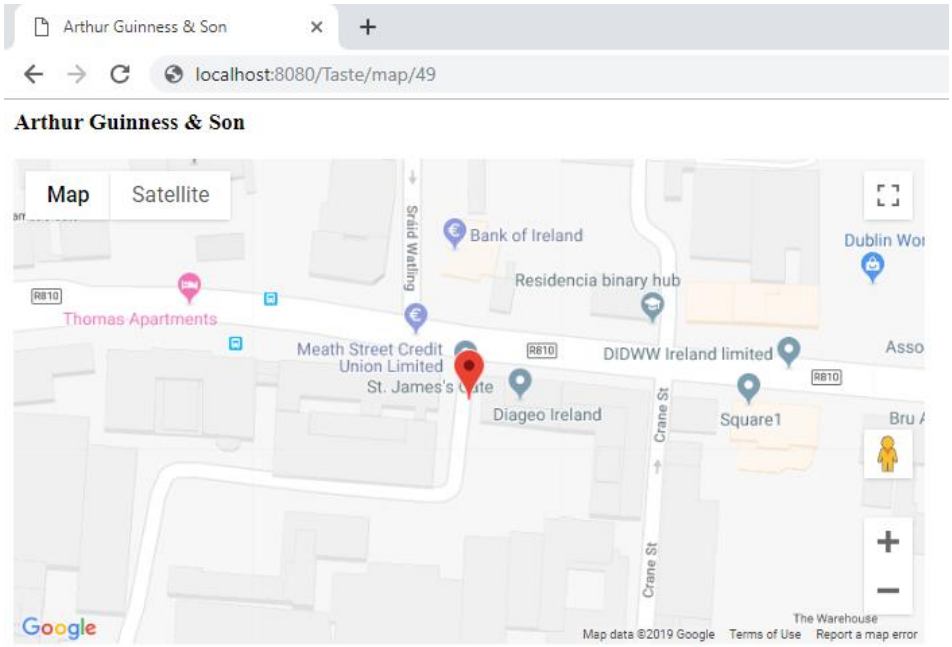
For this assignment, you must develop a REST API for the *taste* database as well as writing a brief report (see task 4).

1. You must expose **each of the tables in the *taste* database with a suitable API** and you have a free hand regarding the functionality your API offers. However, the following is **required** functionality for the **breweries** table where you must support the GET ', POST, PUT and DELETE HTTP methods. All responses from these HTTP methods should be in JSON.
   - ' GET an individual brewery based on id.
   - ' GET all breweries (as this request will return 1414 records, pagination should be used so that the client/consumer is not overwhelmed with data).

   Both GET requests should adhere to HATEOAS principles:
   1. The GET an individual brewery should include a link to all breweries.
   2. The GET all breweries should include two links. One "self" link and another link that when followed will display the brewery id as well as the latitudinal and longitudinal coordinates for the given brewery.

   You should aim to be **creative** and **innovative** around the API for the other tables (beers/ breweries_geocode /styles/categories) and should look to avoid rehashing the functionality you develop for the breweries table. Feel free to use 3rd party API's/libraries to help you with this task as well as varying the request/response types the methods consume/produce. Feel free to change the structure of the database if you wish (remembering to include a copy of the amended DB script with your final submission).

2. Your API should return, for a specified brewery, a (Google) map with the latitudinal and longitudinal coordinates of the brewery plotted on it. The name of the brewery must also be displayed on the page that is returned from the web service. For example:



3. Your API should return, for a specified brewery, a QR code, that when scanned (by your phone for example) will open the web address of the specified brewery in your phones browser. If it is the case that the specified brewery has no associated web address, then the QR code, when scanned, should load google.com. For example

If you scan the above code, it will load Guinness.com in your browser.

The following tutorials may prove useful when tackling this part of the assignment:
https://www.baeldung.com/java-generating-barcodes-qr-codes (I used the ZXing library).
https://www.baeldung.com/spring-controller-return-image-file (There are other mechanisms available to you, other than the ones documented here, that would work as well).

You must adhere to best practice when developing your REST API and it must be intuitive to use.

4. Along with your code, you must also upload a report to Moodle. This report (including a title page) is to be divided in three parts.
   - **4.1 Documentation**. You must document your API as you see fit (possibly using some 3rd party software).
   - **4.2 Self-Evaluation**. Critically appraise the strengths and weakness of the API you have developed (circa 500 words).
   - **4.3 Benchmarking**. Measure the benefits that the development of an API brings to a development project (circa 300 words).

Marks Breakdown:

Task	**Marks (sum to 300)**
1 API Development	150
2 Brewery coordinates plotted on a Map	25
3 QR Code returned for a specified brewery	35
4 API Documentation + Report	90

I have placed some starter code on GitHub to get you up and running with this assignment.

Note:

1. This assignment is to be developed using **Spring MVC**.
2. You must use **MAVEN** to manage your projects dependencies.
3. You must use **JPA**, with all queries to be implemented as Named Queries in your Entity Classes.
4. You must use **Tomcat** as your server/container.
5. Use appropriate measures to ensure that all errors are handled gracefully.
6. Your report is to be submitted in PDF format.