Answer To the Question of assignment-21

Create a multi-user todo backend API using Laravel, implementing a JWT token-based authentication system. The API will allow users to create, read, update, and delete their todo items securely using JWT for authentication.

```
1. Set up the Laravel project
   composer create-project laravel/laravel main-app
2. Edit .env with
   DB_DATABASE=pos
   And
MAIL MAILER=smtp
MAIL_HOST=mail.teamrabbil.com
MAIL PORT=25
MAIL USERNAME=info@teamrabbil.com
MAIL_PASSWORD=~sR4[bhaC[Qs
MAIL ENCRYPTION=tls
MAIL_FROM_ADDRESS="info@teamrabbil.com"
MAIL_FROM_NAME="POS PROJECT"
3. Create Table
   php artisan make:migration create_users_table
   and edit scama
         Schema::create('users', function (Blueprint $table) {
         $table->id();
         $table->string('firstName',50);
```

\$table->string('lastName',50);

\$table->string('mobile',50); \$table->string('password',50);

\$table->string('otp',10);

\$table->string('email',50)->unique();

\$table->timestamp('created_at')->useCurrent();

\$table->timestamp('updated_at')->useCurrent()->useCurrentOnUpdate();

```
4. Create Model
    php artisan make:model User -a
    *** Add below code in UserController.php
   <?php
   namespace App\Http\Controllers;
   use App\Models\User;
   use Exception;
   use App\Mail\OTPEmail;
   use App\Helper\JWTToken;
   use Illuminate\View\View;
    use Illuminate\Http\Request;
   use Illuminate\Support\Facades\Mail;
   class UserController extends Controller
     function LoginPage():View{
        return view('pages.auth.login-page');
     }
     function RegistrationPage():View{
        return view('pages.auth.registration-page');
     }
     function SendOtpPage():View{
        return view('pages.auth.send-otp-page');
     }
     function VerifyOTPPage():View{
        return view('pages.auth.verify-otp-page');
     }
     function ResetPasswordPage():View{
        return view('pages.auth.reset-pass-page');
     }
     function UserLogin(Request $request){
       $count=User::where('email','=',$request->input('email'))
          ->where('password','=',$request->input('password'))
```

->count();

```
if($count==1){
    // User Login-> JWT Token Issue
    $token=JWTToken::CreateToken($request->input('email'));
    return response()->json([
      'status' => 'success',
      'message' => 'User Login Successful',
      'token' => $token
   ],200)->cookie('token',$token,60*60*24);
 }
 else{
    return response()->json([
      'status' => 'failed',
      'message' => 'unauthorized'
   ],401);
 }
}
function UserRegistration(Request $request){
  try {
    User::create([
       'firstName' => $request->input('firstName'),
       'lastName' => $request->input('lastName'),
       'email' => $request->input('email'),
       'mobile' => $request->input('mobile'),
       'password' => $request->input('password'),
    ]);
    return response()->json([
       'status' => 'success',
      'message' => 'User Registration Successfully'
    ],200);
  } catch (Exception $e) {
    return response()->json([
       'status' => 'failed',
       'message' => 'User Registration Failed! From Back-End'
    ],400);
  }
```

```
function SendOTPCode(Request $request){
  $email=$request->input('email');
  $otp=rand(1000,9999);
  $count=User::where('email','=',$email)->count();
  if($count==1){
    // OTP Email Address
    Mail::to($email)->send(new OTPEmail($otp));
    // OTO Code Table Update
    User::where('email','=',$email)->update(['otp'=>$otp]);
    return response()->json([
      'status' => 'success',
      'message' => '4 Digit OTP Code has been send to your email!'
    ],200);
  }
  else{
    return response()->json([
      'status' => 'failed',
      'message' => 'unauthorized'
    ],401);
  }
}
function VerifyOTP(Request $request){
  $email=$request->input('email');
  $otp=$request->input('otp');
  $count=User::where('email','=',$email)
    ->where('otp','=',$otp)->count();
  if($count==1){
    // Database OTP Update
    User::where('email','=',$email)->update(['otp'=>'0']);
    // Pass Reset Token Issue
    $token=JWTToken:: CreateTokenForSetPassword ($request->input('email'));
    return response()->json([
      'status' => 'success',
      'message' => 'OTP Verification Successful',
      // 'token'=> $token
    ],200)->cookie('token',$token,60*60*24);
  }
  else{
```

```
return response()->json([
      'status' => 'failed',
      'message' => 'unauthorized'
    ],401);
  }
}
// function SetPassword(Request $request){
    User::where($request->input())->update(['password'=>$request->input('password')]);
// return response()->json(['msg'=>"success",'data'=>'updated']);
//}
function ResetPassword(Request $request){
  try{
    $email=$request->header('email');
    $password=$request->input('password');
    User::where('email','=',$email)->update(['password'=>$password]);
    // Remove Cookie...
    return response()->json([
      'status' => 'success',
      'message' => 'Request Successful',
    ],200);
  }catch (Exception $exception){
    return response()->json([
      'status' => 'fail',
      'message' => 'Something Went Wrong',
    ],200);
  }
}
 // After Login
function ProfileUpdate(){
}
```

}

```
*****Create
DashboardController.php
     Add below code in DashboardController.php
<?php
namespace App\Http\Controllers;
use Illuminate\View\View;
use Illuminate\Http\Request;
class DashboardController extends Controller
  function DashboardPage():View{
    return view('pages.dashboard.dashboard-page');
  }
}
    Add below code in User.php
<?php
namespace App\Models;
// use Illuminate\Contracts\Auth\MustVerifyEmail;
use Illuminate\Database\Eloquent\Factories\HasFactory;
use Illuminate\Foundation\Auth\User as Authenticatable;
use Illuminate\Notifications\Notifiable;
use Laravel\Sanctum\HasApiTokens;
class User extends Authenticatable
{
  use HasApiTokens, HasFactory, Notifiable;
  /**
  * The attributes that are mass assignable.
   * @var array<int, string>
```

```
*/
             protected $fillable = ['firstName','lastName','email','mobile','password','otp' ];
             protected $attributes = ['otp'=>'0'];
              * The attributes that should be hidden for serialization.
              * @var array<int, string>
              */
             // protected $hidden = [
             // 'password',
             // 'remember_token',
             //];
             /**
              * The attributes that should be cast.
              * @var array<string, string>
              */
             // protected $casts = [
             // 'email_verified_at' => 'datetime',
             // 'password' => 'hashed',
             //];
           }
       5. Create PHP-JWT
           composer require firebase/php-jwt
           app-> Helper-> JWTToken.php
           add below code in JWTToken.php
          <?php
namespace App\Helper;
use Firebase\JWT\JWT;
use Firebase\JWT\Key;
use PHPUnit\Metadata\Exception;
```

```
public static function CreateToken($userEmail):string{
  $key=env('JWT_KEY');
  $payload = [
    'iss' => "laravel-jwt",
    'iat' => time(),
    'exp' => time() + 60*60,
    'userEmail' => $userEmail
 ];
 return JWT::encode($payload, $key, 'HS256');
}
public static function DecodeToken($token):string{
 try {
    $key=env('JWT_KEY');
    $decoded=JWT::decode($token, new Key($key,'HS256'));
    return $decoded->userEmail;
 }
  catch(Exception $e){
   return "unauthorized";
 }
}
public static function CreateTokenForSetPassword($userEmail):string{
  $key =env('JWT_KEY');
  $payload=[
    'iss'=>'laravel-token',
    'iat'=>time(),
    'exp'=>time()+60*20,
```

```
'userEmail'=>$userEmail
    ];
    return JWT::encode($payload,$key,'HS256');
  }
  public static function VerifyToken($token):string
  {
    try {
      $key =env('JWT_KEY');
      $decode=JWT::decode($token,new Key($key,'HS256'));
      return $decode->userEmail;
    }
    catch (Exception $e){
      return 'unauthorized';
    }
  }
}
       6. Add below code in web.php
           <?php
           use Illuminate\Support\Facades\Route;
           use App\Http\Controllers\UserController;
           use App\Http\Controllers\DashboardController;
           use App\Http\Middleware\TokenVerificationMiddleware;
            | Web Routes
           Here is where you can register web routes for your application. These
           | routes are loaded by the RouteServiceProvider and all of them will
           | be assigned to the "web" middleware group. Make something great!
           */
```

```
Route::get('/', function () {
      return view('welcome');
   });
   // API Routes
   Route::post('/user-registration',[UserController::class,'UserRegistration']);
   Route::post('/user-login',[UserController::class,'UserLogin']);
    Route::post('/send-otp',[UserController::class,'SendOTPCode']);
   Route::post('/verify-otp',[UserController::class,'VerifyOTP']);
    Route::post('/reset-password',[UserController::class,'ResetPassword'])-
   >middleware([TokenVerificationMiddleware::class]);
   // Page Routes
   Route::get('/userLogin',[UserController::class,'LoginPage']);
    Route::get('/userRegistration',[UserController::class,'RegistrationPage']);
    Route::get('/sendOtp',[UserController::class,'SendOtpPage']);
    Route::get('/verifyOtp',[UserController::class,'VerifyOTPPage']);
    Route::get('/resetPassword',[UserController::class,'ResetPasswordPage']);
    Route::get('/dashboard',[DashboardController::class,'DashboardPage']);
7. Create
   app/Http/ Middleware/ TokenVerificationMiddleware.php
   Add below code in TokenVerificationMiddleware.php
   <?php
   namespace App\Http\Middleware;
    use App\Helper\JWTToken;
   use Closure;
    use Illuminate\Http\Request;
    use Symfony\Component\HttpFoundation\Response;
   class TokenVerificationMiddleware
   {
      * Handle an incoming request.
      * @param \Closure(\Illuminate\Http\Request):
    (\Symfony\Component\HttpFoundation\Response) $next
```

```
*/
  public function handle(Request $request, Closure $next): Response
  {
    $token=$request->cookie('token');
    $result=JWTToken::VerifyToken($token);
    if($result=="unauthorized"){
      return response()->json([
        'status' => 'failed',
        'message' => 'unauthorized'
    }
    else{
      $request->headers->set('email',$result);
      return $next($request);
    }
  }
}
8. Create
app/Http/Controllers/ DashboardController.php
Add below code in DashboardController.php
<?php
namespace App\Http\Middleware;
use App\Helper\JWTToken;
use Closure;
use Illuminate\Http\Request;
use Symfony\Component\HttpFoundation\Response;
class TokenVerificationMiddleware
{
  * Handle an incoming request.
  * @param \Closure(\Illuminate\Http\Request):
(\Symfony\Component\HttpFoundation\Response) $next
  */
  public function handle(Request $request, Closure $next): Response
```

```
$token=$request->cookie('token');
               $result=JWTToken::VerifyToken($token);
               if($result=="unauthorized"){
                 return response()->json([
                    'status' => 'failed',
                    'message' => 'unauthorized'
                 ],401);
               }
               else{
                 $request->headers->set('email',$result);
                 return $next($request);
               }
             }}
           8. Create
           Resources->views->components
                            ->email
                             ->layout
                             ->pages
          Resources->views-> Components->auth
                                          ->dashboard
       auth
             -> login-form.blade.php
               -> registration-form.blade.php
               -> reset-pass-form.blade.php
               -> send-otp-form.blade.php
               -> verify-otp-form.blade.php
       dashboard ->summary.blade.php
Resources->views->email->OTPMail.blade.php
Resources->views-> layout-> app.blade.php
                         -> sidenav-layout.blade.php
Resources->views-> pages-> auth
                        -> dashboard
```

```
auth
             -> login-page.blade.php
               -> registration-page.blade.php
               -> reset-pass-page.blade.php
               -> send-otp-page.blade.php
               -> verify-otp-page.blade.php
       dashboard -> dashboard-page.blade.php
9. Create Model Category create Category.php
<?php
namespace App\Models;
use Illuminate\Database\Eloquent\Factories\HasFactory;
use Illuminate\Database\Eloquent\Model;
class Category extends Model
{
 protected $fillable = ['name', 'user_id'];
}
10. Create Model Customer create Customer.php
<?php
namespace App\Models;
use Illuminate\Database\Eloquent\Model;
class Customer extends Model
```

```
{
  protected $fillable = ['name','email','mobile','user_id'];
}
11. Create Model Product create Product.php
<?php
namespace App\Models;
use Illuminate\Database\Eloquent\Factories\HasFactory;
use Illuminate\Database\Eloquent\Model;
class Product extends Model
{
 protected $fillable = ['user_id', 'category_id', 'name', 'price', 'unit', 'img_url'];
}
12. Create migration file for table Categories, Customers, Products table
For customers Table
<?php
use Illuminate\Database\Migrations\Migration;
use Illuminate\Database\Schema\Blueprint;
use Illuminate\Support\Facades\Schema;
return new class extends Migration
```

```
{
  /**
  * Run the migrations.
  */
  public function up(): void
  {
    Schema::create('customers', function (Blueprint $table) {
      $table->id();
      $table->string('name',50);
      $table->string('email',50);
      $table->string('mobile',50);
      $table->unsignedBigInteger('user_id');
      $table->foreign('user_id')->references('id')->on('users')
        ->cascadeOnUpdate()->restrictOnDelete();
      $table->timestamp('created_at')->useCurrent();
      $table->timestamp('updated_at')->useCurrent()->useCurrentOnUpdate();
    });
  }
  /**
  * Reverse the migrations.
  */
  public function down(): void
```

```
{
    Schema::dropIfExists('customers');
  }
};
For categories Table
<?php
use Illuminate\Database\Migrations\Migration;
use Illuminate\Database\Schema\Blueprint;
use Illuminate\Support\Facades\Schema;
return new class extends Migration
{
  * Run the migrations.
  */
  public function up(): void
  {
    Schema::create('categories', function (Blueprint $table) {
      $table->id();
      $table->string('name',50);
      $table->unsignedBigInteger('user_id');
      $table->foreign('user_id')->references('id')->on('users')
        ->cascadeOnUpdate()->restrictOnDelete();
      $table->timestamp('created_at')->useCurrent();
```

```
$table->timestamp('updated_at')->useCurrent()->useCurrentOnUpdate();
    });
  }
  /**
  * Reverse the migrations.
  */
  public function down(): void
  {
    Schema::dropIfExists('categories');
  }
};
For products Table
<?php
use Illuminate\Database\Migrations\Migration;
use Illuminate\Database\Schema\Blueprint;
use Illuminate\Support\Facades\Schema;
return new class extends Migration
{
  /**
  * Run the migrations.
  */
  public function up(): void
  {
```

```
Schema::create('products', function (Blueprint $table) {
    $table->id();
    $table->unsignedBigInteger('user_id');
    $table->unsignedBigInteger('category_id');
    $table->foreign('user_id')->references('id')->on('users')
      ->cascadeOnUpdate()->restrictOnDelete();
    $table->foreign('category_id')->references('id')->on('categories')
      ->cascadeOnUpdate()->restrictOnDelete();
    $table->string('name',100);
    $table->string('price',50);
    $table->string('unit',50);
    $table->string('img_url',100);
    $table->timestamp('created_at')->useCurrent();
    $table->timestamp('updated_at')->useCurrent()->useCurrentOnUpdate();
  });
* Reverse the migrations.
*/
public function down(): void
```

}

{

```
Schema::dropIfExists('products');
 }
};
Run command:
Php artisan migrate
13 Create CategoryController.php
<?php
namespace App\Http\Controllers;
use App\Models\Category;
use Illuminate\Http\Request;
class CategoryController extends Controller
{
  function CategoryList(Request $request){
    $user_id=$request->header('id');
    return Category::where('user_id',$user_id)->get();
  }
  function CategoryCreate(Request $request){
    $user_id=$request->header('id');
    return Category::create([
      'name'=>$request->input('name'),
      'user_id'=>$user_id
    ]);
  }
```

```
function CategoryDelete(Request $request){
    $category_id=$request->input('id');
    $user_id=$request->header('id');
    return Category::where('id',$category_id)->where('user_id',$user_id)->delete();
  }
  function CategoryUpdate(Request $request){
    $category_id=$request->input('id');
    $user_id=$request->header('id');
    return Category::where('id',$category_id)->where('user_id',$user_id)->update([
      'name'=>$request->input('name'),
    ]);
  }
}
***** Create controller CustomerController.php
<?php
namespace App\Http\Controllers;
use App\Models\Customer;
use Illuminate\Http\Request;
class CustomerController extends Controller
{
  function CustomerCreate(Request $request){
    $user_id=$request->header('id');
    return Customer::create([
```

```
'name'=>$request->input('name'),
    'email'=>$request->input('email'),
    'mobile'=>$request->input('mobile'),
    'user_id'=>$user_id
  ]);
}
function CustomerList(Request $request){
  $user_id=$request->header('id');
  return Customer::where('user_id',$user_id)->get();
}
function CustomerDelete(Request $request){
  $customer_id=$request->input('id');
  $user_id=$request->header('id');
  return Customer::where('id',$customer_id)->where('user_id',$user_id)->delete();
}
function CustomerUpdate(Request $request){
  $customer_id=$request->input('id');
  $user_id=$request->header('id');
  return Customer::where('id',$customer_id)->where('user_id',$user_id)->update([
    'name'=>$request->input('name'),
    'email'=>$request->input('email'),
    'mobile'=>$request->input('mobile'),
  ]);
```

```
}
}
Create controller name ProductController.php
<?php
namespace App\Http\Controllers;
use App\Models\Product;
use Illuminate\Http\Request;
use Illuminate\Support\Facades\File;
class ProductController extends Controller
{
  function CreateProduct(Request $request)
  {
    $user_id=$request->header('id');
   // Prepare File Name & Path
    $img=$request->file('img');
    $t=time();
    $file_name=$img->getClientOriginalName();
    $img_name="{$user_id}-{$t}-{$file_name}";
    $img_url="uploads/{$img_name}";
```

```
// Upload File
  $img->move(public_path('uploads'),$img_name);
  // Save To Database
  return Product::create([
    'name'=>$request->input('name'),
    'price'=>$request->input('price'),
    'unit'=>$request->input('unit'),
    'img_url'=>$img_url,
    'category_id'=>$request->input('category_id'),
    'user_id'=>$user_id
 ]);
}
function DeleteProduct(Request $request)
{
  $user_id=$request->header('id');
  $product_id=$request->input('id');
  $filePath=$request->input('file_path');
  File::delete($filePath);
  return Product::where('id',$product_id)->where('user_id',$user_id)->delete();
}
function ProductList(Request $request)
{
  $user_id=$request->header('id');
```

```
return Product::where('user_id',$user_id)->get();
}
function UpdateProduct(Request $request)
{
  $user_id=$request->header('id');
  $product_id=$request->input('id');
  if ($request->hasFile('img')) {
    // Upload New File
    $img=$request->file('img');
    $t=time();
    $file_name=$img->getClientOriginalName();
    $img_name="{$user_id}-{$t}-{$file_name}";
    $img_url="uploads/{$img_name}";
    $img->move(public_path('uploads'),$img_name);
    // Delete Old File
    $filePath=$request->input('file_path');
    File::delete($filePath);
    // Update Product
    return Product::where('id',$product_id)->where('user_id',$user_id)->update([
      'name'=>$request->input('name'),
      'price'=>$request->input('price'),
      'unit'=>$request->input('unit'),
      'img_url'=>$img_url,
```

```
'category_id'=>$request->input('category_id')
      ]);
    } else {
      return Product::where('id',$product_id)->where('user_id',$user_id)->update([
        'name'=>$request->input('name'),
        'price'=>$request->input('price'),
        'unit'=>$request->input('unit'),
        'category_id'=>$request->input('category_id'),
      ]);
    }
 }
}
Create controller name DashboardController.php
<?php
namespace App\Http\Controllers;
use App\Models\Category;
use App\Models\Customer;
use App\Models\Product;
use Illuminate\Http\Request;
use Illuminate\View\View;
class DashboardController extends Controller
{
  function DashboardPage():View{
    return view('pages.dashboard.dashboard-page');
```

```
function TotalCustomer(Request $request){
    $id=$request->header('id');
    return Customer::where('user_id',$id)->count();
}
function TotalCategory(Request $request){
    $id=$request->header('id');
    return Category::where('user_id',$id)->count();
}
function TotalProduct(Request $request){
    $id=$request->header('id');
    return Product::where('user_id',$id)->count();
}
```

```
**Add new code to web.php
<?php
use Illuminate\Support\Facades\Route;
use App\Http\Controllers\UserController;
use App\Http\Controllers\ProductController;
use App\Http\Controllers\CategoryController;
use App\Http\Controllers\CustomerController;
use App\Http\Controllers\DashboardController;
use App\Http\Middleware\TokenVerificationMiddleware;
/*
|-----
| Web Routes
_____
Here is where you can register web routes for your application. These
| routes are loaded by the RouteServiceProvider and all of them will
| be assigned to the "web" middleware group. Make something great!
*/
Route::get('/', function () {
 return view('welcome');
```

});

```
// API Routes
Route::post('/user-registration',[UserController::class,'UserRegistration']);
Route::post('/user-login',[UserController::class,'UserLogin']);
Route::post('/send-otp',[UserController::class,'SendOTPCode']);
Route::post('/verify-otp',[UserController::class,'VerifyOTP']);
Route::post('/reset-password',[UserController::class,'ResetPassword'])-
>middleware([TokenVerificationMiddleware::class]);
// After Authentication
Route::get("/user-profile-details",[UserController::class,'UserProfile'])-
>middleware([TokenVerificationMiddleware::class]);
Route::post("/user-update",[UserController::class,'UserUpdate'])-
>middleware([TokenVerificationMiddleware::class]);
// Logout
Route::get('/logout',[UserController::class,'UserLogout']);
// Page Routes
Route::get('/userLogin',[UserController::class,'LoginPage']);
Route::get('/userRegistration',[UserController::class,'RegistrationPage']);
Route::get('/sendOtp',[UserController::class,'SendOtpPage']);
Route::get('/verifyOtp',[UserController::class,'VerifyOTPPage']);
Route::get('/resetPassword',[UserController::class,'ResetPasswordPage'])-
>middleware([TokenVerificationMiddleware::class]);
Route::get('/userProfile',[UserController::class,'ProfilePage'])-
>middleware([TokenVerificationMiddleware::class]);
Route::get('/dashboard',[DashboardController::class,'DashboardPage'])-
>middleware([TokenVerificationMiddleware::class]);
```

```
// Customer API
Route::post("/create-customer",[CustomerController::class,'CustomerCreate'])-
>middleware([TokenVerificationMiddleware::class]);
Route::get("/list-customer",[CustomerController::class,'CustomerList'])-
>middleware([TokenVerificationMiddleware::class]);
Route::post("/delete-customer",[CustomerController::class,'CustomerDelete'])-
>middleware([TokenVerificationMiddleware::class]);
Route::post("/update-customer",[CustomerController::class,'CustomerUpdate'])-
>middleware([TokenVerificationMiddleware::class]);
// Category API
Route::post("/create-category",[CategoryController::class,'CategoryCreate'])-
>middleware([TokenVerificationMiddleware::class]);
Route::get("/list-category",[CategoryController::class,'CategoryList'])-
>middleware([TokenVerificationMiddleware::class]);
Route::post("/delete-category",[CategoryController::class,'CategoryDelete'])-
>middleware([TokenVerificationMiddleware::class]);
Route::post("/update-category",[CategoryController::class,'CategoryUpdate'])-
>middleware([TokenVerificationMiddleware::class]);
// Product API
Route::post("/create-product",[ProductController::class,'CreateProduct'])-
>middleware([TokenVerificationMiddleware::class]);
Route::post("/delete-product",[ProductController::class,'DeleteProduct'])-
>middleware([TokenVerificationMiddleware::class]);
Route::post("/update-product",[ProductController::class,'UpdateProduct'])-
>middleware([TokenVerificationMiddleware::class]);
Route::get("/list-product",[ProductController::class,'ProductList'])-
>middleware([TokenVerificationMiddleware::class]);
```

// Dashboard API

Route::get("/total-customer", [DashboardController::class, 'TotalCustomer']) -> middleware([TokenVerificationMiddleware::class]);

Route::get("/total-category",[DashboardController::class,'TotalCategory'])->middleware([TokenVerificationMiddleware::class]);

Route::get("/total-product",[DashboardController::class,'TotalProduct'])->middleware([TokenVerificationMiddleware::class]);