# **UKPostal REST API Guide**

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#### Contents

1	Introduction	1
2	Prerequisites & Guide to Run Project	2
	List Of API	
3.	1 Screenshot on POSTMAN	4
4	Technology Use	7

### 1 Introduction

This main program is to calculate the distance (in Straight line) between 2 or more coordinate by the UK Postal Code via REST API

You can also update the postcode and coordinate via the REST API

Introduction • 1

### 2 Prerequisites & Guide to Run Project

- Java JDK 8
- Gradle
- 1. Clone the Repo from Github (<a href="https://github.com/kechikkuat/ukpostal.git">https://github.com/kechikkuat/ukpostal.git</a>) to your desire destination.
  - **a.** \$ git clone <a href="https://github.com/kechikkuat/ukpostal.git">https://github.com/kechikkuat/ukpostal.git</a>
- 2. Run the project
  - a. On Terminal
    - i. \$ gradlew build
    - ii. \$ java -jar "\\absolute\\path\\to\\the\\jar" com.geopostal.ukpostal.GeoUkPostalApplication
  - b. On Eclipse/Intellij IDEA Ultimate
    - i. Go to main class GeoUKPostalApplication.java
    - ii. Right click and Run As Java Application

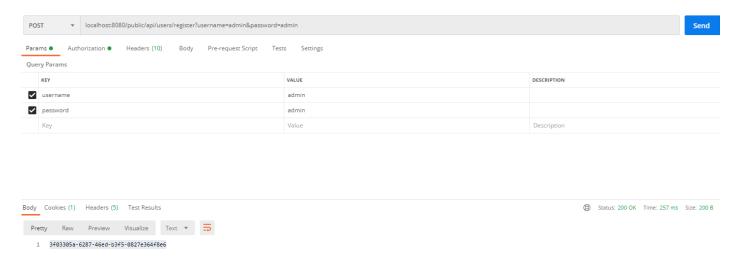
### 3 List Of API

Method	URL	Path Variable /Parameter / Body	Return/ Expected Result
POST	/public/api/users/register	Params: username & password	If parameter correct,     then it will redirect to     login
POST	/public/api/users/login	Params: username & password	If parameter is correct     then it will return a token     string
GET	/logout		
GET	/api/geo		It will return list of     Postcode that available
GET	/api/geo/{postcodeld}	Path Variable: Long Ex: /api/geo/1	1. If postcodeld is available, then it will return with Postcode information  Body: { "id": 1, "migrationId": 1, "postcode": "AB10 1XG", "latitude": 57.144165, "longitude": -2.114848, "createdDate": "2021-06-23T05:00:15.663+00:00", "modifiedDate": "2021-06-23T05:00:15.663+00:00" }  2. If Postcodeld not available it will redirect to 404 with message no postcodeld found
POST	/api/geo/{postcodeld}	Path Variable: Long  Ex: /api/geo/1  Body: Raw  {   "id": 1,   "migrationId": 1,   "postcode": "AB101XG",   "latitude": 40.144165,   "longitude": -12.114848,   "createdDate": "2021-06- 23T05:00:15.663+00:00",   "modifiedDate": "2021-06-	1. After successfully update it will redirect to GET method with updated result  2. If the request body null or failed during data validation then it with BAD_REQUEST status

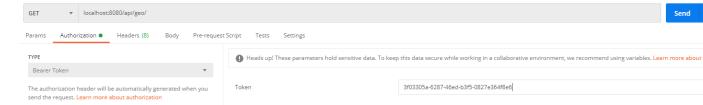
List Of API List of API • 3

		23T05:00:15.663+00:00"	
POST	/api/geo/calculate/distance	Params: postcode  Ex: postcode=ABX10  1XG&postcode= AB11  6UL&postcode= AB21  OTF&postcode= AB21 7LH	<ol> <li>If Parameter is more than 2 and the data is valid then it will return OK with the JSON format data</li> <li>If parameter is less than 2 then it will return BAD_REQUEST</li> <li>If parameter is more or</li> </ol>
			equal than 2 but only 1 data is valid then it will return UNPROCESSABLE_ENTITY

#### 3.1 Screenshot on POSTMAN

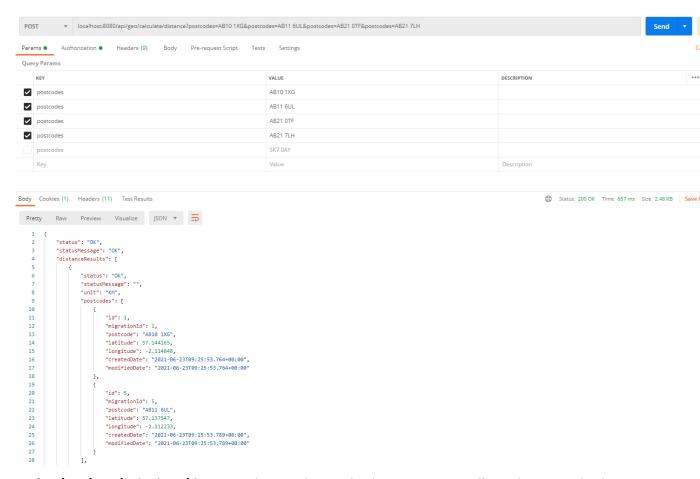


1. Register then, the token will be generated. Copy the generated token.



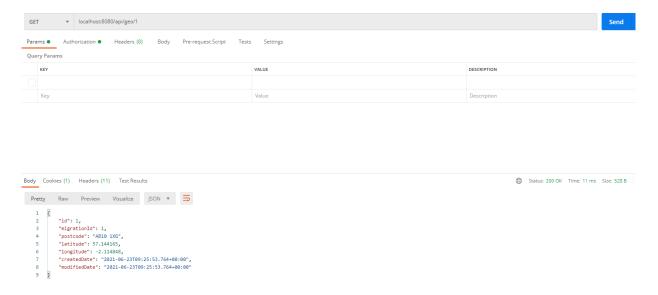
2. Then on the next request go to Authorization Tab -> Type (Choose Bearer Token) -> Paste the copy token to Token field. Repeat this step if you want to make a new Request.

List Of API List Of API 4 4

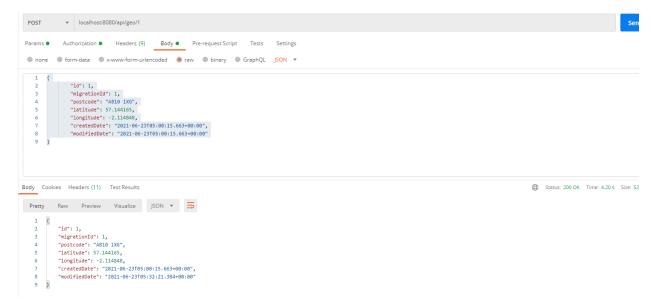


- 3. As for /api/geo/calculate/distance change the method to POST you will need to provide the postcode. Go to Params tab -> Columns (Key) enter postcodes & Columns (Value) enter the value of the postcodes. You must insert more than 1 valid postcodes to success. Then click Send.
  - a. Note: To test **generatedWKTString** from the JSON result you can go here <a href="https://arthur-e.github.io/Wicket/sandbox-gmaps3.html">https://arthur-e.github.io/Wicket/sandbox-gmaps3.html</a> and enter the result from **generatedWKTString** and you can see the line populated on Map.
- 4. There are 2 method for /api/geo/{postcodeld} first is GET and second is POST.
  - a. For **GET** method you can get the {postcodeId} from the **/api/geo** that will return list and which is the field is called **id**

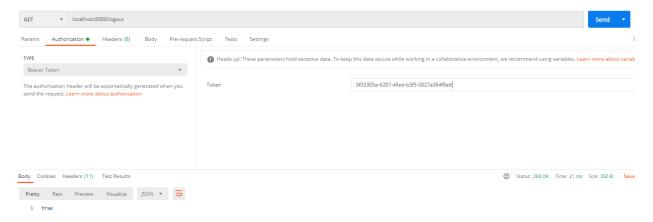
List Of API List Of API • 5



b. For POST method you will need to provide the Request Body to update the field. To do so go to Body Tab -> Choose Raw -> Then insert the json data with the update value. Then click Send.



5. If you are finished the Request / Job you can logout which is the REST API will terminate your token.



List Of API List Of API

## 4 Technology Use

- 1. Java JDK 8
- 2. Gradle
- 3. Spring Boot REST API
- 4. Spring Data JPA
- 5. Java Project Lombok
- 6. Java Location Tech JTS
- 7. H2 Database

#### Source:

https://www.freemaptools.com/download-uk-postcode-lat-lng.htm (UK Postal code & Coordinate) https://en.wikipedia.org/wiki/Haversine\_formula (Haversine formula)

WCC-Group (Haversine formula in code snippet)

Technology Use Technology Use • 7