

UKPostal REST API Guide

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Contents

1	Introduction	1
2	Prerequisites & Guide to Run Project	2
3	List Of API.....	3
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

2 Prerequisites & Guide to Run Project

- Java JDK 8
 - Gradle
1. Clone the Repo from Github (<https://github.com/kechikkuat/ukpostal.git>) to your desire destination.
 - a. `$ git clone https://github.com/kechikkuat/ukpostal.git`
 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	1. If parameter correct, then it will redirect to login
POST	/public/api/users/login	Params: username & password	1. If parameter is correct then it will return a token string
GET	/logout		
GET	/api/geo		1. It will return list of Postcode that available
GET	/api/geo/{postcodeId}	Path Variable: Long Ex: /api/geo/1	<p>1. If postcodeId is available, then it will return with Postcode information</p> <p>Body:</p> <pre>{ "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" }</pre> <p>2. If PostcodeId not available it will redirect to 404 with message no postcodeId found</p>
POST	/api/geo/{postcodeId}	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-	<p>1. After successfully update it will redirect to GET method with updated result</p> <p>2. If the request body null or failed during data validation then it with BAD_REQUEST status</p>

		<pre>23T05:00:15.663+00:00" }</pre>	
POST	/api/geo/calculate/distance	<p>Params: postcode</p> <p>Ex: postcode=ABX10 1XG&postcode= AB11 6UL&postcode= AB21 0TF&postcode= AB21 7LH</p>	<ol style="list-style-type: none"> 1. If Parameter is more than 2 and the data is valid then it will return OK with the JSON format data 2. If parameter is less than 2 then it will return BAD_REQUEST 3. If parameter is more or equal than 2 but only 1 data is valid then it will return UNPROCESSABLE_ENTITY

3.1 Screenshot on POSTMAN

The screenshot shows a Postman interface for a POST request. The URL is `localhost:8080/public/api/users/register?username=admin&password=admin`. The Params tab is active, showing query parameters: `username=admin` and `password=admin`. The Body tab is selected, showing a JSON response: `3f03305a-6287-46ed-b3f5-0827e364f8e6`. The status bar indicates a 200 OK response with a time of 257 ms and a size of 200 B.

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

The screenshot shows a Postman interface for a GET request. The URL is `localhost:8080/api/geo/`. The Authorization tab is active, showing a Bearer Token. The Token field contains the value `3f03305a-6287-46ed-b3f5-0827e364f8e6`. A warning message states: "Heads up! These parameters hold sensitive data. To keep this data secure while working in a collaborative environment, we recommend using variables. [Learn more about](#)".

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.

POST localhost:8080/api/geo/calculate/distance?postcodes=AB10 1XG&postcodes=AB11 6UL&postcodes=AB21 0TF&postcodes=AB21 7LH

Params Authorization Headers (9) Body Pre-request Script Tests Settings

Query Params

KEY	VALUE	DESCRIPTION
<input checked="" type="checkbox"/> postcodes	AB10 1XG	
<input checked="" type="checkbox"/> postcodes	AB11 6UL	
<input checked="" type="checkbox"/> postcodes	AB21 0TF	
<input checked="" type="checkbox"/> postcodes	AB21 7LH	
<input type="checkbox"/> postcodes	SK7 0AY	
Key	Value	Description

Body Cookies (1) Headers (11) Test Results

Status: 200 OK Time: 657 ms Size: 2.48 KB

Pretty Raw Preview Visualize JSON

```

1 {
2   "status": "OK",
3   "statusMessage": "OK",
4   "distanceResults": [
5     {
6       "status": "OK",
7       "statusMessage": "",
8       "unit": "KM",
9       "postcodes": [
10        {
11          "id": 1,
12          "migrationId": 1,
13          "postcode": "AB10 1XG",
14          "latitude": 57.144165,
15          "longitude": -2.114848,
16          "createdDate": "2021-06-23T09:25:53.764+00:00",
17          "modifiedDate": "2021-06-23T09:25:53.764+00:00"
18        },
19        {
20          "id": 5,
21          "migrationId": 5,
22          "postcode": "AB11 6UL",
23          "latitude": 57.137547,
24          "longitude": -2.112233,
25          "createdDate": "2021-06-23T09:25:53.789+00:00",
26          "modifiedDate": "2021-06-23T09:25:53.789+00:00"
27        }
28      ]
29    }
30  ]
31 }

```

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 <https://arthur-e.github.io/Wicket/sandbox-gmaps3.html> and enter the result from **generatedWKTString** and you can see the line populated on Map.
4. There are 2 method for **/api/geo/{postalcode}** first is GET and second is POST.
 - a. For **GET** method you can get the {postalcode} from the **/api/geo** that will return list and which is the field is called **id**

GET localhost:8080/api/geo/1

Params Authorization Headers (8) Body Pre-request Script Tests Settings

Query Params

KEY	VALUE	DESCRIPTION
Key	Value	Description

Body Cookies (1) Headers (11) Test Results

Status: 200 OK Time: 11 ms Size: 528 B

Pretty Raw Preview Visualize JSON

```

1 {
2   "id": 1,
3   "migrationId": 1,
4   "postcode": "AB10 1XG",
5   "latitude": 57.144165,
6   "longitude": -2.114848,
7   "createdAt": "2021-06-23T09:25:53.764+00:00",
8   "modifiedAt": "2021-06-23T09:25:53.764+00:00"
9 }

```

- 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.

POST localhost:8080/api/geo/1

Params Authorization Headers (9) Body Pre-request Script Tests Settings

none form-data x-www-form-urlencoded raw binary GraphQL JSON

Body Cookies Headers (11) Test Results

Status: 200 OK Time: 4.20 s Size: 52

Pretty Raw Preview Visualize JSON

```

1 {
2   "id": 1,
3   "migrationId": 1,
4   "postcode": "AB10 1XG",
5   "latitude": 57.144165,
6   "longitude": -2.114848,
7   "createdAt": "2021-06-23T05:00:15.663+00:00",
8   "modifiedAt": "2021-06-23T05:00:15.663+00:00"
9 }

```

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

GET localhost:8080/logout

Params Authorization Headers (8) Body Pre-request Script Tests Settings

TYPE

Bearer Token

The authorization header will be automatically generated when you send the request. [Learn more about authorization](#)

Token

3f03305a-6287-46ed-b3f5-0827e364f8e6

Body Cookies Headers (11) Test Results

Status: 200 OK Time: 21 ms Size: 350 B Save

Pretty Raw Preview Visualize JSON

```

1 true

```


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)