REST API package

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Introduction

Project NRP-API's purpose is to provide a database system management software that is accessible through the web. The interface is provided by a frontend layer implemented in React and using the bootstrap framework. The backend is created with Node.js (Express.js) and uses MySQL as the database management system.
In this project we provide a tool with a defined set of operations that can be applied to a dataset. Our app provides an interface to the data contained in the Netherlands Rental Properties dataset.

Naming convention: We will interchangeably refer to a database **entry** which contains fields from a Kamernet post as an **article** .

Supported operations:

- Create & store new entries in the database

- Retrieve (and list), delete, update entries by quarrying the ID / Location (Lat-Long) / [...]

- Retrieve (and list) entries by applying filters : City, Active / Non-active , Cost (Interval) , CPSM (Cost per square meter)

- Retrieve statistical data (mean , median, sd) of : rental cost / deposit

- Customize number entries to be retrieved

- Customize pagination

API Design

API endpoints use the following header fields:

- (Default) *Content-Type* : **application\json**

- *Content-Type* : **text\csv**

The API allows specifying in the quarry parameters the response's Content-Type. The parameter is optional and hence - if missing, the default format will be used. The response's header specification for Content-Type will be configured (based on the request) and the appropriate response body will be generated in the backend. The browser will display the converted response body into formatted HTML labels. For GET requests an export option will be provided to download the response's body (JSON or CSV).

HTTP status code summary

200 - OK : Returns expected value.
400 - Bad Request : Wrong request syntax
403 - Forbidden : Unauthorized request header for the request
one.
404 - Not Found : Requested resource doesn't exist
500 - Method Error : Error caught during method execution; *!Note:* This error indicates that the backend layer method is not handling the request correctly.

Resource usage

POST	**/api/nrp/new**
	Create a new article entry in the database

Parameter

Header Parameters

no header parameters

Body Parameters

externalId	: article external id
address	: property address
postalCode	: property postalCode
city	: property city
areaSqm	: property area size in square meters
rent	: property monthly rent
deposit	: property deposit
isRoomActive	: property true if not occupied
latitude	: property location latitude
longitude	: property location longitude

Response application/json

200 ok

```json
{
    "externalId": "apartment-1775319",
    "address": "Dr. Benthemstraat",
    "postalCode": "7514CL",
    "city": "Enschede",
    "areaSqm": 125,
    "rent": 995,
    "deposit": 0,
    "isRoomActive": true,
    "latitude": "52.2255530000",
    "longitude": "6.8971690000",
    "createdAt": "2021-11-29T11:29:13.000Z",
    "updatedAt": "2021-11-29T11:29:13.000Z"
}
```

400 error: bad syntax (missing primary key JSON field

```json
{"message": "Missing External ID is a primary key
    !"}
```

500 error: method exception

```
{
    "message": "An error occurred while creating
        new rental post"
}
```

GET	**/api/nrp/id/{id}**

Get specific article* with external id or a "not-found error" if the article is with the requested is missing

Parameter

Header Parameters

id   : *externalId* value of the Kamernet article

Quarry Parameters

format   : json or csv response format ; default = json ; optional parameter

Response   application/json

200 ok

```
{
    "externalId": "apartment-1775319",
    "address": "Dr. Benthemstraat",
    "postalCode": "7514CL",
    "city": "Enschede",
    "areaSqm": 125,
    "rent": 995,
    "deposit": 0,
    "isRoomActive": true,
    "latitude": "52.2255530000",
    "longitude": "6.8971690000",
    "createdAt": "2021-11-29T11:29:13.000Z",
    "updatedAt": "2021-11-29T11:29:13.000Z"
}
```

404 error: article not found

```
{    "message": "Article with id '11' not found!"}
```

500 error: method exception

```
{    "message": "An error occurred while
    retrieving article."}
```

GET	**/api/nrp/location?latitude={lat}&longitude={long}**
	get the article(s) at the provided latitude-longitude location

Parameter

Header Parameters

no header parameters

Quarry String Parameters

latitude	: the latitude specified in the article
longitude	: the longitude specified in the article
format	: json or csv response format ; default = json ; optional parameter

Response	application/json

200 ok

```
[
    {
        "externalId": "apartment-1750096",
        "address": "West-Varkenoordseweg",
        "postalCode": "3074HN",
        "city": "Rotterdam",
        "areaSqm": 80,
        "rent": 1100,
        "deposit": 1100,
        "isRoomActive": true,
        "latitude": "51.8966010000",
        "longitude": "4.5149930000",
        "createdAt": "2021-11-29T11:29:13.000Z",
        "updatedAt": "2021-11-29T11:29:13.000Z"
    },
    ...
]
```

404 error: 0 matches

```
{
    "message": "0 properties found at the
        provided location"
}
```

500 error: method exception

```
{   "message": "Some error occurred while
    retrieving property." }
```

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GET	/api/nrp/search-budget?{options}
	Get all articles with rent price between the requested min-max bounds

Parameter

Header parameters

no header parameters

Quarry Parameters

min	: minimum rent price
max	: maximum rent price
format	: json or csv response format ; default = json ; optional parameter

Response application/json

200 ok

```json
[
    {
        "externalId": "apartment-1619636",
        "address": "Erve Klopper",
        "postalCode": "7577SR",
        "city": "Oldenzaal",
        "areaSqm": 76,
        "rent": 901,
        "deposit": 0,
        "isRoomActive": 1,
        "latitude": "52.3250610000",
        "longitude": "6.9008880000",
        "createdAt": "2021-11-29T11:29:13.000Z",
        "updatedAt": "2021-11-29T11:29:13.000Z"
    },
    ...
]
```

404 error: 0 matches

```json
{   "message": "0 Articles found for the
    specified quarry" }
```

500 error: method exception

```json
{   "message": "Some error occurred while
    retrieving property." }
```

GET	/api/nrp/top-list/{city}?options
	Get N or all articles specifying active rentals sorted in either ascending or descending order and ordered by a specified options parameter (which must be numerical)

Parameter

Header parameters

city : filter the search list by city; optional parameter; if absent, use all cities

Quarry Parameters

amount : top N articles to be retrieved from the search

ascending : = true if response should be in ascending order; optional parameter; default = false

format : json or csv response format ; default = json ; optional parameter

Response application/json

200 ok

```
[
    {
        "externalId": "room-1702909",
        "address": "Spilsluizen",
        "postalCode": "9712NT",
        "city": "Groningen",
        "areaSqm": 9,
        "rent": 50,
        "deposit": 50,
        "isRoomActive": true,
        "latitude": "53.2212490000",
        "longitude": "6.5636370000",
        "createdAt": "2021-11-29T11:29:13.000Z",
        "updatedAt": "2021-11-29T11:29:13.000Z"
    },
    ...
]
```

404 error: 0 matches

```
{   "message": "0 Articles found for the
    specified quarry" }
```

500 error: method exception

```
{   "message": "Some error occurred while
    retrieving property." }
```

GET	**/api/nrp/statistics/{city}?{options}**
	Get statistical data (entry count, mean, median, standard-deviation) for rent and deposit values for a specific city or all cities

Parameter

Header parameters

city : filter the search list by city; optional parameter; if absent, use all cities

Quarry Parameters

format : json or csv response format ; default = json ; optional parameter

Response application/json

200 ok

```
{
    "entries_n": 5084,
    "mean_cost": "531.0334",
    "sd_cost": 276.75173793908016,
    "mean_deposit": "358.5024",
    "sd_deposit": 415.3804553576052,
    "median_cost": 410,
    "median_deposit": 320,
    "city": "Groningen"
}
```

404 error: 0 matches

```
{   "message": "The quarried city name was not
    found in the database" }
```

500 error: method exception

```
{   "message": "Failed to fetch database
    statistics." }
```

PUT	**/api/nrp/id/id**
	Update the article entry with the provided externalId by supplying a json/csv request body with new data

Parameter

Header parameters

id   article's externalId

Body parameters

*   all parameters specified in the database model section below

Body   application/json

```
{
    "externalId": "apartment-1775319",
    "address": "API Doc Example Request",
    "areaSqm": "999",
    "postalCode": "2021WE",
    "rent": "0"
}
```

Response   application/json

200   ok

```
{ "message": "Article was updated successfully." }
```

404   error: article not found

```
{ "message": ""Cannot update property with id=apartment.Property not found or input is empty!"" }
```

500   method exception

```
{ "message": "Error updating property with id=apartment" }
```

PUT	**/api/nrp/location?latitude={lat}&longitude={long}**
	Update the article entries with the provided location in latitude and longitude by supplying a json/csv request body with new data

Parameter

Header Parameters
no header parameters

Quarry String Parameters

latitude	: the latitude specified in the article
longitude	: the longitude specified in the article

Body Parameters

(* : mandatory fields)

*externalId	: article external id
address	: property address
postalCode	: property postalCode
city	: property city
areaSqm	: property area size in square meters
rent	: property monthly rent
deposit	: property deposit
isRoomActive	: property true if not occupied
latitude	: property location latitude
longitude	: property location longitude

Body   application/json

```json
{
    "externalId": "apartment-1775319",
    "address": "API Doc Example #2 Request",
    "areaSqm": "303",
    "postalCode": "2021WE",
    "rent": "0"
}
```

Response   application/json

200 ok

```json
{
    "message": "Updated 20 properties with lat=51
        .1066010000 & long= 4.5149930000"
```

```
    }
```

500   error: storage not found

```
{
"message": "Encountered an error while updating
    articles by location"
}
```

<table>
<tr><td>DELETE</td><td colspan="2">/api/nrp/{id}
remove article with external id</td></tr>
<tr><td colspan="3">Parameter</td></tr>
<tr><td colspan="3">Header Parameters</td></tr>
<tr><td>id</td><td>: external Id of article</td><td></td></tr>
<tr><td colspan="2">Response</td><td>application/json</td></tr>
</table>

200   ok

```
{
    "message": "Article was deleted successfully
        !"
}
```

404   error: storage not found

```
{
    "message": "Cannot delete article with id=
        apartment. Article not found!"
}
```

500   error: method exception

```
{
    "message": "An error occurred while deleting
        article with id=apartment"
}
```

DELETE	**/api/nrp/location?latitude={lat}&longitude={long}**
	remove article with specified location options latitude and longitude

Parameter

Header Parameters

no header parameters

Quarry String Parameters

latitude   : the latitude specified in the article

longitude   : the longitude specified in the article

Response   application/json

200   ok

```
{
    "message": "Deleted 20 properties with lat=51
        .1066010000 & long= 4.5149930000."
}
```

404   error: 0 matches

```
{
    "message": "Could not find any articles to
        delete."
}
```

500   error: method exception

```
{
    "message": "Error occured while deleting
        articles with lat=51.1066010000 & long= 4.
        5149930000."
}
```