

Web Programming – Assignment 7

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ESSAY

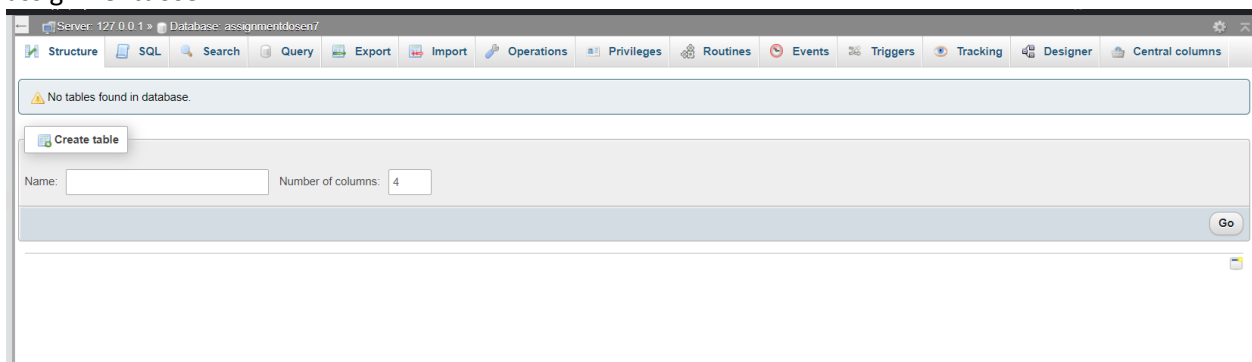
Assignment 7

Migration & Eloquent ORM. Create simple Laravel project that use relational tables. Use at least 3 tables to describe the relation of One to One relation and One to Many relation (example : Student have a Detail personal data, Department have many Student, etc).

- **Use at least 5 rows data to display. If possible use Seeder technique to fill the tables (find the tutorial for this texhnique), if not use the insertion base on our Session 7 material**
- **Capture / screenshot all important code and results (Migrations, Models, Controller, Route, Seeder files if use this technique, Blades and Browser results)**

Regards

First, what we will need to do is create the database. Here I created a database called assignmentdosen7.



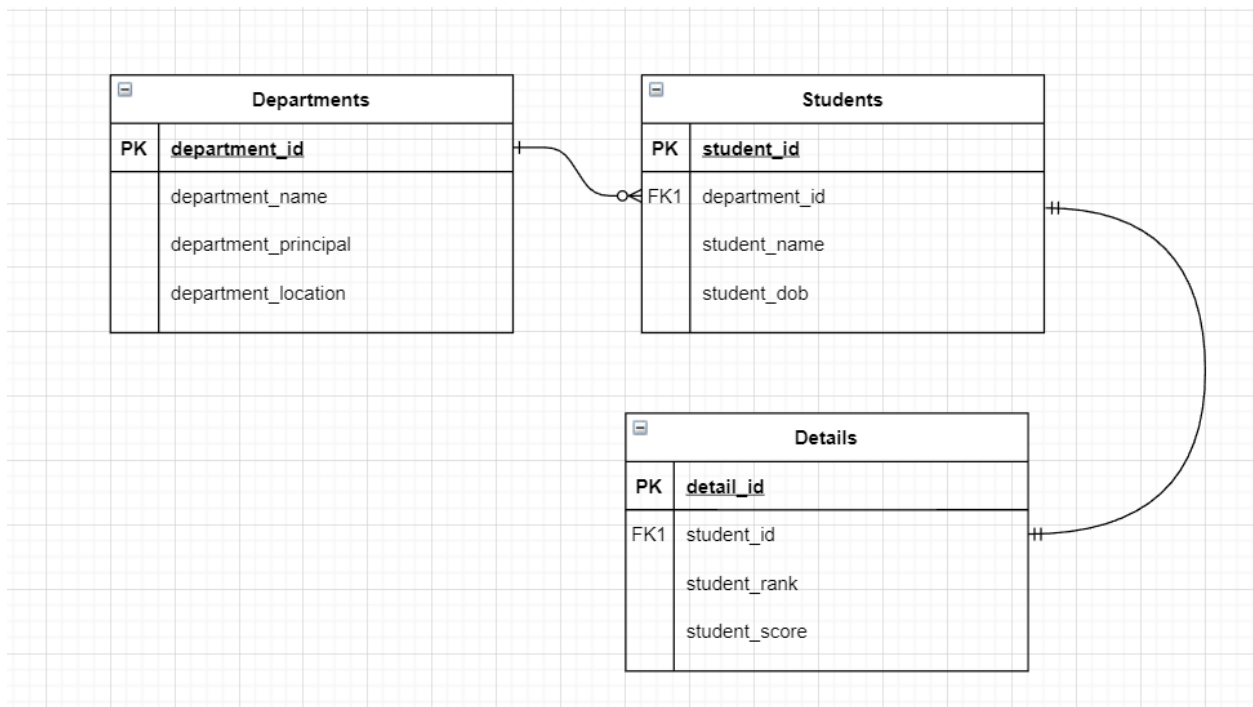
After that, we need to configure our Laravel app environment variables to use this database.

```
.env
APP_NAME=Laravel
APP_ENV=local
APP_KEY=base64:D4FCiiLE4+qZ4Dz+saqtThC2G6lDj5+iWcsMDdte3wM=
APP_DEBUG=true
APP_URL=http://localhost

LOG_CHANNEL=stack
LOG_LEVEL=debug

DB_CONNECTION=mysql
DB_HOST=127.0.0.1
DB_PORT=3306
DB_DATABASE=assignmentdosen7
DB_USERNAME=root
DB_PASSWORD=
```

Then, we also need to define what our database scheme will be. For this assignment, I will be using the following tables:



Then we will create the migrations and seeders for those tables.

```
$ php artisan make:model Department -m -s
Model created successfully.
Created Migration: 2021_11_17_093735_create_departments_table
Seeder created successfully.
```

```
$ php artisan make:model Student -m -s
Model created successfully.
Created Migration: 2021_11_17_093813_create_students_table
Seeder created successfully.
```

```
$ php artisan make:model Detail -m -s
Model created successfully.
Created Migration: 2021_11_17_093846_create_details_table
Seeder created successfully.
```

create_departments_table.php

```
2021_11_17_093735_create_departments_table.php u X
database > migrations > 2021_11_17_093735_create_departments_table.php > PHP Intelephense > CreateDepartmentsTable > up
1  <?php
2
3  use Illuminate\Database\Migrations\Migration;
4  use Illuminate\Database\Schema\Blueprint;
5  use Illuminate\Support\Facades\Schema;
6
7  class CreateDepartmentsTable extends Migration
8  {
9      /**
10       * Run the migrations.
11       *
12       * @return void
13       */
14     public function up()
15     {
16         Schema::create('departments', function (Blueprint $table) {
17             $table->id();
18             $table->string('name');
19             $table->string('principal');
20             $table->string('location');
21             $table->timestamps();
22         });
23     }
24
25     /**
26      * Reverse the migrations.
27      *
28      * @return void
29      */
30     public function down()
31     {
32         Schema::dropIfExists('departments');
33     }
34 }
35
```

DepartmentSeeder.php

```
DepartmentSeeder.php u x
database > seeders > DepartmentSeeder.php > ...
4
5 use Illuminate\Database\Seeder;
6
7 class DepartmentSeeder extends Seeder
8 {
9     /**
10      * Run the database seeds.
11      *
12      * @return void
13      */
14     public function run()
15     {
16         DB::table('departments')->insert([
17             'name' => 'IT',
18             'principal' => 'Mr Jack',
19             'location' => 'Jakarta',
20         ],
21         [
22             'name' => 'Business',
23             'principal' => 'Ms Eve',
24             'location' => 'Tangerang',
25         ],
26         [
27             'name' => 'Science',
28             'principal' => 'Mr Mark',
29             'location' => 'Bandung',
30         ],
31         [
32             'name' => 'Accounting',
33             'principal' => 'Mr Joe',
34             'location' => 'Surabaya',
35         ],
36         [
37             'name' => 'History',
38             'principal' => 'Mr Tom',
39             'location' => 'Semarang',
40         ]
41     ]);
42 }
43
```

create_students_table.php

```
2021_11_17_093813_create_students_table.php u X
database > migrations > 2021_11_17_093813_create_students_table.php > ...
1  <?php
2
3  use Illuminate\Database\Migrations\Migration;
4  use Illuminate\Database\Schema\Blueprint;
5  use Illuminate\Support\Facades\Schema;
6
7  class CreateStudentsTable extends Migration
8  {
9      /**
10       * Run the migrations.
11       *
12       * @return void
13       */
14     public function up()
15     {
16         Schema::create('students', function (Blueprint $table) {
17             $table->id();
18             $table->string('name');
19             $table->string('dob');
20             $table->unsignedBigInteger('department_id');
21             $table->foreign('department_id')->references('id')->on('departments');
22             $table->timestamps();
23         });
24     }
25
26     /**
27      * Reverse the migrations.
28      *
29      * @return void
30      */
31     public function down()
32     {
33         Schema::dropIfExists('students');
34     }
35 }
36
```

StudentSeeder.php

```
StudentSeeder.php x
database > seeders > StudentSeeder.php > PHP Intelephense > StudentSeeder > run

7
8  class StudentSeeder extends Seeder
9  {
10     /**
11      * Run the database seeds.
12      *
13      * @return void
14      */
15     public function run()
16     {
17         //
18         DB::table('students')->insert([
19             'name' => 'Jack',
20             'department_id' => 1,
21             'dob' => '21 October 1990'
22         ]);
23         DB::table('students')->insert([
24             'name' => 'Jill',
25             'department_id' => 2,
26             'dob' => '21 January 2010'
27         ]);
28         DB::table('students')->insert([
29             'name' => 'John',
30             'department_id' => 3,
31             'dob' => '21 August 1998'
32         ]);
33         DB::table('students')->insert([
34             'name' => 'Jenny',
35             'department_id' => 4,
36             'dob' => '21 March 1995'
37         ]);
38         DB::table('students')->insert([
39             'name' => 'Jackson',
40             'department_id' => 5,
41             'dob' => '21 November 2006'
42         ]);
43     }
44 }
45
46
```

create_details_table.php

```
2021_11_17_093846_create_details_table.php u X
database > migrations > 2021_11_17_093846_create_details_table.php > ...
1  <?php
2
3  use Illuminate\Database\Migrations\Migration;
4  use Illuminate\Database\Schema\Blueprint;
5  use Illuminate\Support\Facades\Schema;
6
7  class CreateDetailsTable extends Migration
8  {
9      /**
10       * Run the migrations.
11       *
12       * @return void
13       */
14     public function up()
15     {
16         Schema::create('details', function (Blueprint $table) {
17             $table->id();
18             $table->unsignedBigInteger('student_id');
19             $table->foreign('student_id')->references('id')->on('students');
20             $table->string('rank');
21             $table->string('score');
22             $table->timestamps();
23         });
24     }
25
26     /**
27      * Reverse the migrations.
28      *
29      * @return void
30      */
31     public function down()
32     {
33         Schema::dropIfExists('details');
34     }
35 }
36
```


DetailSeeder.php

```
DetailSeeder.php u x
database > seeders > DetailSeeder.php > PHP Intelephense > DetailSeeder
1  <?php
2
3  namespace Database\Seeders;
4
5  use Illuminate\Database\Seeder;
6  use DB;
7
8  class DetailSeeder extends Seeder
9  {
10     /**
11      * Run the database seeds.
12      *
13      * @return void
14      */
15     public function run()
16     {
17         //
18         DB::table('details')->insert([
19             'student_id' => 1,
20             'rank' => 'Gold',
21             'score' => '100',
22         ]);
23         DB::table('details')->insert([
24             'student_id' => 2,
25             'rank' => 'Silver',
26             'score' => '90',
27         ]);
28         DB::table('details')->insert([
29             'student_id' => 3,
30             'rank' => 'Bronze',
31             'score' => '80',
32         ]);
33         DB::table('details')->insert([
34             'student_id' => 4,
35             'rank' => 'Bronze',
36             'score' => '80',
37         ]);
38         DB::table('details')->insert([
39             'student_id' => 5,
40             'rank' => 'Bronze',
41             'score' => '80',
42         ]);
43     }
44 }
```

Also we will create the controller file for our application.

```
$ php artisan make:controller SchoolController
Controller created successfully.
```

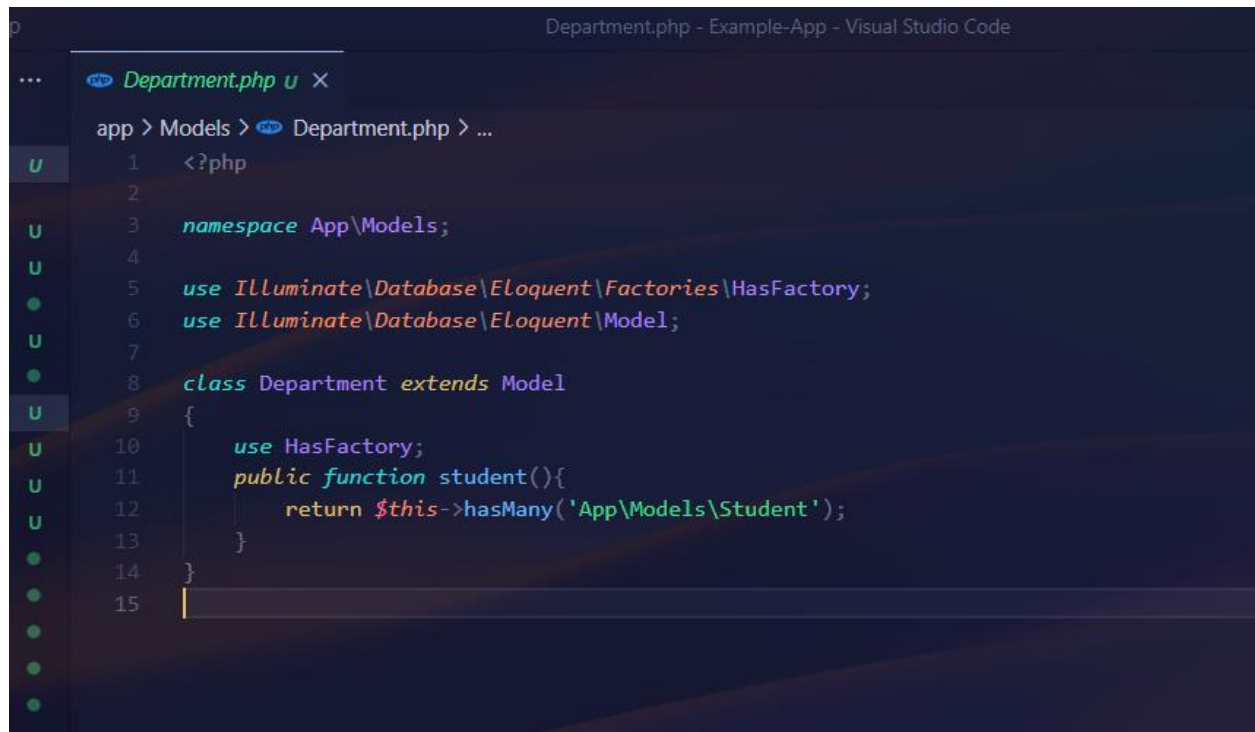
This is the web.php file for the routing configuration

```
web.php u x
routes > web.php
1  <?php
2
3  use Illuminate\Support\Facades\Route;
4
5  /*
6  |-----
7  | Web Routes
8  |-----
9  |
10 | Here is where you can register web routes for your application. These
11 | routes are loaded by the RouteServiceProvider within a group which
12 | contains the "web" middleware group. Now create something great!
13 |
14 */
15
16 Route::get('/', 'App\Http\Controllers\SchoolController@showList');
17
```

SchoolController.php

```
SchoolController.php u x
app > Http > Controllers > SchoolController.php > ...
1  <?php
2
3  namespace App\Http\Controllers;
4
5  use App\Models\Department;
6  use Illuminate\Http\Request;
7
8  class SchoolController extends Controller
9  {
10     //
11     public function showList()
12     {
13         $departments = Department::all();
14         $data = [
15             'departments' => $departments
16         ];
17         return view('welcome', $data);
18     }
19 }
20
```

Department model



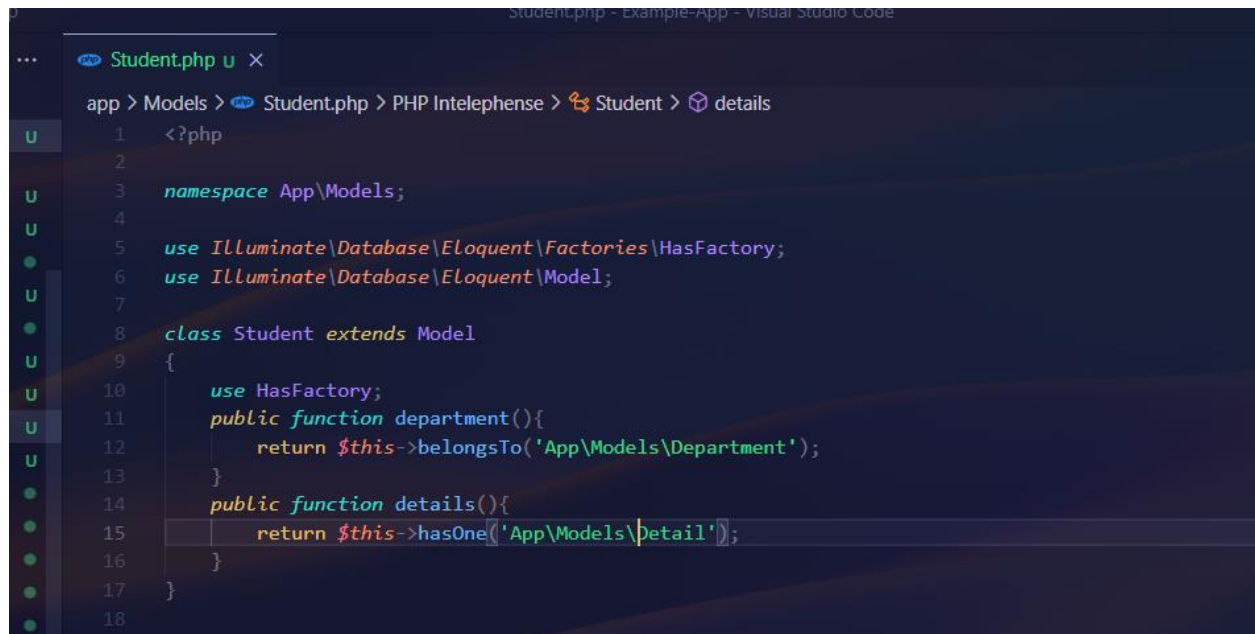
```
Department.php - Example-App - Visual Studio Code

... Department.php u x

app > Models > Department.php > ...

1  <?php
2
3  namespace App\Models;
4
5  use Illuminate\Database\Eloquent\Factories\HasFactory;
6  use Illuminate\Database\Eloquent\Model;
7
8  class Department extends Model
9  {
10     use HasFactory;
11     public function student(){
12         return $this->hasMany('App\Models\Student');
13     }
14 }
15
```

Student Model



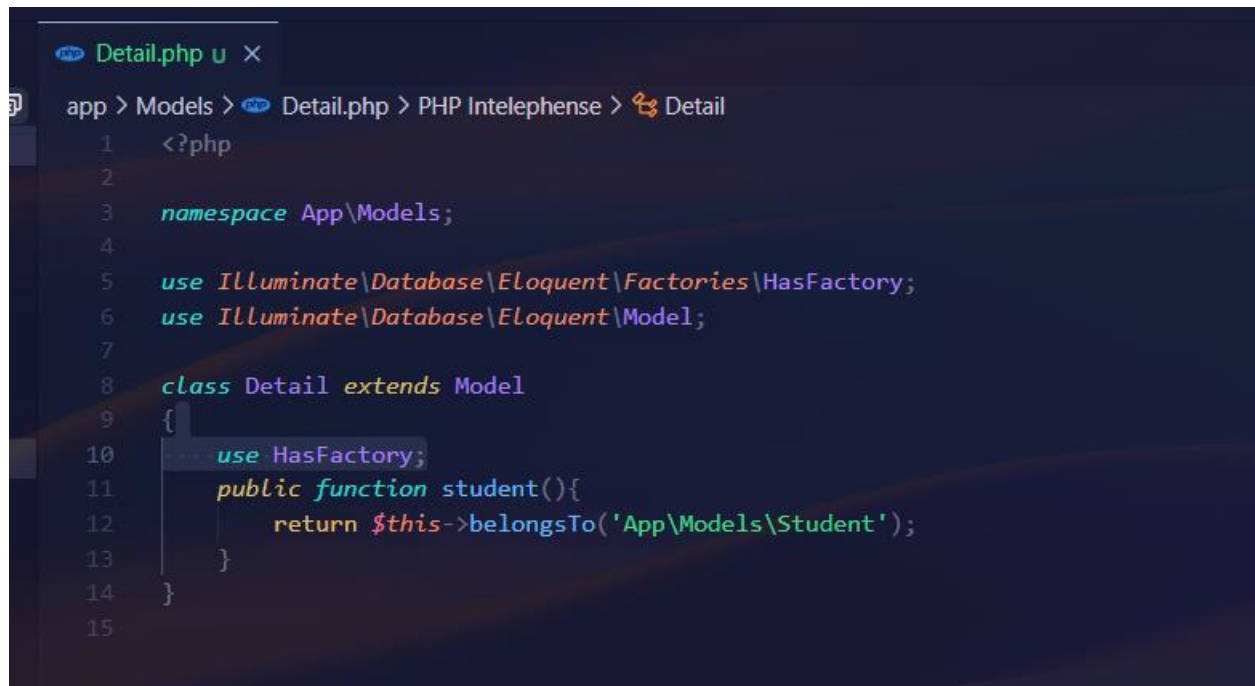
```
Student.php - Example-App - Visual Studio Code

... Student.php u x

app > Models > Student.php > PHP Intelephense > Student > details

1  <?php
2
3  namespace App\Models;
4
5  use Illuminate\Database\Eloquent\Factories\HasFactory;
6  use Illuminate\Database\Eloquent\Model;
7
8  class Student extends Model
9  {
10     use HasFactory;
11     public function department(){
12         return $this->belongsTo('App\Models\Department');
13     }
14     public function details(){
15         return $this->hasOne('App\Models\Detail');
16     }
17 }
18
```

Detail Model



```
Detail.php u x
app > Models > Detail.php > PHP Intelephense > Detail
1  <?php
2
3  namespace App\Models;
4
5  use Illuminate\Database\Eloquent\Factories\HasFactory;
6  use Illuminate\Database\Eloquent\Model;
7
8  class Detail extends Model
9  {
10     use HasFactory;
11     public function student(){
12         return $this->belongsTo('App\Models\Student');
13     }
14 }
15
```

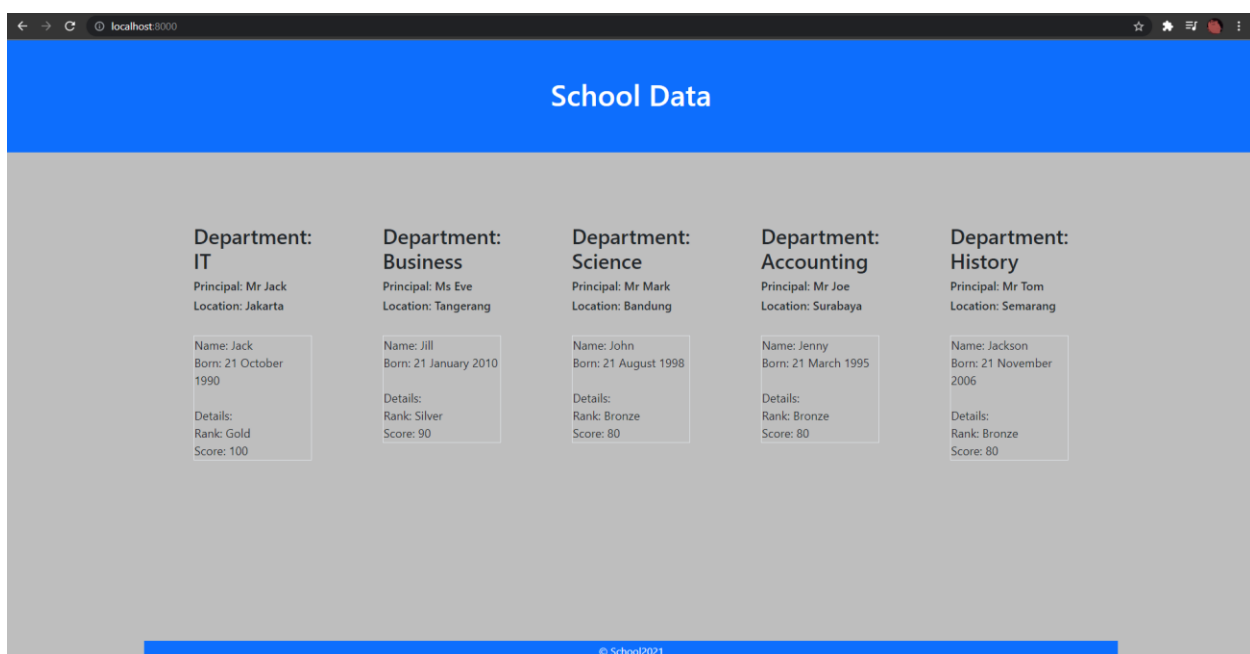
For the view file, I use this base view from the previous assignment

```

welcome.blade.php x
resources > views > welcome.blade.php > html > body > div.container.mt-5 > div.container.d-flex.justify-content-center > div.m-5.border-0 > div.border > br
1 <html lang="en">
2 <head>
3 <title>Laravel 8</title>
4 <meta charset="utf-8">
5 <meta name="viewport" content="width=device-width, initial-scale=1">
6 <link href="{{ asset('bootstrap/css/bootstrap.min.css') }}" rel="stylesheet">
7 </head>
8 <body style="background-color: #191919">
9 <div class="container-fluid p-5 bg-primary text-white text-center">
10 <h1>School Data</h1>
11 </div>
12 <div class="container mt-5">
13 <div class="container d-flex justify-content-center">
14 @foreach ($departments as $department)
15 <div class="m-5 border-0">
16 <h3>Department: {{ $department->name }}</h3>
17 <h6>Principal: {{ $department->principal }}</h6>
18 <h6>Location: {{ $department->location }}</h6>
19 <br>
20 <div class="border">
21 @foreach ($department->student as $student)
22 <div>
23 Name: {{ $student->name }} <br> Born: {{ $student->dob }}
24 </div>
25 <br>
26 @endforeach
27 Details: <br>
28 Rank: {{ $student->details->rank }} <br>
29 Score: {{ $student->details->score }}
30 </div>
31 </div>
32 @endforeach
33 </div>
34 </div>
35 <div class="container p-1 mt-5 bg-primary text-white text-center fixed-bottom">
36 <small>© School 2021</small>
37 </div>
38 <script src="{{ asset('bootstrap/js/bootstrap.bundle.min.js') }}"></script>
39 </body>
40 </html>

```

And this is how it looks



GitHub file:

<https://github.com/asianjack19/Web-Programming-Class/tree/master/Pertemuan7/assignment7/Example-App>