LARAVEL IMPORTANT QUESTIONS

1. **What is Laravel?**

Laravel is an open-source widely used PHP framework. The platform was intended for the development of web application by using MVC architectural pattern. Laravel is released under the MIT license.

Therefore, its source code is hosted on GitHub. It is a reliable PHP framework as it follows expressive and accurate language rules.

2. **What is the latest Laravel version?**

The latest Laravel version is 9. It was launched on February 8th, 2022.

3. **Define Composer.**

Laravel is a popular web application framework that allows you to build dynamic websites and applications.

A composer is a tool that includes all the dependencies and libraries. It helps the user to develop a project concerning the mentioned framework. Third-party libraries can be installed easily using composer.

Composer is used to managing its dependencies, which are noted in the composer.json file and placed in the source folder.

4. **What is HTTP middleware?**

HTTP middleware is a technique for filtering HTTP requests. Laravel includes a middleware that checks whether application user is authenticated or not.

5. **What are the popular features of Laravel?**

There are several popular features in Laravel. These are enlisted below.

- Eloquent ORM
- Query builder
- Reverse routing
- Class auto-loading
- Restful controllers
- Blade template engine
- Lazy collection
- Unit testing
- Database seeding
- Migrations

6. **What are the new features of Laravel 8?**

Laravel 8 released on the 8th of September 2020 with new additional features and some modifications to the existing features.

The following list shows the new features of Laravel 8:

- Laravel Jetstream
- Models directory
- Model factory classes
- Migration squashing
- Time testing helpers
- Dynamic blade components
- Rate limiting improvements

7. Does Laravel support Bootstrap?

Yes, Laravel supports the Bootstrap CSS framework.

8. What are the advantages of using the Laravel framework to build complex web applications?

There are many advantages of using the Laravel framework and some of them are listed below:

- Laravel is free to use.
- Configuration of application is simple and straightforward.
- The framework supports the Model-View-Controller (MVC) architecture.
- Inbuilt modules and libraries of Laravel help to speed up the development process.
- The performance of Laravel applications is high.
- Routing is easy.
- It has a feature called Eloquent ORM that is used to handle database operations.
- It has a templating engine called Blade.
- Laravel has an inbuilt facility to support unit tests.
- Community support is high.

9. Name a few competitors of Laravel?

The following list shows the top competitors. They are all among the top 10 PHP frameworks in 2020.

- Codeigniter
- Symfony
- Yii
- CakePHP
- Zend Framework
- Phalcon
- FuelPHP

10. What is MVC architecture?

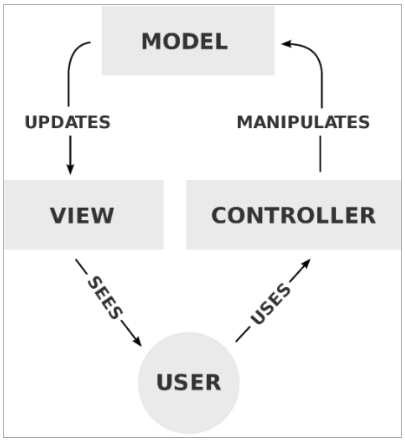
MVC architecture is a design pattern that is used to develop web applications. It consists of three components named Model, View and Controller. MVC design pattern also helps to speed up the development of the web application.

Model: In MVC architecture, the letter M stands for Models. Model is the central component of the MVC design pattern. It manages the data in the application.

View: In MVC architecture, the letter V stands for Views. A view displays data to the user.

Controller: In MVC architecture, the letter C stands for Controllers. A controller is used to handle user requests.

The below diagram shows the interactions within the MVC design pattern.



11. **What is the command you can use to check whether you have installed the composer on your computer?**

You can run the following command in the command prompt to check whether you have successfully installed the composer on your computer.

```
Composer
```

12. **Consider a situation where you have already installed Laravel 8 on your machine, and want to install a Laravel 7 project without uninstalling Laravel 8 from your machine. So, how are you going to install a Laravel 7 project?**

It is simple. We can run the following command in the command prompt to install a Laravel 7 project.

```
composer create-project --prefer-dist laravel/laravel name_of_the_project "7.*"
```

Note: We have to specify the Laravel version we need to install as shown above.

13. **How can you check the installed Laravel version of a project.**

Go to the project directory in the command prompt and run the following command:

```
php artisan --version
```

Alternatively, you can run the following command also.

```
php artisan -v
```

14. What is the artisan command used to get a list of available commands?

Run the following command in the command prompt to get a list of available commands.

php artisan list

15. What is an artisan?

The artisan script is a command-line interface included with Laravel. It's the first thing you'll see when you run composer create-project, or PHP artisan serve.

Artisan is made up of commands and is one of your best friends for developing and managing your Laravel applications. You can view a list of all available Artisan commands by running PHP artisan list.

16. How to define environment variables in Laravel?

In Linux, you have probably become familiar with environment variables. You can check the available environment variables with the printenv command.

To define an environment variable in Linux, use the export command followed by your new variable name: export name=Edunet.

The .env file holds your env variables for your current environment. The DotEnv Library powers it.

As the .env file often holds sensitive information like API keys or database credentials, you should never commit it to Git and push it to GitHub.

17. Briefly describe the project structure of a typical Laravel project.

The following list shows the project structure of a typical Laravel project.

- **app folder:** The app folder is the location where the source code of the application resides. It contains five sub-folders named Console folder, Exceptions folder, Http folder, Models folder and Providers folder. These sub-folders contain exception handlers, controllers, middleware, service providers and models.
- Note: In Laravel 7, there is no specific folder called Models, and all model files are stored inside the app folder instead of app/Models folder.
- **bootstrap folder:** The bootstrap folder contains bootstrap files.
- **config folder:** The config folder contains configuration files.
- **database folder:** The database folder contains database files. It contains three sub-folders named factories folder, migrations folder and seeders folder, and the .gitignore file. These sub-folders contain a large set of data, database migrations and seeds.
- **public folder:** The public folder contains files that are used to initialize the application.
- **resources folder:** The resources folder contains HTML, CSS and JavaScript files. It contains four sub-folders named css folder, js folder, lang folder and views folder.
- **routes folder:** The routes folder contains route definitions.
- **storage folder:** The storage folder contains cache files, session files, etc.
- **tests folder:** The tests folder contains test files like unit test files.

- **vendor folder:** The vendor folder contains all the composer dependency packages.
- **.env file:** The .env file contains environmental variables.
- **composer.json file:** The composer.json file contains dependencies.
- **package.json file:** The package.json file is for the frontend, and it is similar to the composer.json file. and few more files

18. What are bundles in Laravel?

Bundles are used to increase the functionality of Laravel. In Laravel, bundles are popularly known as packages. It contains configuration, routes, migrations, views, etc.

19. What is routing?

Routing is the process of accepting a request and sending it to the relevant function in the controller.

20. What are the two main routing files found in Laravel?

The two main routing files are,

- **web.php** file in the routes folder.
- **api.php** file in the routes folder.

21. Why use Route?

Routes are stored inside files under the /routes folder inside the project's root directory. By default, there are a few different files corresponding to the different "sides" of the application ("sides" comes from the hexagonal architecture methodology).

22. What do you mean by bundles?

In Laravel, bundles are referred to as packages. These packages are used to increase the functionality of Laravel. A package can have views, configuration, migrations, routes, and tasks.

23. What are the available router methods in Laravel?

The following list shows the available router methods in Laravel:

- Route::get($uri, $callback);
- Route::post($uri, $callback);
- Route::put($uri, $callback);
- Route::patch($uri, $callback);
- Route::delete($uri, $callback);
- Route::options($uri, $callback);

24. State the difference between get and post method.

Get method allows you to send a limited amount of data in the header. Post allows you to send a large amount of data in the body.

25. What are migrations in Laravel?

Migration is a feature of Laravel that allows you to modify and share the application's database schema. It will enable you to alter the table by adding a new column or deleting an existing column.

If you have ever had to tell a teammate to add a column to their local database schema manually, you've faced the problem that database migrations solve. Migrations are like version control for your database, allowing your team to modify and share the application's database schema. Migrations are typically paired with Laravel's schema builder to build your application's database schema.

The Laravel Schema facade provides database agnostic support for creating and manipulating tables across all of Laravel's supported database systems.

26. What are seeders in Laravel?

Laravel's database seeding feature allows you to quickly insert data into your database. It is helpful for development environments where you may not have access to your production database.

Laravel includes the ability to seed your database with data. By default, a Database seeder class is defined for you. You may use the call method from this class to run other seed classes. All seed classes are stored in the database/seeders directory.

A seeder class only contains one method: run. This method is called when the db:seed Artisan command is executed. You may use the query builder to insert data or Eloquent model factories.

27. What are the factories in Laravel?

Laravel has an excellent model factory feature that allows you to build fake data for your models. It is beneficial for testing and seeding counterfeit data into your database to see your code in action before any accurate user data comes in.

By default, Laravel's database seeding feature will create a new row in the database table and insert the value into each field. But sometimes, you might want a few extra areas or some sort of random string instead of a numeric value. That's where model factories come in handy!

Model Factories allow you to create a new model instance using their rules. You can do anything from creating an empty model instance to creatinbuildingth all fields filled out with values or even random ones!

28. What are Models?

Laravel is a framework that follows the Model-View-Controller design pattern. All your models, views, and controllers are stored in their directories, making it easy to keep track of everything.

You'll use controllers to handle user requests and retrieve data by leveraging models. Models interact with your database and recover your objects' information. Finally, views render pages.

Laravel comes with a fantastic, built-in command line interface called Artisan CLI that provides complete commands to help you build your application.

29. What is the purpose of a session in Laravel?

A session is used to store data and keeps track of users.

30. What is Middleware in Laravel?

Middleware in laravel is a platform that works as a bridge between the request and the response. The main aim of middleware is to provide the mechanism for investigating HTTP requests entering into your application. For instance, middleware in laravel ensures that the user of your particular application is authenticated. If they find that the user is not authenticated, it will redirect the user to the main login page of the application.

Middleware in laravel also helps you to handle a request from a user who has already been authenticated. For example, if you want to display information about a user who has already been established, then middleware will help you by providing this functionality within your application.

31. What is Auth? How is it used?

Laravel Auth is an in-built functionality provided by Laravel to identify the user credentials with the database. It takes input parameters like username and password for user identification. If the settings match, then the user is said to be authenticated.

If you want to authenticate your laravel application, then you can use the auth function.

32. What is composer lock in laravel?

After you run composer install in your project directory, the Composer will generate a composer.lock file. It will record all the dependencies and sub-dependencies installed by the composer.json.

33. How do I stop Artisan service in Laravel?

If you're having trouble with your server, here are a few steps to help you troubleshoot.

First, try pressing Ctrl + Shift + ESC. This will open up the task manager, where you can locate the php system walking artisan process and kill it with a proper click.

Next, reopen your command line and begin again the server.

Note that it may be possible to kill the process just by sending it a kill sign with Ctrl + C.

34. What is validation in Laravel?

Laravel provides several different ways to validate your application's incoming data. The most common way is by creating a Form Request.

Form Requests allow you to validate incoming data with ease, so you don't have to worry about creating validation rules or manually checking for errors. Form Requests also support custom validation rules and custom error messages, which means you can build your own validations that are specific to your application.

35. What is a yield in Laravel?

@yield is a Blade directive that allows you to pull content from a child page into a master page, and it's used in Laravel to define sections in a layout. When the Laravel framework performs the blade file, it first checks to see if you have extended a master layout. If you have, it will move on to the master layout and start grabbing content from @sections.

36. What are some common Artisan commands in Laravel?

- make:controller – Creates a new Controller file in App/Http/Controllers folder
- make:model – Creates a new Eloquent model class
- make:migration – Creates a new migration file
- make:seeder – Creates a new database seeder class
- make:request – Creates a new form request class in App/Http/Requests folder
- make:command – Creates a new Artisan command
- make:mail – Creates a new email class
- make:channel – Creates a new channel class for broadcasting

37. What is Eloquent in Laravel?

Laravel is a PHP framework that allows you to develop web applications quickly. It is easy to learn, comes with a lot of prebuilt functionality, and makes it easy for developers to create complex websites and other applications.

It's built on top of Symfony components, which you can use for different websites, including e-commerce sites and business apps. The framework also includes an ORM (Object Relational Mapper) called Eloquent, which is used to communicate with the database.

38. What are relationships in Laravel?

If you're familiar with working with Eloquent models, you know that relationships are defined as methods in your Eloquent model classes. Since relationships also serve as influential query builders, defining relationships as methods provides powerful method chaining and querying capabilities.

Following are the types of relationships in Laravel

- One To One relationship.
- One To Many relationships.
- Many To Many relationships.
- Has Many Through relationships.
- Polymorphic relationships.
- Many To Many Polymorphic relationships.

39. What are facades?

A facade is a way to access classes available in the application's service container. The service container holds all of your application's business logic, and facades provide a "static" interface to those classes.

There are lots of Laravel facades, and they're all over the place in the framework! You can see them in any controller or view file.

40. What is namespace in Laravel?

Namespaces are an element's class where each element has a unique name. You can share them with elements in other classes.

41. Name the ORM used in Laravel.

Eloquent is the ORM (Object Relational Mapper) used in Laravel.

42. Name the Template Engine utilized by Laravel.

Blade is a powerful template engine utilized by Laravel.

43. Name databases supported by Laravel.

Laravel supports the following databases:

- PostgreSQL
- SQL Server
- SQLite
- MySQL

44. Which class is used to handle exceptions?

Laravel exceptions are handled by App\Exceptions\Handler class.

45. What are common HTTP error codes?

The most common HTTP error codes are:

- Error 404 – Displays when Page is not found.
- Error- 401 – Displays when an error is not authorized

46. Define @include.

@include is used to load more than one template view files. It helps you to include view within another view. User can also load multiple files in one view.

47. What is the use of Object Relational Mapping?

Object Relational Mapping is a technique that helps developers to address, access, and manipulate objects without considering the relation between object and their data sources.

48. Explain web.php route.

Web.php is the public-facing “browser” based route. This route is the most common and is what gets hit by the web browser. They run through the web middleware group and also contain facilities for CSRF protection (which helps defend against form-based malicious attacks and hacks) and generally contain a degree of “state” (by this I mean they utilize sessions).

49. Name some HTTP response status codes?

HTTP status codes help to verify whether a particular HTTP request has been completed.

HTTP requests are categorized into five different groups. They are:

- Informational responses (1XX)
- Successful responses (2XX)

- Redirections (3XX)
- Client errors (4XX)
- Server errors (5XX)

a) Informational responses: Status codes under this category indicate whether the request was received and understood.

The following list below shows informational responses.

- 100: Continue
- 101: Switching Protocols
- 102: Processing
- 103: Early Hints

b) Successful responses: Status codes under this category indicate whether the request was successfully received, understood and accepted.

The following list below shows successful responses.

- 200: OK
- 201: Created
- 202: Accepted
- 203: Non-Authoritative Information
- 204: No Content
- 205:Reset Content
- 206: Partial Content
- 207: Multi-Status
- 208: Already Reported
- 226: IM Used

c) Redirections: Status codes under this category indicate that further actions need to be taken to complete the request.

The following list below shows redirections.

- 300: Multiple Choices
- 301: Moved Permanently
- 302: Found
- 303: See Other
- 304: Not Modified
- 305: Use Proxy
- 306: Switch Proxy
- 307: Temporary Redirect
- 308: Permanent Redirect

d) Client errors: Status codes under this category indicate errors caused by the client.

The following list below shows client errors.

- 400: Bad request

- 401: Unauthorized
- 402: Payment required
- 403: Forbidden
- 404: Not found
- 405: Method not allowed
- 406: Not acceptable
- 410: Gone

e) Server errors: Status codes under this category indicate errors caused by the server.

The following list below shows server errors.

- 500: Internal server error
- 501: Not implemented
- 502: Bad gateway
- 503: Service unavailable
- 504: Gateway timeout

50. What is a CSRF token?

CSRF is an abbreviation for Cross-Site Request Forgery. A CSRF token is a unique value that is generated by the server-side of the application and sent to the client.

CSRF token helps to protect web applications from attacks which force a user to perform an unwanted action (commonly known as CSRF attacks).

The following code segment shows how a CSRF token can be used when creating a form in Laravel.

```
<form action="/user" method="POST">
@csrf
...
</form>
```