TEKTUTORIALSHUB

Angular HTTP GET Example using httpclient

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This guide explains how to make HTTP GET requests using the `HttpClient` module in Angular. The Angular introduced the `HttpClient` Module in Angular 4.3. It is part of the package `@angular/common/http`. In this tutorial, let us build an HTTP GET example app, which sends the HTTP Get request to GitHub repository using the GitHub API.

Applies to : Angular 4 to latest edition i.e Angular 8, Angular 9, Angular 10

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HTTP Get Example

Create a new Angular App.

```
ng new httpGet
```

Import HttpClientModule

To make HTTP Get request, we need to make use of the HttpClientModule, which is part of the package `@angular/common/http`. Open the `app.module.ts` and import it. Also, import the `FormsModule`

You must also include it in the the `imports` array as shown below.

```
import { BrowserModule } from '@angular/platform-browser';
import { NgModule } from '@angular/core';
import { HttpClientModule } from '@angular/common/http';
import { FormsModule } from '@angular/forms'

import { AppRoutingModule } from './app-routing.module';
import { AppComponent } from './app.component';
import { GitHubService } from './github.service';

@NgModule({
  declarations: [
    AppComponent
  ],
  imports: [
    BrowserModule,
    AppRoutingModule,
```

```
    HttpClientModule,
    FormsModule
  ],
  providers: [GitHubService],
  bootstrap: [AppComponent]
})
export class AppModule { }

```

Model

Create `repos.ts` file and add the following code. This is a simplified model for the GitHub repository.

```

export class repos {
    id: string;
    name: string;
    html_url: string;
    description: string;
}

```

HTTP GET Service

Let us create a service to handle the HTTP Request. Create a new file `github.service.ts` and copy the following code.

```

import { Injectable } from '@angular/core';

import { HttpClient, HttpParams, HttpHeaders } from '@angular/common/http';
import { Observable, throwError } from 'rxjs';
import { map, catchError} from 'rxjs/operators';

import { repos } from './repos';

@Injectable()
export class GitHubService {

  baseURL: string = "https://api.github.com/";

  constructor(private http: HttpClient) {
```

```
  }

  getRepos(userName: string): Observable<any> {
    return this.http.get(this.baseURL + 'users/' + userName + '/repos')
  }

}

```

First, we import the required libraries. The `HttpClient` is the main service, which Performs the HTTP requests like `GET`, `PUT`, `POST`, etc. We need to inject this into our `GitHubService`. Also, import `HttpParams` which helps us to add Query Parameters in an HTTP Request. Import HTTP Headers using the `HttpHeaders` which allows us to add HTTP Headers to the request.

```

import { HttpClient, HttpParams, HttpHeaders } from '@angular/common/http';

```

The `HttpClient` service makes use of RxJs observable, Hene we import `Observable`, `throwError` & RxJs Operators like `map` & `catchError`

```

import { Observable, throwError } from 'rxjs';
import { map, catchError} from 'rxjs/operators';

```

The URL endpoint is hardcoded in our example, But you can make use of a config file to store the value and read it using the APP_INITIALIZER token

```

  baseURL: string = "https://api.github.com/";

```

We inject the `HttpClient` using the Dependency Injection

```

  constructor(private http: HttpClient) {
```

```
  }

```

Finally, we use the `get` method of the `httpclient` to make an HTTP Get request to GitHub.

The `https://api.github.com/users/<username>?repos` endpoint returns the list of Repositories belonging to the user `<userName>`

```

  //Any Data Type
  getRepos(userName: string): Observable<any> {
    return this.http.get(this.baseURL + 'users/' + userName + '/repos')
  }

```

Note that `httpclient.get` method returns the `observable`. Hence we need to `subscribe` to it to get the data.

Component

The following is the code from `app.component.ts`

```

import { Component } from '@angular/core';

import { GitHubService } from './github.service';
import { repos } from './repos';

@Component({
  selector: 'app-root',
  templateUrl: './app.component.html',
})
export class AppComponent {
  userName: string = "tektutorialshub"
  repos: repos[];

  loading: boolean = false;
  errorMessage;

  constructor(private githubService: GitHubService) {

```

```
  }

  public getRepos() {
    this.loading = true;
    this.errorMessage = "";
    this.githubService.getRepos(this.userName)
      .subscribe(
        (response) => {                          //next() callback
          console.log('response received')
          this.repos = response;
        },
        (error) => {                             //error() callback
          console.log('Request failed with error')
          this.errorMessage = error;
          this.loading = false;
        },
        () => {                                  //complete() callback
          console.log('Request completed')       //This is actually not needed
          this.loading = false;
        })
  }
}

```

We subscribe to the `getRepos()` method in our component class. Only when we subscribe to the observable, the `HTTP GET` request is sent to the back end server.

```

  this.githubService.getRepos(this.userName)
     .subscribe();

```

When we subscribe to any observable, we optionally pass the three callbacks. `next()`, `error()` & `complete()`.

`Next()` callback is where we get the result of the `observable`. In this example the list of repositories for the given user.

```

      (response) => {                          //next() callback
        console.log('response received')
```

```
        this.repos = response;
      }

```

The `observable` can also result in an error. It will invoke the `error()` callback and pass the error object. The `observables` stop after emitting the error signal.

```

      (error) => {                            //error() callback
        console.error('Request failed with error')
        this.errorMessage = error;
        this.loading = false;
      },

```

When the observable completes, it will call the `complete()` callback. **There is no need for this call back as the subscription completes when the data is received.**

```

      () => {                                 //complete() callback
        console.log('Request completed')
        this.loading = false;
      })

```


Loading Indicator

We create a variable `loading=true` just before subscribing to the `GET` request. When the `observable` completes or an error occurs, we make it `false`. This helps

us to show some kind of loading indicator to users, while we wait for the response.

Template

```
<h1 class="heading"><strong>HTTP </strong>Demo</h1>

<div class="form-group">
  <label for="userName">GitHub User Name</label>
  <input type="text" class="form-control" name="userName" [(ngModel)]="userName">
</div>

<div class="form-group">
  <button type="button" (click)="getRepos()">Get Repos</button>
</div>

<div *ngIf="loading">loading...</div>

<div *ngIf="errorMessage" class="alert alert-warning">
  <strong>Warning!</strong> {{errorMessage | json}}
</div>


<table class='table'>
  <thead>
    <tr>
      <th>ID</th>
      <th>Name</th>
      <th>HTML Url</th>
      <th>description</th>
    </tr>
  </thead>
  <tbody>
    <tr *ngFor="let repo of repos;">
      <td>{{repo.id}}</td>
      <td>{{repo.name}}</td>
      <td>{{repo.html_url}}</td>
      <td>{{repo.description}}</td>
    </tr>
  </tbody>
</table>

<pre>{{repos | json}}</pre>

```

The template is very simple

We first ask for the `userName`. We use the two-way data binding to sync userName `[(ngModel)]="userName"` with the `userName` property in the component class.

```
<div class="form-group">
  <label for="userName">GitHub User Name</label>
  <input type="text" class="form-control" name="userName" [(ngModel)]="userName">
</div>
```

`getRepos()` method subscribes to the HTTP get method.

```
<div class="form-group">
  <button type="button" (click)="getRepos()">Get Repos</button>
</div>
```

We show a loading message until the observable returns response or an error.

```
<div *ngIf="loading">loading...</div>
```

Show the error message.

```
<div *ngIf="errorMessage" class="alert alert-warning">
  <strong>Warning!</strong> {{errorMessage | json}}
</div>
```

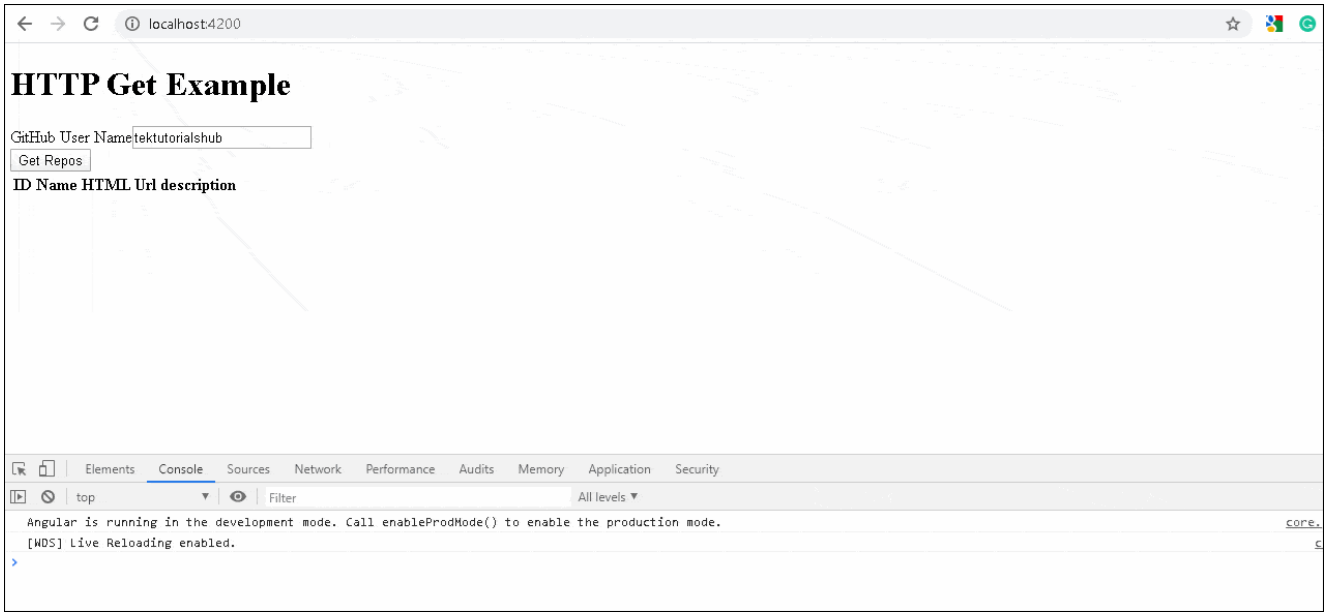
The last line shows the response as it is received.

```
<pre>{{repos | json}}</pre>
```

```
3
```

HTTP Get in Action

Now, run the app, you should able to make a successful GET Request.



Get Syntax

The above code is a very simple example of the HTTP `get()` method. The complete syntax of the `get()` method is as shown below. It has second argument `options`, where we can pass the HTTP headers, parameters, and other options to control how the `get()` method behaves.

```
1
2   get(url: string,
3       options: {
4           headers?: HttpHeaders | { [header: string]: string | string[]; };
5           params?: HttpParams | { [param: string]: string | string[]; };
6           observe?: "body|events|response|";
7           responseType: "arraybuffer|json|blob|text";
8           reportProgress?: boolean;
9           withCredentials?: boolean;}
10      ): Observable<>
11
```

- `headers` : use this to send the HTTP Headers along with the request

- `params:` set query strings / URL parameters
- `observe:` This option determines the return type.
- `responseType:` The value of responseType determines how the response is parsed.
- `reportProgress:` Whether this request should be made in a way that exposes progress events.
- `withCredentials:` Whether this request should be sent with outgoing credentials (cookies).

observe

The GET method returns one of the following

1. Complete `response`
2. `body` of the response
3. `events`.

By default, it returns the `body` as shown in our example app.

Complete Response

The following code will return the complete `response` and not just the `body`

```
getReposRawResponse(userName: string): Observable<any> {
  return this.http.get(this.baseURL + 'users/' + userName + '/repos', { observe: '
}
```

The complete response is as follows.

```
{
  "headers": {
    "normalizedNames": {},
    "lazyUpdate": null
  },
```

```
  "status": 200,
  "statusText": "OK",
  "url": "https://api.github.com/users/tektutorialshub/repos",
  "ok": true,
  "type": 4,
  "body": [
    {
      "id": 102269857,

      ******************  Removed for clarity *****
    }
  ]
}

```

events

You can also listen to progress events by using the `{ observe: 'events', reportProgress: true }`. You can read about observe the response

```

getReposRawResponse(userName: string): Observable<any> {
  return this.http.get(this.baseURL + 'users/' + userName + '/repos', { observe: '
}

```

Response Type

The `responseType` determines how the response is parsed. it can be one of the `arraybuffer`, `json` `blob` or `text`. The default behavior is to parse the response as JSON.

Strongly typed response

Instead of `any`, we can also use a `type` as shown below

```

  getReposTypedResponse(userName: string): Observable<repos[]> {
    return this.http.get<repos[]>(this.baseURL + 'users/' + userName + '/repos')
  }

```

String as Response Type

The API may return a simple text rather than a JSON. Use `responsetype: 'text'` to ensure that the response is parsed as a string.

```
getReposTypedResponse(userName: string): Observable<repos[]> {
  return this.http.get<repos[]>(this.baseURL + 'users/' + userName + '/repos', {
}
```

Catching Errors

The API might fail with an error. You can catch those errors using `catchError`. You either handle the error or throw it back to the component using the `throw err`

```
getReposCatchError(userName: string): Observable<repos[]> {
  return this.http.get<repos[]>(this.baseURL + 'usersY/' + userName + '/repos')
    .pipe(
      catchError((err) => {
        console.error(err);
        throw err;
      }
      )
    )
}
```

Read more about error handling from Angular HTTP interceptor error handling

Transform the Response

You can make use of the `map`, `filter` RxJs Operators to manipulate or transform the response before sending it to the component.

```
getReposMap(userName: string): Observable<repos[]> {
```

```
    return this.http.get<repos[]>(this.baseURL + 'users/' + userName + '/repos')
      .pipe(
        map((data) => {
           //You can perform some transformation here
           return data;
        }),
        catchError((err, caught) => {
          console.error(err);
          throw err;
        }
        )
      )
  }
```

URL Parameters

The URL Parameters or Query strings can be added to the request easily using the HttpParams option. All you need to do is to create a new `HttpParams` class and add the parameters as shown below.

```

  //URL Parameter
  getReposUrlParameter(userName: string): Observable<repos[]> {

    const params = new HttpParams()
      .set('sort', "description")
      .set('page',"2");

    return this.http.get<repos[]>(this.baseURL + 'users/' + userName + '/repos',
      .pipe(
        map((response) => {
          return response;
        }),
        catchError((err, caught) => {
          console.error(err);
          throw err;
        }
        )
      )
  }

```

The above code sends the GET request to the URL `https://api.github.com/users/tektutorialshub/repos?sort=description&page=2`

The following code also works.

```
getReposUrlParameter(userName: string): Observable<repos[]> {
   return this.http.get<repos[]>(this.baseURL + 'users/' + userName + '/repos?so
     .pipe(
       map((response) => {
         return response;
       }),
       catchError((err, caught) => {
         console.error(err);
         throw err;
       }
       )
     )
 }
```

HTTP Headers

You can also add HTTP Headers using the `HttpHeaders` option as shown below. You can make use of the Http Interceptor to set the common headers.

```
  //HTTP Headers
 getReposHeaders(userName: string): Observable<repos[]> {

   const params = new HttpParams()
     .set('sort', "description")
     .set('page',"2");

   const headers = new HttpHeaders()
     .set('Content-Type', 'application/json')


   return this.http.get<repos[]>(this.baseURL + 'users/' + userName + '/repos',
     .pipe(
       map((response) => {
         return response;
```

```
        }),
        catchError((err, caught) => {
          console.error(err);
          throw err;
        }
        )
      )
  }

```

Send Cookies

You can send cookies with every request using the `withCredentials=true` as shown below. You can make use of the Http Interceptor to set the `withCredentials=true` for all requests.

```

    //With Credentials
    getReposWithCookies(userName: string): Observable<repos[]> {

      const params = new HttpParams()
        .set('sort', "description")
        .set('page',"2");

      const headers = new HttpHeaders()
        .set('Content-Type', 'application/json')


      return this.http.get<repos[]>(this.baseURL + 'users/' + userName + '/repos'
        .pipe(
          map((response) => {
            return response;
          }),
          catchError((err, caught) => {
            console.error(err);
            throw err;
          }
          )
        )
    }

```

Summary

This guide explains how to make use of HTTP get in Angular using an example app. In the next tutorial, we will look at the HTTP post method.

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