

UIDAI HACKATHON 2021

Prepared By Team code addicts

Team Members



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Problem Statement: Address Formatting Issue.



Imagine you belong to the capital city of India and you reside within IIT Delhi campus. You have just enrolled yourself to the aadhaar identity platform and after successful enrolment, you have received your letter containing the aadhaar number, demographics data such as name and address. Alas, in the address field you see the repetition of 'Delhi' multiple times, making the address a little convoluted. Like you, many of the residents especially those who are residing in the urban areas see the repetition of the same content in the final address.



You have to devise an innovative solution to identify repetitive content (like Delhi in the instant use case) and merge it in a manner that the overall address remains intact and usable. The solution must comply with the following:-

1. Essential fields like District and State can be merged into a single entity.
2. If the repetitive text is a subpart of a field, then merger should be avoided. For example, 'Purani Delhi' as locality and 'Delhi' as State can't be merged.
3. An API is to be developed which will take the address in its raw form as input and optimized/formatted response should be the output. No user interface would be required.
4. Bonus credit would be given to the team who can also consider the address in the local language and optimize the same.
5. You can use any open-source technologies to demonstrate the solution.

Understanding



UIDAI Address Object Consists of Common Fields Like,

- House/Building/Apartment,
- Street/Road/Lane,
- Area/Locality/Sector,
- Landmark,
- Village/Town/City,
- Pincode,
- Sub District, District, State

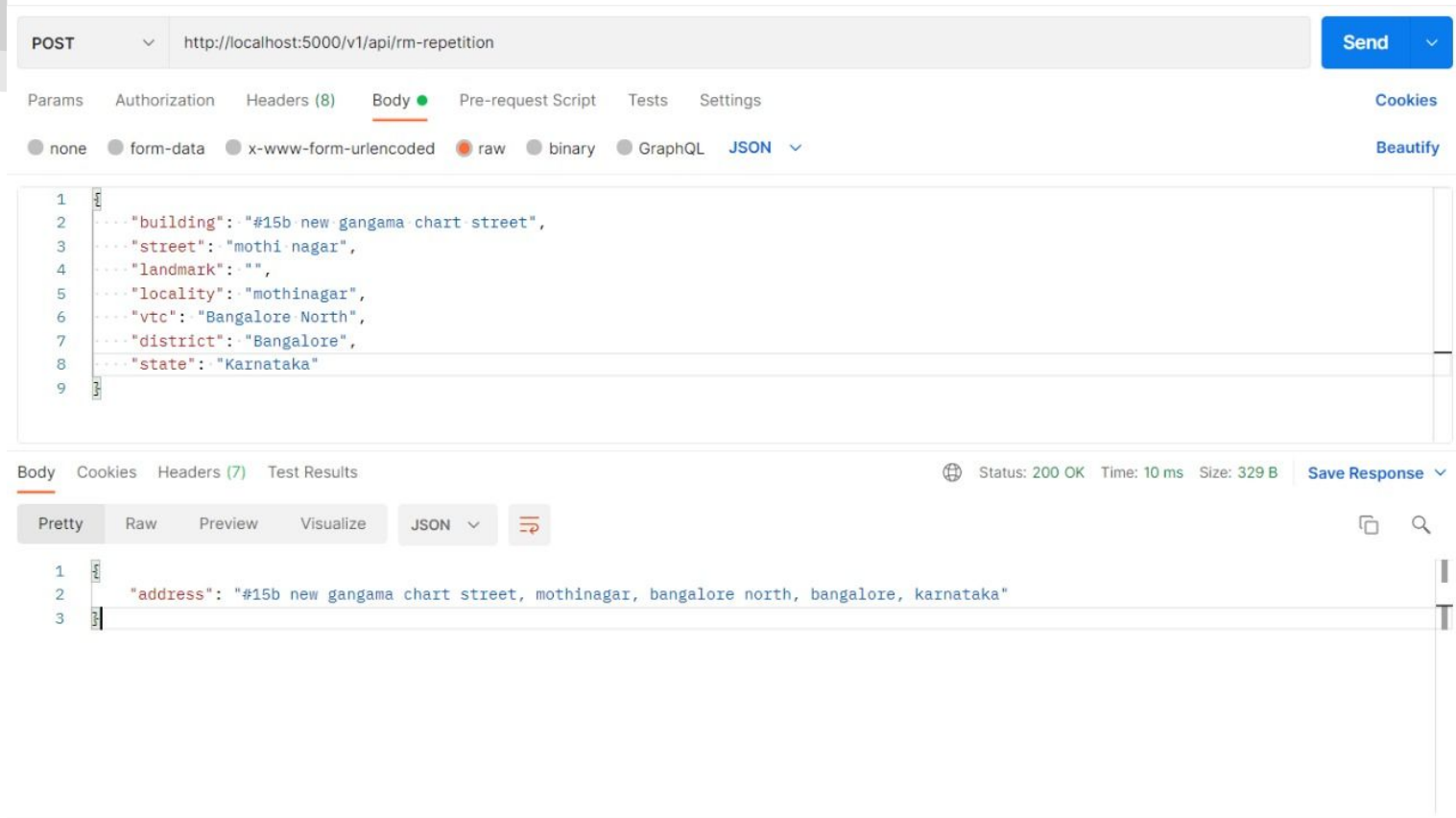
Often Address in Urban Area Contains Repetition of Texts. We have to De-Clutter the Address by Identifying Repetitive Constituents and Merge and Format the Address. We also have to optionally Solve for Local Language Address. We have to develop the API which will undertake Address Formatting by accepting the Address in Raw Form (English and Local Language Address) and formats the Address and Presents as an Output. It must be a Scalable Design.

Solution Design



- We are using JavaScript Language to solve the problem, mentioned in previous slides.
- First of all we are taking an input in JSON format, which consists of fields like, building, street, landmark, locality, vtc, district, state, none of which are mandatory.
- We are using array data structure to store all available values (strings) of the fields of input (mentioned above).
- Now before comparing these values of array, first we are removing the white spaces from all the values and then we are comparing the values of array in order to find out the duplicate values.
- From this array, we are removing all the duplicate values, all the NULL values, empty string values and also common values that are present in two or more strings.
- At last we are merging all the remaining values of the array and giving the final address as an output (in JSON).

Screen Captures



The screenshot displays a REST client interface with a POST request to `http://localhost:5000/v1/api/rm-repetition`. The request body is a JSON object with address details. The response is also a JSON object containing the same address details under the `address` key. The status is 200 OK.

Request:

```
POST http://localhost:5000/v1/api/rm-repetition
```

Request Body (JSON):

```
1 {
2   "building": "#15b new gangama chart street",
3   "street": "mothi nagar",
4   "landmark": "",
5   "locality": "mothinagar",
6   "vtc": "Bangalore North",
7   "district": "Bangalore",
8   "state": "Karnataka"
9 }
```

Response:

```
1 {
2   "address": "#15b new gangama chart street, mothinagar, bangalore north, bangalore, karnataka"
3 }
```

Status: 200 OK **Time:** 10 ms **Size:** 329 B

POST

http://localhost:5000/v1/api/rm-repetition

Send

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

Cookies

☐ none ☐ form-data ☐ x-www-form-urlencoded ☒ raw ☐ binary ☐ GraphQL **JSON**

Beautify

```
1 {
2   ... "building": "NO 50",
3   ... "street": "J C ROAD",
4   ... "landmark": "MAURYA HOTEL",
5   ... "locality": "THAYAPPA LAYOUT",
6   ... "vtc": "Bangalore",
7   ... "district": "Bangalore",
8   ... "state": "Karnataka"
9 }
```

Body Cookies Headers (7) Test Results

Status: 200 OK

Time: 13 ms

Size: 317 B

Save Response

Pretty

Raw

Preview

Visualize

JSON



```
1 {
2   "address": "no 50, j c road, maurya hotel, thayappa layout, bangalore, karnataka"
3 }
```


POST

http://localhost:5000/v1/api/rm-repetition

Send

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

Cookies

☐ none ☐ form-data ☐ x-www-form-urlencoded ☒ raw ☐ binary ☐ GraphQL **JSON** ▾

Beautify

```
1 {
2   ... "building": "#219/3,3rd Floor, Dattathraya Nilaya",
3   ... "street": "Cubbonpete Main Road",
4   ... "landmark": "opp,Silk Exchange Board",
5   ... "locality": "Cubbonpete",
6   ... "vtc": "Bangalore North",
7   ... "district": "Bangalore",
8   ... "state": "Karnataka"
9 }
```

Body Cookies Headers (7) Test Results

Status: 200 OK Time: 7 ms Size: 384 B

Save Response ▾

Pretty

Raw

Preview

Visualize

JSON ▾



```
1 {
2   "address": "#219/3,3rd floor, dattathraya nilaya, cubbonpete main road, opp,silk exchange board, cubbonpete, bangalore north, bangalore, karnataka"
3 }
```

POST

http://localhost:5000/v1/api/rm-repetition

Send

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

Cookies

☐ none ☐ form-data ☐ x-www-form-urlencoded ☒ raw ☐ binary ☐ GraphQL **JSON**

Beautify

```
1 {
2   ... "building": "#35,A-15A,Tripura Nest Apartment",
3   ... "street": "NULL",
4   ... "landmark": "NULL",
5   ... "locality": "",
6   ... "vtc": "Bangalore North",
7   ... "district": "Bangalore",
8   ... "state": "Karnataka"
9 }
```

Body Cookies Headers (7) Test Results

Status: 200 OK Time: 7 ms Size: 321 B

Save Response

Pretty

Raw

Preview

Visualize

JSON



```
1 {
2   "address": "#35,a-15a,tripura nest apartment, bangalore north, bangalore, karnataka"
3 }
```



Thank you