How to make rest API in Laravel (API CRUD from Scratch)

1. Project Setup (if you haven't already)

composer create-project --prefer-dist laravel/laravel *your-project-name* cd *your-project-name*

2. Database Configuration

 Open .env and configure your database credentials (DB_HOST, DB_DATABASE, DB_USERNAME, DB_PASSWORD).

3. Model Creation

php artisan make:model Student -m

This command creates the **Student** model and a migration file.

4. Migration (Database Schema)

Open the generated migration file (e.g., database/migrations/YYYY_MM_DD_HHMMSS_create_students_table.php) and define your table schema. For example:

```
public function up(): void
{
    Schema::create('students', function (Blueprint $table) {
        $table->id();
        $table->string('student_name');
        $table->string('student_gender');
        $table->date('date_of_birth');
        $table->string('student_phone')->nullable();
        $table->text('student_address');
        $table->timestamps();
    });
}
```

Run the migration:

php artisan migrate

5. Model Definition (app/Models/Student.php)

6. Controller Creation

php artisan make:controller Api/StudentController –api

This creates a controller in the app/Http/Controllers/Api directory.

```
✓ m app
                                               \mathsf{app} > \mathsf{Http} > \mathsf{Controllers} > \mathsf{Api} > {\color{red} • } \mathsf{StudentController.php}
                                                   6
                                                        use Illuminate\Http\Request;
> Console
> Exceptions
                                                        class StudentController extends Controller
 > III Helpers
                                                   8
 ∨ 📻 Http
                                                   9

∨ Image: Controllers

                                                  10
  ✓ 📴 Api
                                                               * Display a listing of the resource.
                                                  11
                                                  12
   > 📻 backend
                                                  13
                                                              public function index()
   > 📻 frontend
                                                  14
     Controller.php
                                                  15
                                                                    //
  > 🎮 Middleware
                                                  16
   Kernel.php
```

7. Controller Implementation (app/Http/Controllers/Api/StudnetController.php)

```
php
class StudentController extends Controller
   protected $student;
   public function __construct(){
        $this->student = new Student();
   public function index()
       return $this->student->all();
   public function store(Request $request)
       return $this->student->create($request->all());
   public function show(string $id)
        $student = $this->student->find($id):
   public function update(Request $request, string $id)
        $student = $this->student->find($id);
        $student->update($request->all());
        return $student;
   public function destroy(string $id)
        $student = $this->student->find($id);
       return $student->delete();
```

8. API Routes (routes/api.php)

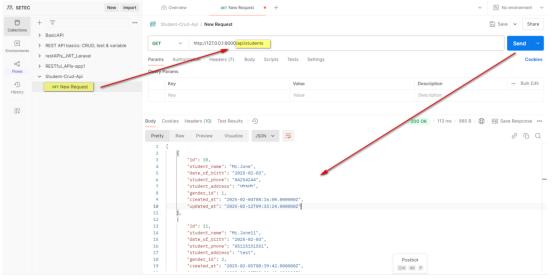
```
∨ Is routes

api.php 🥿
                                   Route::apiResource('students', StudentController::class); // Simplifies routing
                              23
                                   // OR, if you prefer explicit routes:
  channels.php
                                   // Route::get('/students', [StudentController::class, 'index']);
                              24
  console.php
                                   // Route::post('/students', [StudentController::class, 'store']);
                              25
 web.php
                              26
                                   // Route::get('/students/{student}', [StudentController::class, 'show']);
> storage
                                   // Route::put('/students/{student}', [StudentController::class, 'update']);
> III tests
                                   // Route::delete('/students/{student}', [StudentController::class, 'destroy']);
                              28
> 📭 vendor
                              29
 & .editorconfig
```

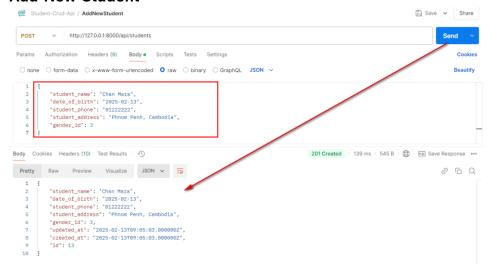
9. API Test URL

10. Open Postman

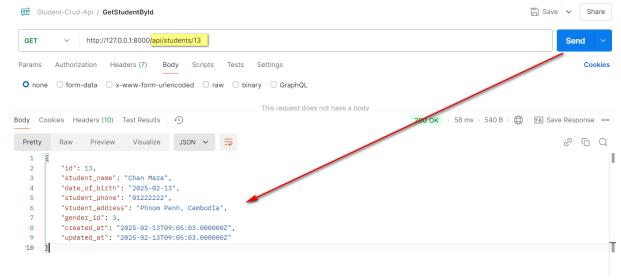
✓ Get-All-Student-Lists



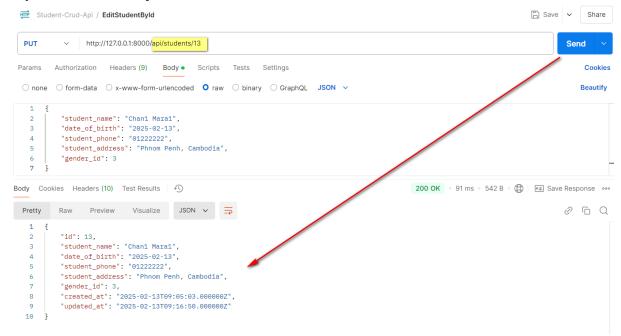
✓ Add-New-Student



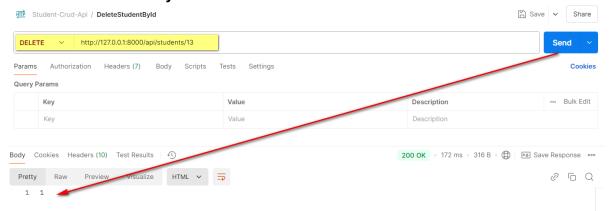




✓ Update-Student-Byld



✓ Delete-Student-Byld



How To Create Custom Standardized HTTP Responses In Laravel

1. Create the APIHelpers Class

```
<?php
         namespace App\Helpers;
         class APIHelpers {
             public static function createAPIResponse($is_error, $code,
         $message, $content) {
              $result = [];
              if($is_error){
                  $result['success'] = false;
                  $result['code'] = $code;
                  $result['message'] = $message;
              }else{
                  $result['success'] = true;
                  $result['code'] = $code;
                  if($content ==null){
                      $result['message'] = $message;
                  }else{
                      $result['data'] = $content;
                  }
              }
              return $result;
          }
      }
```

```
> 💌 .vscode
                         app > Helpers > 		 APIHelpers.php > 		 APIHelpers > 		 CreateAPIResponse
∨ 👜 app
                           1 <?php
                               namespace App\Helpers;
 > 📂 Console
                            2
 > Exceptions
                           4
                                class APIHelpers {
                                    public static function createAPIResponse($is_error, $code, $message, $content) {
CustomHelpers.php
                           7
                                        $result = [];
 > IIII Http
                           8
                                        if($is_error){
 > I Models
                           9
                                            $result['success'] = false;
 > Providers
                                            $result['code'] = $code;
                           10
> 📭 Rules
                                            $result['message'] = $message;
                           11
> bootstrap
                           12
> 🛤 config
                                            $result['success'] = true;
                          13
> 📙 database
                                            $result['code'] = $code:
                          14
> 🔚 public
                           15
                                            if($content ==null){
> resources
                                                $result['message'] = $message;
                          16
∨ 🐼 routes
                                             }else{
                          17
  api.php
                           18
                                                 $result['data'] = $content;
  channels.php
                          19
  console.php
                           20
  web php
                           21
                                         return $result;
                           22
> 📷 tests
                           23
> 📭 vendor
```

2. Modify Your Controller (Example: TeacherController)

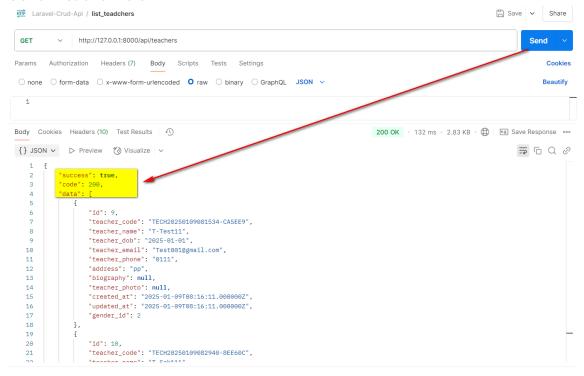
```
class TeacherController extends Controller
    public function index()
       $teachers = Teacher::all();
       $response = APIHelpers::createAPIResponse(false, 200, '', $teachers);
       return response()->json($response, 200);
    public function show(string $id)
       $teachers = Teacher::find($id);
       $response = APIHelpers::createAPIResponse(false, 200, '', $teachers);
       return response()->json($response, 200);
   public function store(Request $request)
       $teacher = new Teacher();
       $teacher->teacher_code = $request->teacher_code;
       $teacher_>teacher_name = $request->teacher_name;
       $teacher->teacher_dob = $request->teacher_dob;
       $teacher->teacher_email = $request->teacher_email;
       $teacher->teacher_phone = $request->teacher_phone;
       $teacher->address = $request->address;
       $teacher->gender_id = $request->gender_id;
       $teacher_save = $teacher->save();
       if($teacher_save){
           $response = APIHelpers::createAPIResponse(false, 202, 'Teacher added successfully!', null);
           return response()->json($response, 202);
       }else{
           $response = APIHelpers::createAPIResponse(true, 400, 'Teacher creation failed!', null);
           return response()->json($response, 400);
    public function update(Request $request, string $id)
       $teacher = Teacher::find($id);
       $teacher->teacher_code = $request->teacher_code;
       $teacher_name = $request->teacher_name;
       $teacher->teacher_dob = $request->teacher_dob;
       $teacher->teacher_email = $request->teacher_email;
       $teacher->teacher_phone = $request->teacher_phone;
       $teacher->address = $request->address;
       $teacher->gender_id = $request->gender_id;
       $teacher_update = $teacher->save();
       if($teacher_update){
           $response = APIHelpers::createAPIResponse(false, 200, 'Teacher updated successfully!', null);
           return response()->json($response, 200);
           $response = APIHelpers::createAPIResponse(true, 400, 'Teacher update failed!', null);
           return response()->json($response, 400);
   public function destroy(string $id)
       $teacher = Teacher::find($id);
       $teacher_delete = $teacher->delete();
       if($teacher_delete){
           $response = APIHelpers::createAPIResponse(false, 200, 'Teacher deleted successfully!', null);
           return response()->json($response, 200);
       }else{
           $response = APIHelpers::createAPIResponse(true, 400, 'Teacher delete failed!', null);
           return response()->json($response, 400);
```

3. Routing

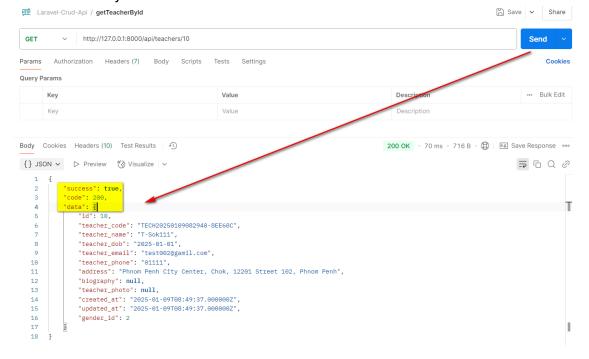
Route::apiResource('/teachers', TeacherController::class);

4. Open & Run with Postman

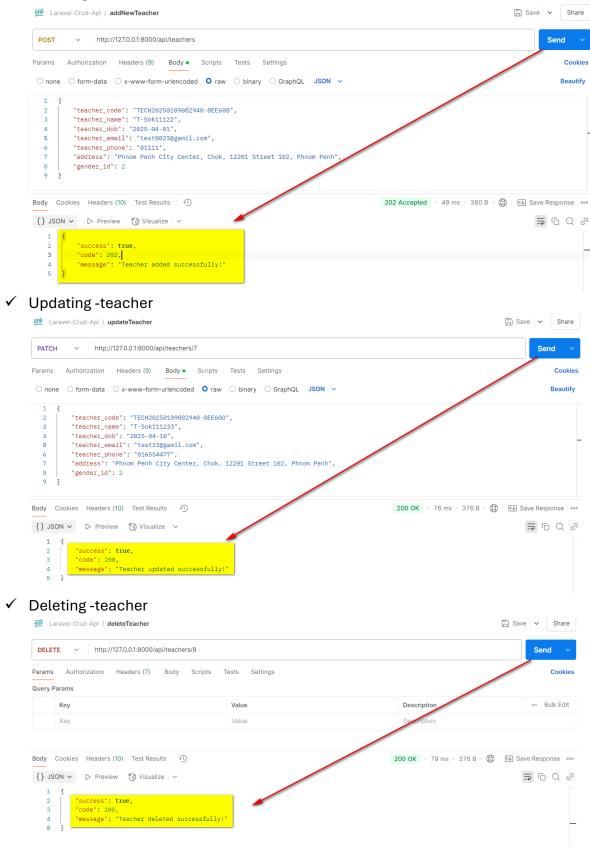
✓ Get-all-teacher-lists



✓ Get -teacher-Byld



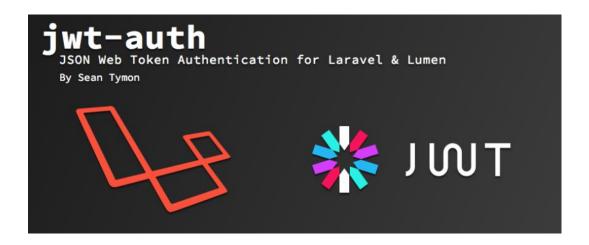




Improved Code with Robust Error Handling

```
public function destroy(string $id)
   {
        $teacher = Teacher::find($id);
        if (!$teacher) {
             // Teacher not found - this is the most common reason for "else" issues
            $response = APIHelpers::createAPIResponse(true, 404, 'Teacher not found!', null);
            return response()->json($response, 404);
        try {
             $teacher_delete = $teacher->delete();
            if ($teacher_delete) {
                 $response = APIHelpers::createAPIResponse(false, 200, 'Teacher deleted successfully!', null);
                 return response()->json($response, 200);
            } else {
                 // Database error during deletion
                 $response = APIHelpers::createAPIResponse(true, 500, 'Teacher delete failed!', null);
                 return response()->json($response, 500);
        } catch (\Exception $e) {
             // Catch any exceptions (e.g., database errors)
            $response = APIHelpers::createAPIResponse(true, 500, 'Server error: ' . $e->getMessage(), null);
            return response()->json($response, 500);
                                                                                                       □ Save ∨ Share
Laravel-Crud-Api / deleteTeacher
 DELETE v http://127.0.0.1:8000/api/teachers/8
                                                                                                              Send
Params Authorization Headers (7) Body Scripts Tests Settings
                                                                                                                  Cookies
Query Params
      Key
                                                                                 Description
                                                                                                              ••• Bulk Edit
      Key
                                                                                 Description
                                                                          404 Not Found 72 ms 373 B Save Response 999
Body Cookies Headers (10) Test Results
{} JSON ✓ ▷ Preview 🍪 Visualize ✓
                                                                                                           = G Q 0
          "success": false,
   3
          "code": 404.
          message": "Teacher not found!"
```

JSON Web Token Authentication for Laravel & Lumen

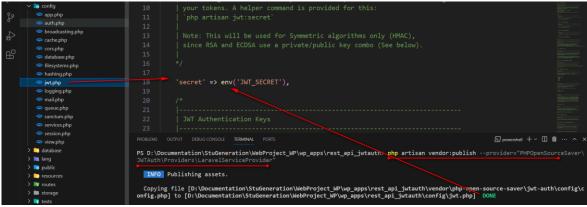


1. Laravel Installation

- Install via composer
 composer require tymon/jwt-auth
- Publish the config

Run the following command to publish the package config file:

You should now have a config/jwt.php file that allows you to configure the basics of this package.



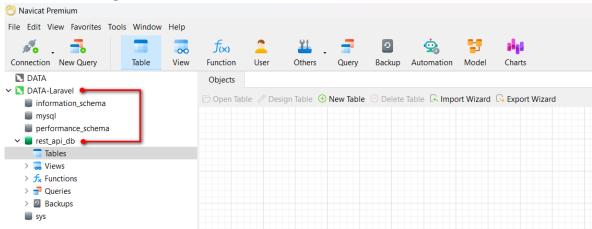
Generate secret key

I have included a helper command to generate a key for you:

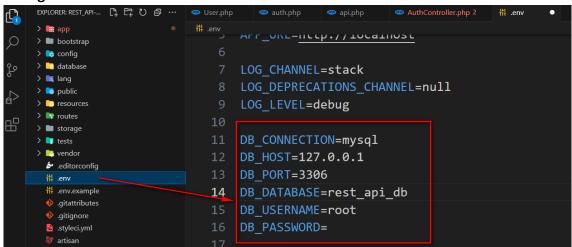
php artisan jwt:secret

This will update your .env file with something like JWT_SECRET=foobar It is the key that will be used to sign your tokens. How that happens exactly will depend on the algorithm that you choose to use.

2. Database Configuration



config .env

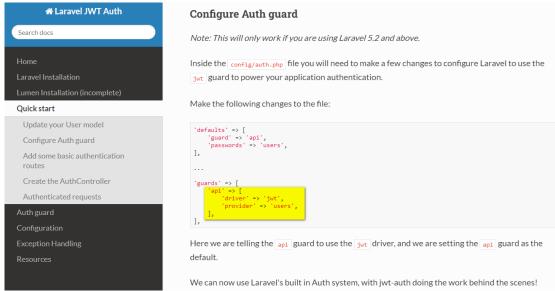


Config -> database

```
'mysql' => [
  'driver' => 'mysql',
  'url' => env('DATABASE_URL'),
  'host' => env('DB_HOST', '127.0.0.1'),
  'port' => env('DB_PORT', '3306'),
  'database' => env('DB_DATABASE', 'rest_api_db'),
  'username' => env('DB_USERNAME', 'root'),
  'password' => env('DB_PASSWORD', ''),
  'univ_socket' => env('DB_SOCKET', ''),
    app.php
    auth.php
    broadcasting.php
    cache.php
    a hashing.php
    logging.php
                                                                                              password - ZernV('DB_SOCKET', ''),
'unix_socket' => env('DB_SOCKET', ''),
'charset' => 'utf8mb4',
'collation' => 'utf8mb4_unicode_ci',
    a queue.php
                                                                                               'prefix' => '',
                                                                                                prefix_indexes' => true,
                                                                                              'strict' => true,
🗦 🥛 database
                                                                                               'engine' => null,
> 📉 lang
                                                                                               'options' => extension_loaded('pdo_mysql') ? array_filter([
> 🐚 public
                                                                                                    PDO::MYSQL_ATTR_SSL_CA => env('MYSQL_ATTR_SSL_CA'),
> nesources
  routes
```

Configure Auth guard: Change from web to api

Inside the config/auth.php file you will need to make a few changes to configure Laravel to use the jwt guard to power your application authentication.



Update Your User Model

Your User model needs to implement the Tymon\JWTAuth\Contracts\JWTSubject interface.

```
public function getJWTIdentifier(){
                                         return $this->getKey();
                              public function getJWTCustomClaims(){
                                         return [];
                              }
                                                                                                                                            use Tymon\JWTAuth\Contracts\JWTSubject;
                                                                                                                      11

✓ Image: Weight of the we
                                                                                                                      12
           Course.php
                                                                                                                     13
                                                                                                                                           class User extends Authenticatable implements JWTSubject
           Gender.php
                                                                                                                     14
           Major.php
                                                                                                                     15
                                                                                                                                                                use HasApiTokens, HasFactory, Notifiable;
           Permission.php
                                                                                                                     16
           Role.php
                                                                                                                                                                public function getJWTIdentifier()
                                                                                                                     17
           Schedule.php
                                                                                                                     18
           Student.php
                                                                                                                     19
                                                                                                                                                                                  return $this->getKey();
           Subject.php
                                                                                                                      20
           Teacher.php
                                                                                                                      21
           Teacherdetail.php
                                                                                                                                                                public function getJWTCustomClaims()
                                                                                                                      22
           User.php
                                                                                                                      23
> Providers
                                                                                                                                                                                  return [];
                                                                                                                      24
> 📭 Rules
                                                                                                                       25
```

Create the AuthController

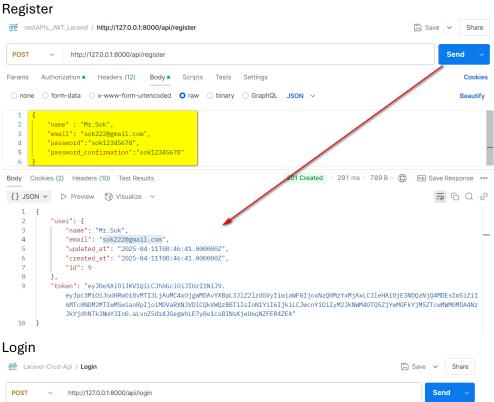
php artisan make:controller Api/AuthenticationController

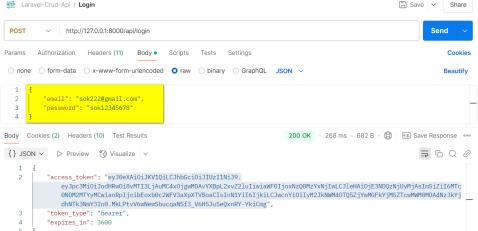
```
namespace App\Http\Controllers\Api;
 use App\Http\Controllers\Controller;
use App\Mttp\Controllers\Controller;
use App\Models\User;
use Illuminate\Http\Request;
use Illuminate\Support\Facades\Hash;
use Illuminate\Support\Facades\User;
use Iylumi\UnitAuth\Exceptions\UnitException;
use Tymon\UnitAuth\Exceptions\UnitException;
use Tymon\UnitAuth\Facades\UnitAuth;
class AuthenticationController extends Controller
     public function __construct()
           $this->middleware('auth:api', ['except' => ['login']]);
     public function __invoke(Request $request)
           // Your logic here
return response()->json(['message' => 'Invoked!']);
     public function register(Request $request)
           $validator = Validator::make($request->all(), [
                 'name' => 'required|string|max:255',
'email' => 'required|string|email|max:255|unique:users',
'password' => 'required|string|min:8|confirmed',
           if ($validator->fails()) {
    return response()->json($validator->errors(), 400);
           $user = User::create([
   'name' => $request->get('name'),
   'email' => $request->get('email'),
   'password' => Hash::make($request->get('password')),
           $token = JWTAuth::fromUser($user);
return response()->json(compact('user', 'token'), 201);
      public function login(Request $request)
           $request->validate([
                 'email' => 'required',
'password' => 'required'
           $credentials = request(['email', 'password']);
           return response()->json(['error' => 'Unauthorized'], 401);
           } catch (JWTException $e) {
    return response()->json(['error' => 'Could not create token'], 500);
           return $this->respondWithToken($token);
      public function profile()
           return response()->json(auth()->user());
      public function logout()
            auth()->logout();
           return response()->json(['message' => 'Successfully logged out']);
      public function refresh()
           try {
    $newToken = JWTAuth::refresh(JWTAuth::getToken());
    --#wi+hToken($newToken);
           return $this->respondWithToken($newToken);
} catch (TokenInvalidException $e) {
  return response()->json(['error' => 'Token is invalid!'], 400);
      protected function respondWithToken($token)
           return response()->json([
                 'acces_token' => $token,
'token_type' => 'bearer',
'expires_in' => JWTAuth::factory()->getTTL() * 60 // Use JWTAuth::factory()
```

Create Authentication Routes/Controllers

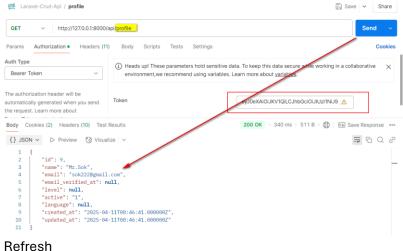
```
Route::middleware('auth:api')->group(function () {
    Route::apiResource('/teachers', TeacherController::class);
});
// routes/api.php
Route::post('/login', [AuthenticationController::class, 'login'])->name('login');
Route::post('/register', [AuthenticationController::class, 'register'])->name('register');
Route::middleware('auth:api')->get('/profile', , [AuthenticationController::class, profile'])->name('profile');
Route::middleware('auth:api')->post('/logout', , [AuthenticationController::class, logout'])->name('logout');
Route::middleware('auth:api')->post('/refresh', , [AuthenticationController::class, refresh'])->name('refresh');
```

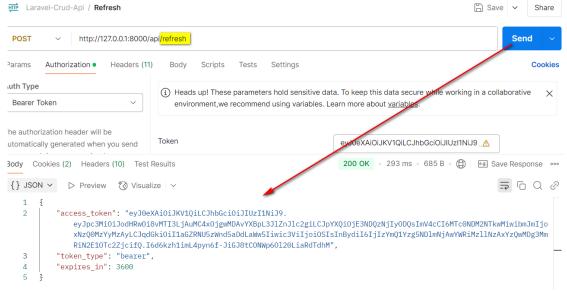
Check your postman



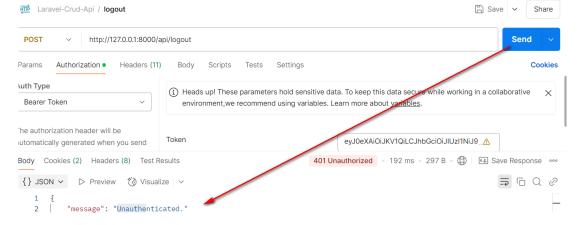








Logout



Teacher lists (no token)

