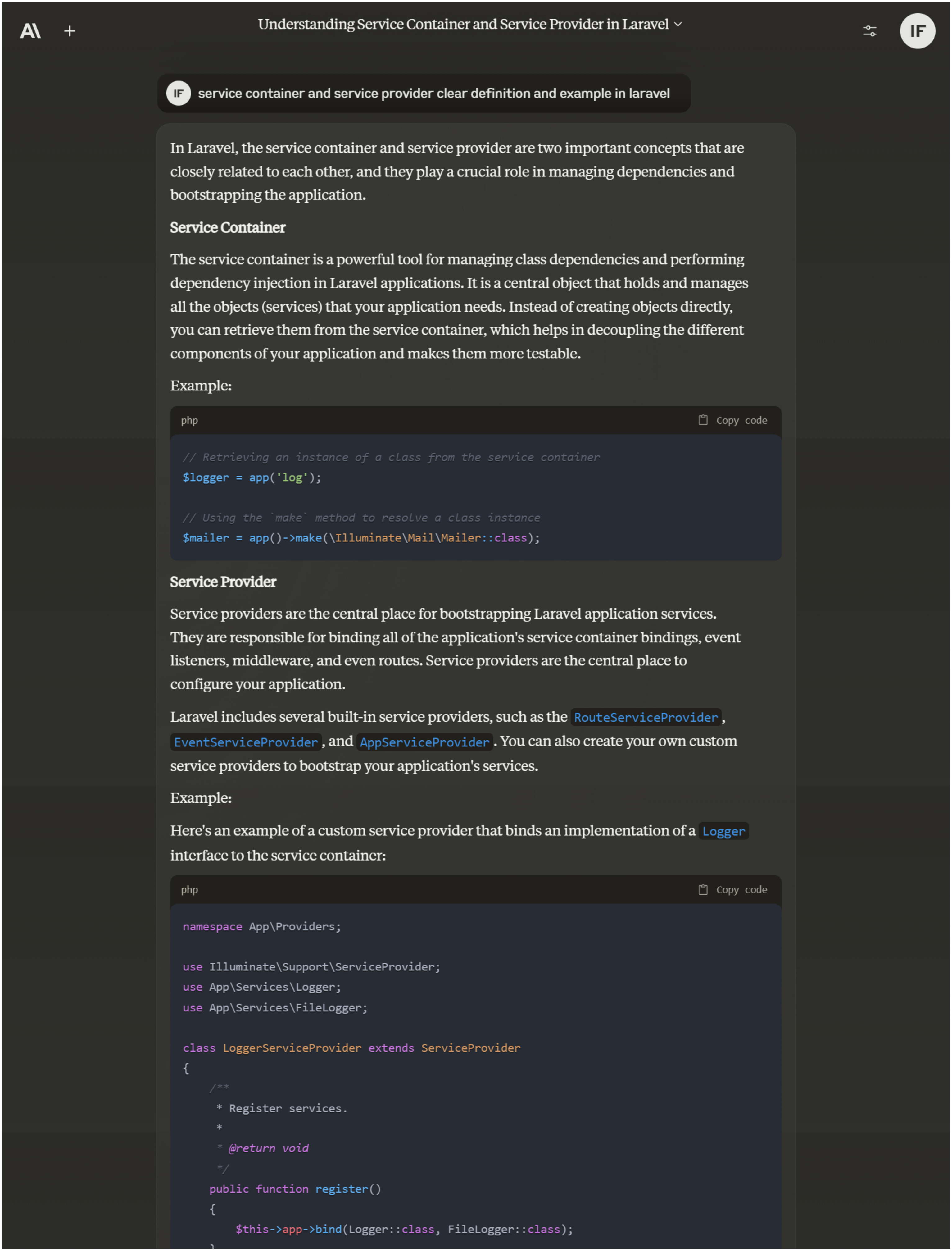
Understanding Service Container and Service Provider in Laravel
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service container and service provider clear definition and example in laravel

In Laravel, the service container and service provider are two important concepts that are closely related to each other, and they play a crucial role in managing dependencies and bootstrapping the application.

Service Container

The service container is a powerful tool for managing class dependencies and performing dependency injection in Laravel applications. It is a central object that holds and manages all the objects (services) that your application needs. Instead of creating objects directly, you can retrieve them from the service container, which helps in decoupling the different components of your application and makes them more testable.

Example:

```php
// Retrieving an instance of a class from the service container
$logger = app('log');

// Using the `make` method to resolve a class instance
$mailer = app()->make(\Illuminate\Mail\Mailer::class);
```

Service Provider

Service providers are the central place for bootstrapping Laravel application services. They are responsible for binding all of the application's service container bindings, event listeners, middleware, and even routes. Service providers are the central place to configure your application.

Laravel includes several built-in service providers, such as the `RouteServiceProvider`, `EventServiceProvider`, and `AppServiceProvider`. You can also create your own custom service providers to bootstrap your application's services.

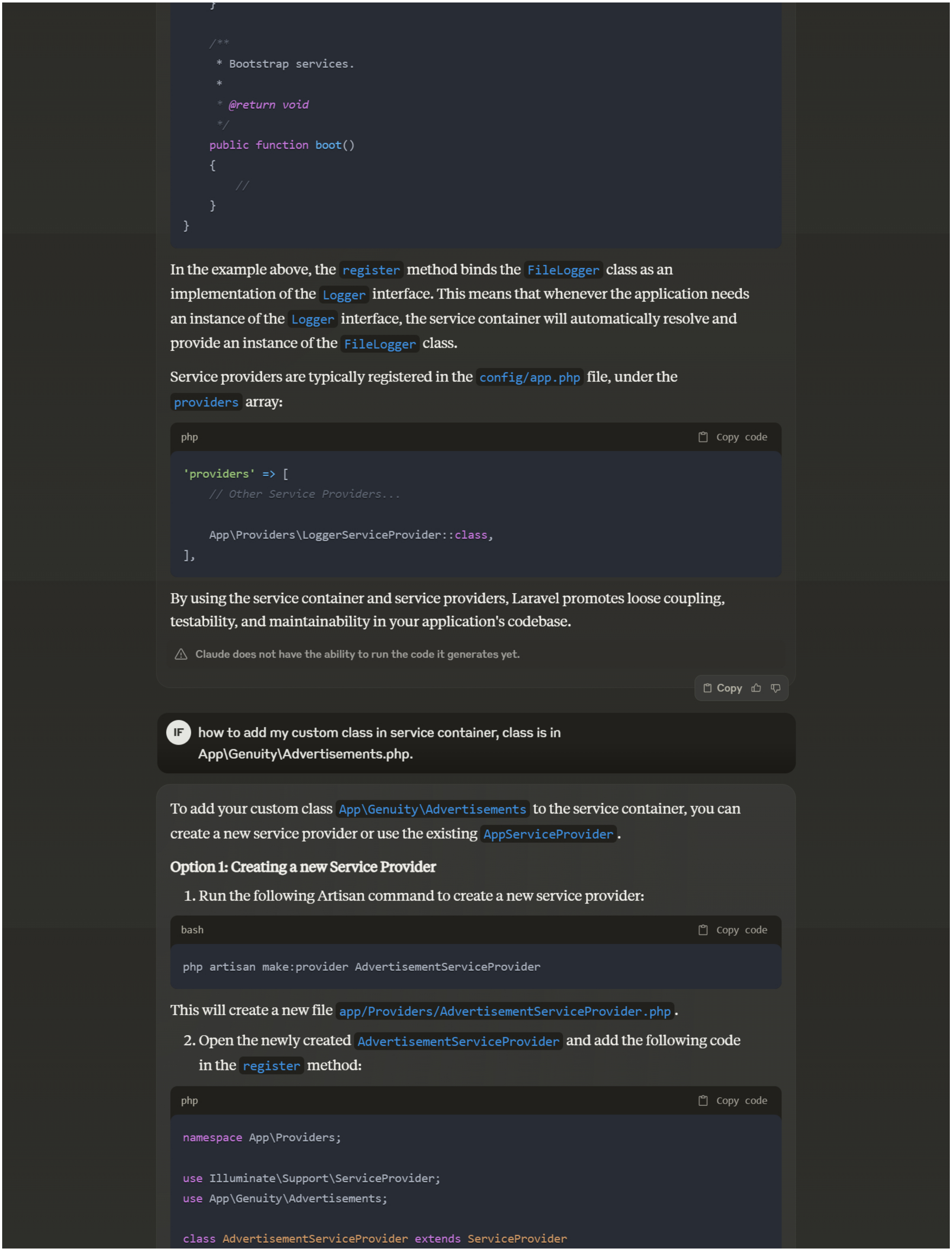
Example:

Here's an example of a custom service provider that binds an implementation of a `Logger` interface to the service container:

```php
namespace App\Providers;

use Illuminate\Support\ServiceProvider;
use App\Services\Logger;
use App\Services\FileLogger;

class LoggerServiceProvider extends ServiceProvider
{
    /**
     * Register services.
     *
     * @return void
     */
    public function register()
    {
        $this->app->bind(Logger::class, FileLogger::class);
    }
```



```
    }

    /**
     * Bootstrap services.
     *
     * @return void
     */
    public function boot()
    {
        //
    }
}
```

In the example above, the `register` method binds the `FileLogger` class as an implementation of the `Logger` interface. This means that whenever the application needs an instance of the `Logger` interface, the service container will automatically resolve and provide an instance of the `FileLogger` class.

Service providers are typically registered in the `config/app.php` file, under the `providers` array:

```php
'providers' => [
    // Other Service Providers...

    App\Providers\LoggerServiceProvider::class,
],
```

By using the service container and service providers, Laravel promotes loose coupling, testability, and maintainability in your application's codebase.

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IF how to add my custom class in service container, class is in App\Genuity\Advertisements.php.

To add your custom class `App\Genuity\Advertisements` to the service container, you can create a new service provider or use the existing `AppServiceProvider`.

Option 1: Creating a new Service Provider

1. Run the following Artisan command to create a new service provider:

```bash
php artisan make:provider AdvertisementServiceProvider
```

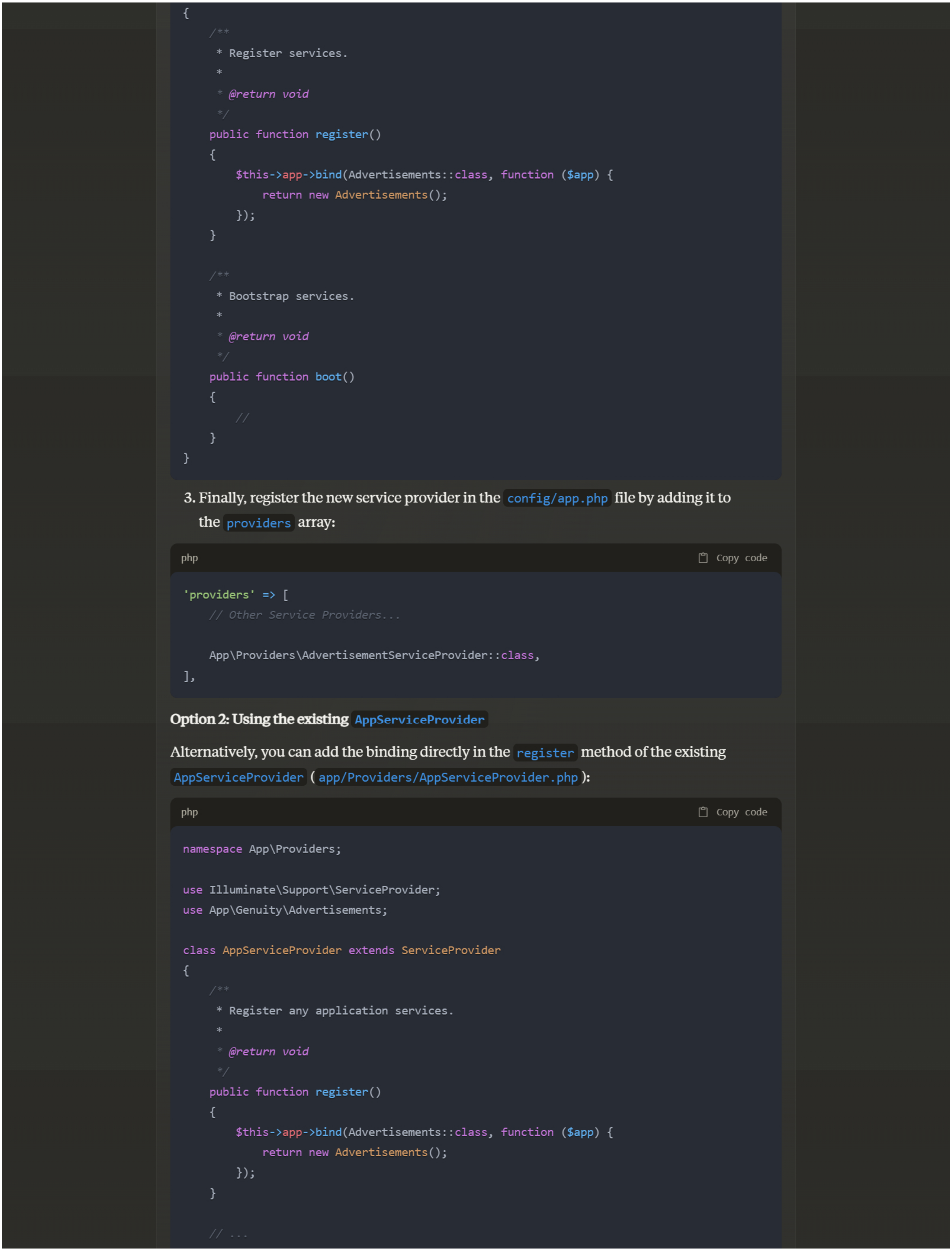
This will create a new file `app/Providers/AdvertisementServiceProvider.php`.

2. Open the newly created `AdvertisementServiceProvider` and add the following code in the `register` method:

```php
namespace App\Providers;

use Illuminate\Support\ServiceProvider;
use App\Genuity\Advertisements;

class AdvertisementServiceProvider extends ServiceProvider
```



```php
{
    /**
     * Register services.
     *
     * @return void
     */
    public function register()
    {
        $this->app->bind(Advertisements::class, function ($app) {
            return new Advertisements();
        });
    }

    /**
     * Bootstrap services.
     *
     * @return void
     */
    public function boot()
    {
        //
    }
}
```

3. Finally, register the new service provider in the `config/app.php` file by adding it to the `providers` array:

```php
'providers' => [
    // Other Service Providers...

    App\Providers\AdvertisementServiceProvider::class,
],
```

Option 2: Using the existing `AppServiceProvider`

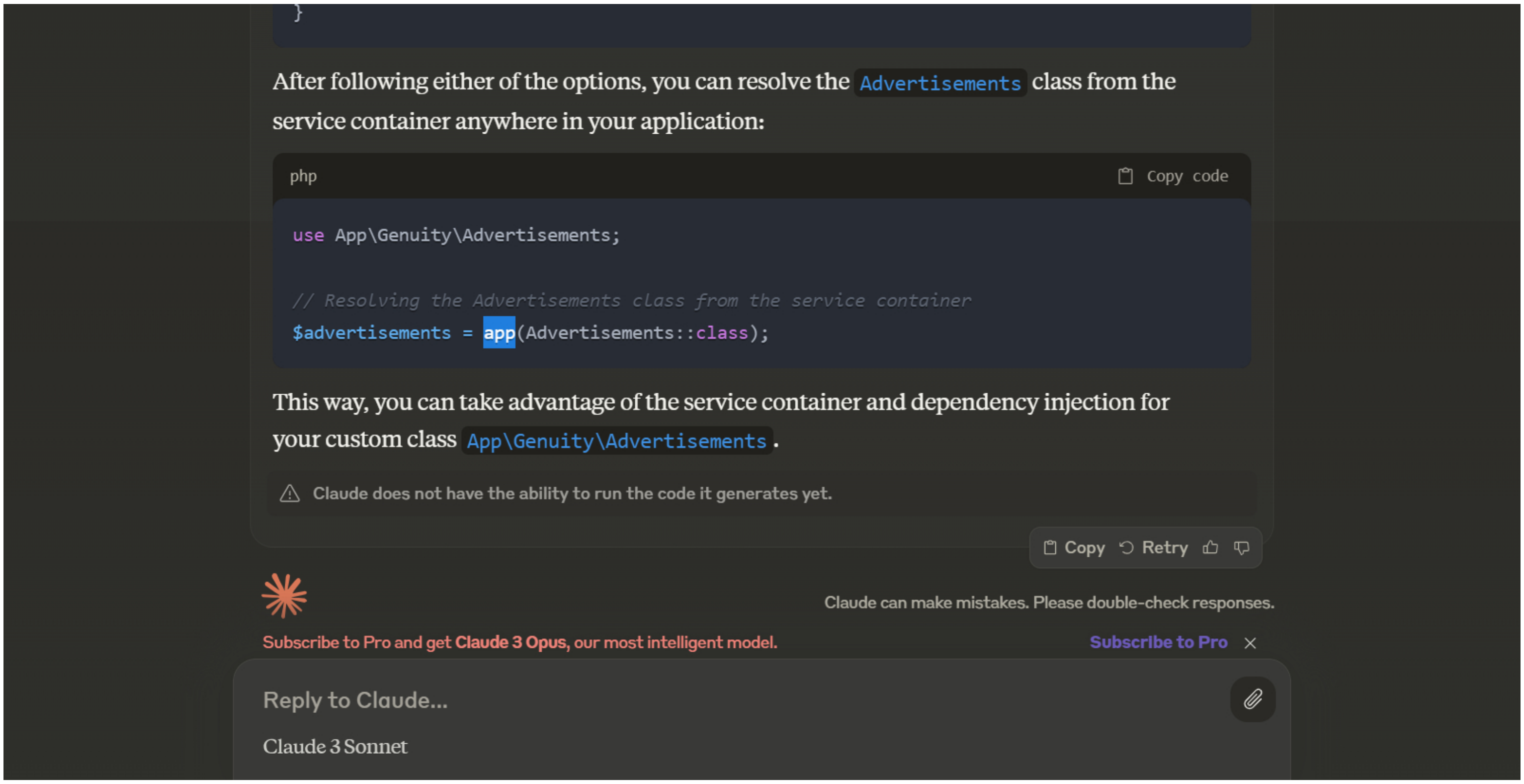
Alternatively, you can add the binding directly in the `register` method of the existing `AppServiceProvider` (`app/Providers/AppServiceProvider.php`):

```php
namespace App\Providers;

use Illuminate\Support\ServiceProvider;
use App\Genuity\Advertisements;

class AppServiceProvider extends ServiceProvider
{
    /**
     * Register any application services.
     *
     * @return void
     */
    public function register()
    {
        $this->app->bind(Advertisements::class, function ($app) {
            return new Advertisements();
        });
    }

    // ...
```



```
}
```

After following either of the options, you can resolve the `Advertisements` class from the service container anywhere in your application:

```php
use App\Genuity\Advertisements;

// Resolving the Advertisements class from the service container
$advertisements = app(Advertisements::class);
```

This way, you can take advantage of the service container and dependency injection for your custom class `App\Genuity\Advertisements`.

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