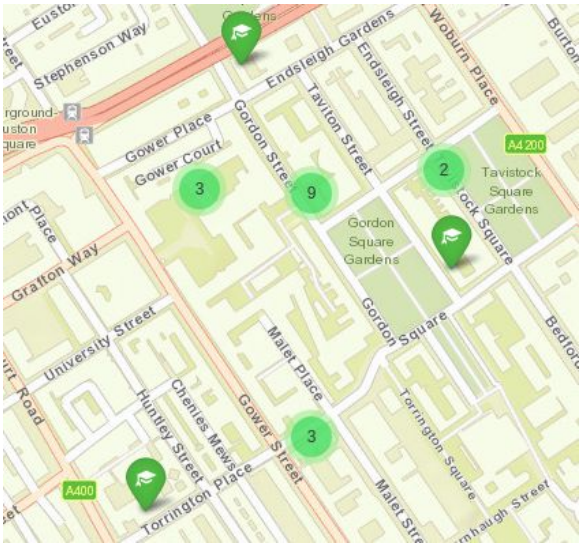

Fig. 3: The buildings of UCL are grouped, such as small clusters have replaced the appearance of the markers.

Lastly, the map is equipped with a scale bar (Fig. 4), which uses metre or foot as the measurement unit. The scale bar is often important when a user wants to estimate a distance from his/her location.

Fig. 4: The scale bar option that is provided by the UCL Question System App

4. Sources

https://github.com/Leaflet/Leaflet.markercluster
https://github.com/lvoogdt/Leaflet.awesome-markers
https://leafletjs.com/
https://github.com/stefanocudini/leaflet-search