Interview Questions

1)What is a dependency class?

What is a Dependency? **Whenever a class A uses another class or interface B, then A depends on B**. A cannot carry out it's work without B, and A cannot be reused without also reusing B. In such a situation the class A is called the "dependant" and the class or interface B is called the "dependency".

What is dependency in Laravel?

In Laravel, dependency injection is **the process of injecting class dependencies into a class through a constructor or setter method**. This allows your code to look clean and run faster. Dependency injection involves the use of a Laravel service container, a container that is used to manage class dependencies.

How is dependency injection implemented in Laravel?

The service container is one of the most important pieces of the framework. It is responsible for managing your class dependencies and allows you to perform dependency injection.

Why should you use dependency injection?

If you are new to Laravel / modern PHP frameworks you might wonder what "dependency injection" actually means, so let me give you an example.

In your PHP classes, no matter if its a controller, a "service" class, or anything else, you will at some point need to include "dependencies".

Lets say that your application has a `GoogleMaps` class, which needs some API credentials and you want to use that class in one of your controllers:

```
class GoogleMaps

{

        // ...

}



class LocationController

{



        public function index(Request $request)

        {

                $maps = new GoogleMaps();



                $coordinates = $maps->getCoordinates($request->get('address'));

        }



}
```

As you can see, inside the `index` method, we created a new instance of the `GoogleMaps` class.

So what's the problem with this, you might ask. Well, what if you want to use the same GoogleMaps class in another part of your application? Or maybe the GoogleMaps class has additional dependencies that you would need to pass.

This quickly gets cumbersome to manage. Because of this, we have the concept of dependency injection. In fact, in the code snippet above, we already use dependency injection. We inject the `Request` class into our controller method, without creating a new instance of it.

Automatic dependency injection

By default, Laravel allows you to use a completely configuration-free dependency injection system. All you need to do is type hint the class that you want to inject – for example in your controller, middleware, jobs, event listeners, etc.

The example above would become:

```
class LocationController

{



    public function index(Request $request, GoogleMaps $maps)

    {

        $coordinates = $maps->getCoordinates($request->get('address'));

    }
}
```

By simply type-hinting the GoogleMaps class in our controller method, Laravel is automatically looking up the `GoogleMaps` class and its dependencies, tries to create a new instance of the class and pass it to the controller method.

In a controller, you might also need a dependency throughout all of the controller methods. In this case, you can simply inject the class in the controllers' constructor:

```
class LocationController

{

        protected GoogleMaps $maps;



        public function __construct(GoogleMaps $maps)

        {

                $this->maps = $maps;

        }



        public function index(Request $request)

        {

                $coordinates = $this->maps->getCoordinates($request->get('address'));

        }
}
```

This zero-configuration dependency injection is amazing and you will most likely not need to manually configure dependency injection. There are, however, certain situations where you might want to handle dependency injection manually.

==END===

2)What is relation in Laravel?

To define a relationship, **we need first to define the post() method in User model**. In the post() method, we need to implement the hasOne() method that returns the result. Let's understand the one to one relationship through an example. First, we add the new column (user_id) in an existing table named as posts.

Visit this link-

https://www.w3resource.com/laravel/eloquent-relationships.php#:~:text=You%20can%20query%20the%20posts,builder%20methods%20on%20the%20relationship.

===END==

3)Role of model in Laravel

Laravel is an **MVC** based PHP framework. In MVC architecture, '**M**' stands for '**Model**'. A **Model** is basically a way for querying data to and from the table in the database. Laravel provides a simple way to do that using **Eloquent ORM (Object-Relational Mapping)**. Every table has a **Model** to interact with the table.

Create a Model: To create an **Eloquent Model**, Laravel provides an Artisan Command as follows:

```
php artisan make:model Article
```

After running the command above, a file is created with the name **Article.php** in the **app** directory. The file content looks as follows:

```
<?php

namespace App;

use Illuminate\Database\Eloquent\Model;

class Article extends Model {
  //
}
```

Retrieve Data: To retrieve data from the database, we can use two methods as described below:

- Here, the **all()** method will return all the data in the table in the form of an array and store it in the **$articles** variable.

```
public function index() {

        $articles = \App\Article::all();

        return view('gfg')->with('articles', $articles);

}
```

- We can also get a particular record by using '**where()**' as shown below:

```
public function index() {
        
        $articles = \App\Article::all()->where('id', 1);
        
        return view('gfg')->with('articles', $articles);
        
    }
```

Insert Data: To insert data in the database, we will use **save()** method as shown below:

- Here, we create a new Article and store it in the **$article** variable. The **topic** and **content** attribute are used to store the data specified in the respective columns in the table. And then 'save()' method is used to insert the data in the database. Then a successful message will be shown if the insert is successful.

```
public function insert() {

    $article = new Article;

    $article->topic = "View in Laravel";
    $article->content = "View is the data display at the user end.";

    $article->save();

    echo "Insert Successful!";

}
```

Note: The *created_at* and *updated_at* field in the table will be automatically be inserted with the time stamp.

Update Data: To update data in the database, we will again use **save()** method as shown below:

- Here, the **find()** method is used to specify the record that we want to update in the database. The number in the parenthesis is of **id** i.e. primary key. Now a new value is given to the **topic** field of the record which will change the old one. And then '**save()**' method is used to insert the data in the database. Then a successful message will be shown if the update is successful.

```
public function update() {

        $article = \App\Article::find(1);

        $article->topic = "Laravel";

        $article->save();

        echo "Update Successful!";

}
```

Note: The *updated_at* field in the table will be automatically be inserted with the time stamp.

Delete Data: To delete data in the database, we will use **delete()** method as shown below:

- Here, the **find()** method is used to specify the record that we want to delete from the database. The number in the parenthesis is of **id** i.e. primary key. Then the **delete()** method is used. Then a successful message will be shown if the delete is successful.

- `public function delete() {`
-
- `        $article = \App\Article::find(1);`
-
- `        $article->delete();`
-
- `        echo "Delete Successful!";`
-

  `}`

Below example illustrates each of them:

Example:

1. Create and Connect to a **MySQL Database**.
2. Create a migration using the following Artisan command:

   ```
   php artisan make:migration create_articles_table
   ```

   And then write the below code in the **up()** function in the migration file created at **database/migrations** directory.

   ```
   Schema::create('articles', function (Blueprint $table) {

       $table->bigIncrements('id');

       $table->string('topic');

       $table->string('content');

       $table->timestamps();

   });
   ```

3. Now run the migrate command to create migrations:

   ```
   php artisan migrate
   ```

4. Now create a model using the below Artisan command:
   `php artisan make:model Article`

   The **Article.php** file, which is created in the **app** directory, should look like as follows:

   ```
   <?php

   namespace App;

   use Illuminate\Database\Eloquent\Model;

   class Article extends Model {
       //
   }
   ```

5. Now create a controller using the below Artisan command:
   `php artisan make:controller ArticleController`

   The **ArticleController.php** file, which is created in the **app/Http/Controllers** directory, should look like as follows:

   ```
   <?php

   namespace App\Http\Controllers;

   use Illuminate\Http\Request;

   class ArticleController extends Controller {
       //
   }
   ```

6. Now, you will have to change the controller file as below code or copy the code below and paste it in that controller file which was created in the previous step.

```php
<?php

namespace App\Http\Controllers;

use App\Article;
use Illuminate\Http\Request;

class ArticleController extends Controller {

    // Retrieve function
    public function index() {

        $articles = \App\Article::all();

        return view('gfg')->with('articles', $articles);

    }

    // Insert function
    public function insert() {

    $article = new Article;

    $article->topic = "View in Laravel";
    $article->content = "View is the data display at the user end.";

    $article->save();

    echo "Insert Successful!";

    }

    // Update function
    public function update() {

        $article = \App\Article::find(1);

        $article->topic = "Laravel";

        $article->save();

        echo "Update Successful!";

    }

    // Delete function
    public function delete() {

        $article = \App\Article::find(1);

        $article->delete();

        echo "Delete Successful!";

    }
}
```

7. Now, create a view with the name ‘**gfg.blade.php**’ in the ‘resources/views’ directory and the below code in that file.

```
<!DOCTYPE html>
<html>
<head>
    <title>GeeksforGeeks</title>
    <style>
        body {
            font-size: 20px;
        }
    </style>
</head>
<body>

    <h2>Articles Topics</h2>
    <ol>
        @foreach($articles as $article)
            <li>{{ $article->topic }}</li>
        @endforeach
    </ol>

</body>
</html>
```

8. Now, create the routes by writing the following in the **web.php** file in the **routes** directory.

   Note: Comment or remove any previous routes from the file.

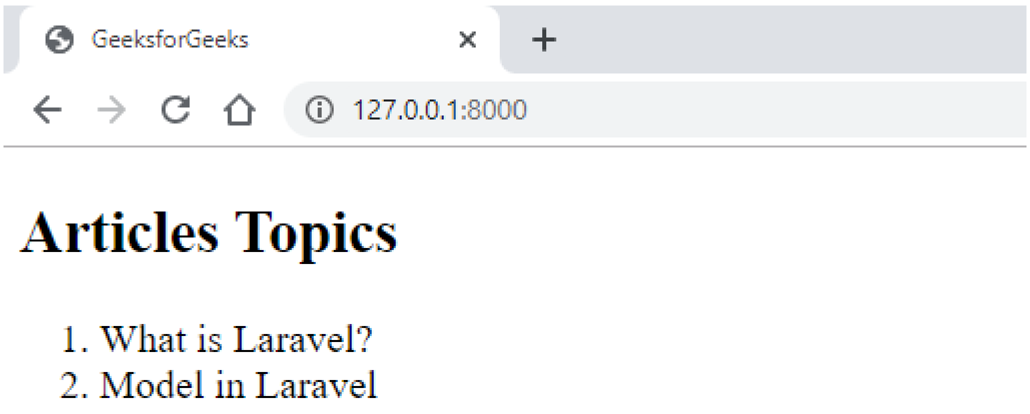
```
Route::get('/', 'ArticleController@index');

Route::get('/insert', 'ArticleController@insert');

Route::get('/update', 'ArticleController@update');

Route::get('/delete', 'ArticleController@delete');
```

8. Now run the Laravel app using the following Artisan command:

```
php artisan serve
```

Output:

1. **For Index Function:**



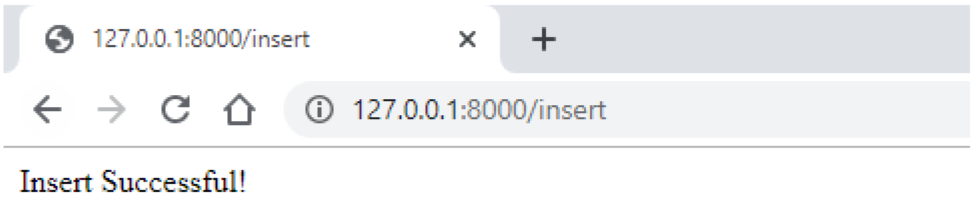
GeeksforGeeks

127.0.0.1:8000

Articles Topics

1. What is Laravel?
2. Model in Laravel

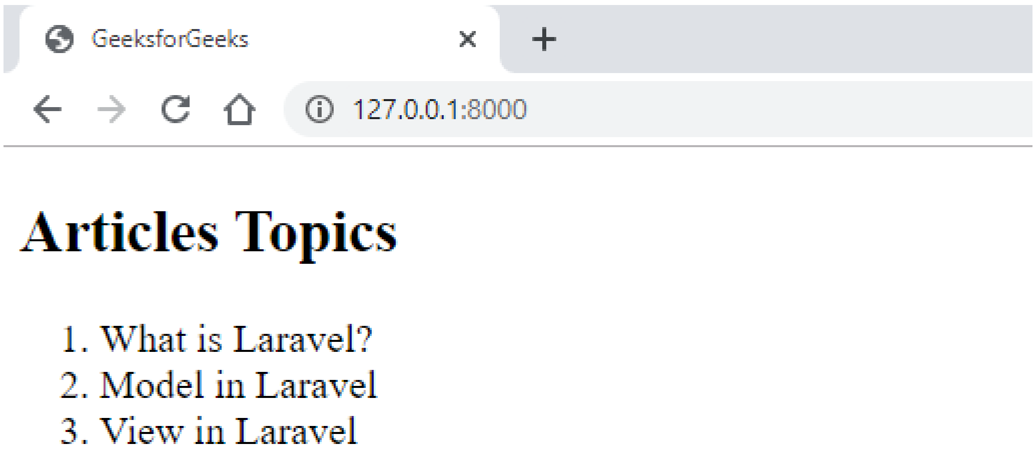
2. **For Insert Function:**



127.0.0.1:8000/insert

127.0.0.1:8000/insert

Insert Successful!



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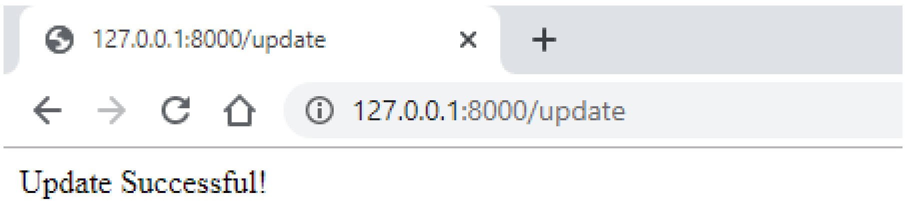
Articles Topics

1. What is Laravel?
2. Model in Laravel
3. View in Laravel

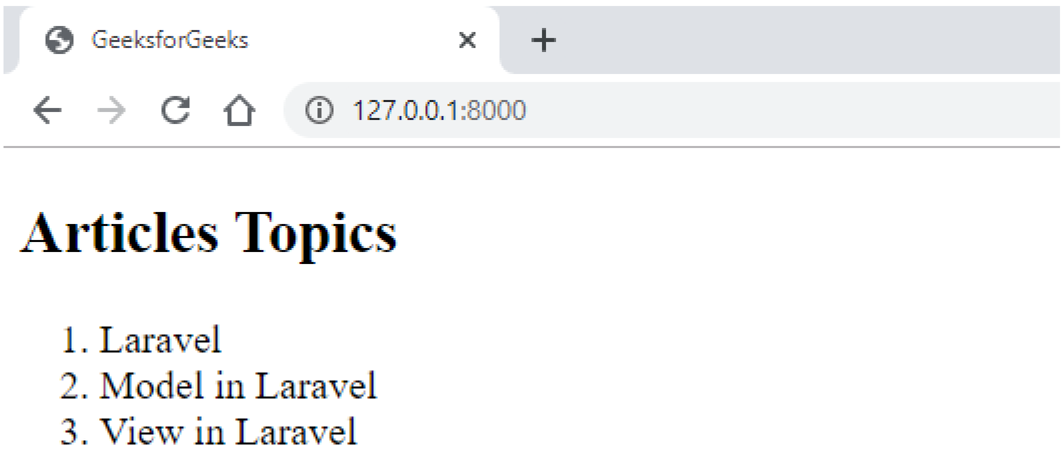
3. **For Update Function:**



127.0.0.1:8000/update

127.0.0.1:8000/update

Update Successful!


GeeksforGeeks

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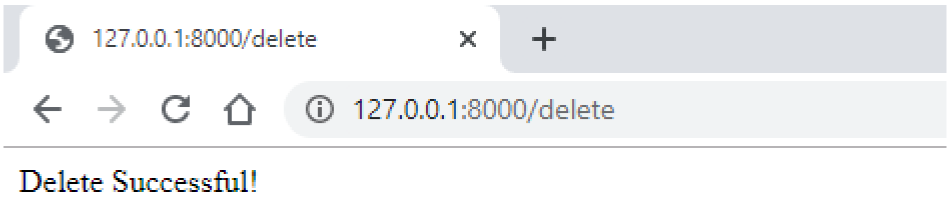
Articles Topics

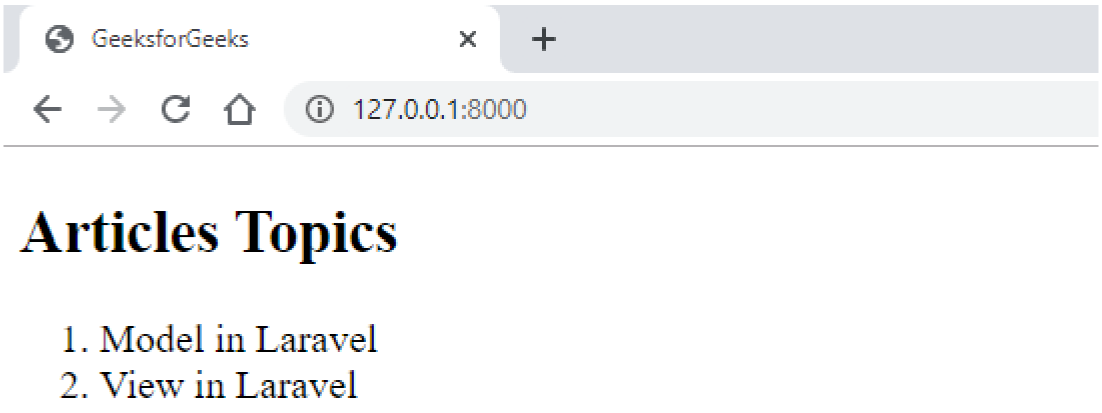
1. Laravel
2. Model in Laravel
3. View in Laravel

4. **For Delete Function:**


127.0.0.1:8000/delete

127.0.0.1:8000/delete

Delete Successful!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Articles Topics

1. Model in Laravel
2. View in Laravel

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4)Localization in Laravel

Localization feature of Laravel supports different language to be used in application. You need to store all the strings of different language in a file and these files are stored at **resources/views** directory. You should create a separate directory for each supported language. All the language files should return an array of keyed strings as shown below.

```
<?php
return [
  'welcome' => 'Welcome to the application'
];
```

Example

Step 1 – Create 3 files for languages – **English, French**, and **German**. Save English file at **resources/lang/en/lang.php**

```
<?php
  return [
    'msg' => 'Laravel Internationalization example.'
  ];
?>
```

Step 2 – Save French file at **resources/lang/fr/lang.php**.

```
<?php
  return [
    'msg' => 'Exemple Laravel internationalisation.'
  ];
?>
```

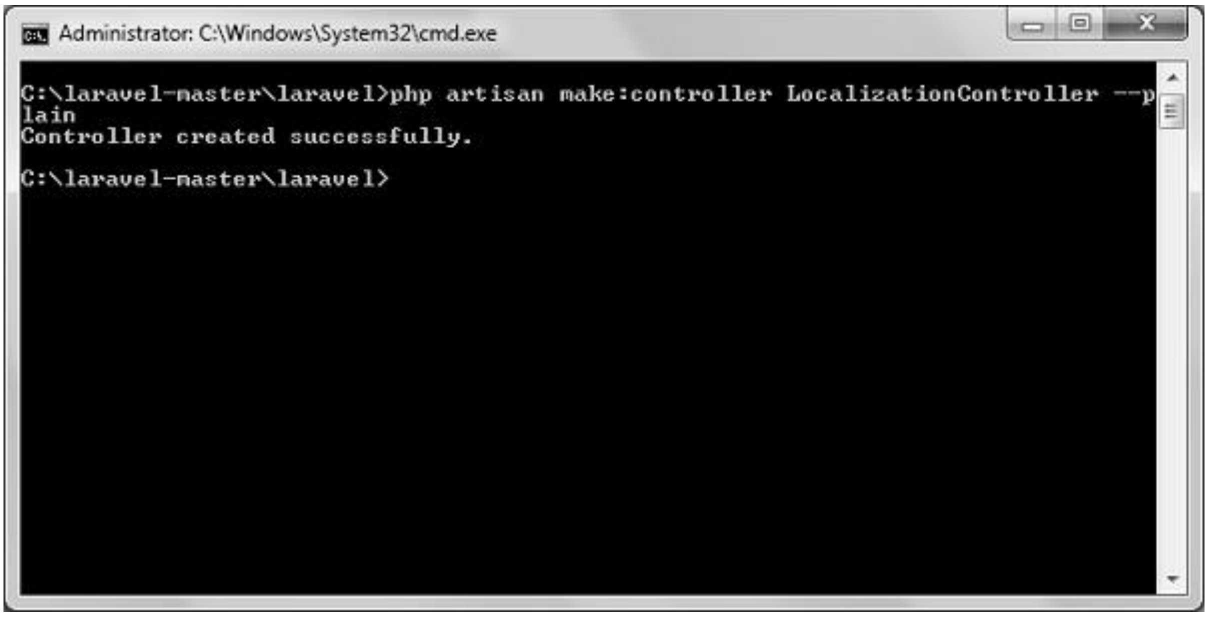
Step 3 – Save German file at **resources/lang/de/lang.php**.

```
<?php
  return [
    'msg' => 'Laravel Internationalisierung Beispiel.'
  ];
?>
```

Step 4 – Create a controller called **LocalizationController** by executing the following command.

```
php artisan make:controller LocalizationController --plain
```

Step 5 – After successful execution, you will receive the following output –



Administrator: C:\Windows\System32\cmd.exe

```
C:\laravel-master\laravel>php artisan make:controller LocalizationController --p
lain
Controller created successfully.

C:\laravel-master\laravel>
```

Step 6 – Copy the following code to file

app/Http/Controllers/LocalizationController.php

app/Http/Controllers/LocalizationController.php

```
<?php

namespace App\Http\Controllers;

use Illuminate\Http\Request;
use App\Http\Requests;
use App\Http\Controllers\Controller;

class LocalizationController extends Controller {
  public function index(Request $request,$locale) {
    //set's application's locale
    app()->setLocale($locale);
    //Gets the translated message and displays it
    echo trans('lang.msg');
  }
}
```

Step 7 – Add a route for LocalizationController in **app/Http/routes.php** file. Notice that we are passing {locale} argument after localization/ which we will use to see output in different language.

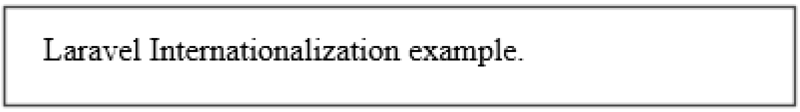
app/Http/routes.php

```
Route::get('localization/{locale}','LocalizationController@index');
```

Step 8 – Now, let us visit the different URLs to see all different languages. Execute the below URL to see output in English language.

```
http://localhost:8000/localization/en
```

Step 9 – The output will appear as shown in the following image.

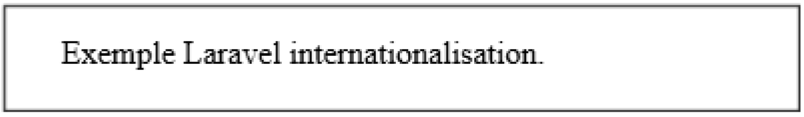


Laravel Internationalization example.

Step 10 – Execute the below URL to see output in French language.

```
http://localhost:8000/localization/fr
```

Step 11 – The output will appear as shown in the following image.



Exemple Laravel internationalisation.

Step 12 – Execute the below URL to see output in German language

```
http://localhost:8000/localization/de
```

Step 13 – The output will appear as shown in the following image.

Laravel Internationalisierung Beispiel.

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5)What is Collection in Laravel?

Defining Laravel collections

Laravel collections can be regarded as **modified versions of PHP arrays**. They are located in the Illuminate\Support\Collection directory and provide a wrapper to work with data arrays.

What is eloquent Collection?

Eloquent collections are **an extension of Laravel's Collection class with some handy methods for dealing with query results**. The Collection class itself, is merely a wrapper for an array of objects, but has a bunch of other interesting methods to help you pluck items out of the array.

What is difference between array and Collection?

Arrays can hold only homogeneous data types elements. Collection can hold both homogeneous and and heterogeneous elements. There is no underlying data structure for arrays and hence ready made method support is not available.
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6)Composer in Laravel

Composer in Laravel is **used to manage their dependencies**. Once Composer is installed, download the framework and extract its contents into a directory on your server. The primary task you should do after installing Laravel is to set your application key to a random string.