Learning Questions of Week 5:

1. How did you implement the file upload feature? ( [Tutorial1](https://www.youtube.com/watch?v=AL8PCThJ9c4&list=PLillGF-RfqbYhQsN5WMXy6VsDMKGadrJ-&index=12) , [Tutorial2](https://www.tutorialspoint.com/laravel/laravel_file_uploading.htm) )

We can use Laravel HTML Collection to add a form of type file to upload a file into our application which requires the sending form, transfer files with multipart/data value for the Enctype. Then that image address can be read in the submitted request and store that image in a directory within storage section related to save a file.

1. How could you save a file in a database table? ([Laravel File Storage](https://laravel.com/docs/7.x/filesystem#file-uploads))

We can store the path of file relative to application root where these files is being stored in storage section of Laravel in the database and then use that value to access the actual file in the webserver and utilize it within other part of the applications.

It is not good practice to save the actual file in the database since it will make the database heavy and increase the size of backup file that in total decrease the restoration and replication speed. Also read/write speed to a DB is slower than a file system. Also database storages are much more expensive than file system where we can use web-server/CDN/Amazon S3 for services.

1. How to modify an image?

There is a third-party library named Intervention Image which provide the possibility to manipulate images in a bunch of different way. Some the methods of this library is: resize(), widen(), heighten(),

Fit(), resizeCanvas(), crop(), trim(), gamma(), brightness(), contrast(), colorize(), grayscale() and etc.

1. How can we install a 3rd party package in Laravel?

We can use composer package manager to install new third-party library that we need in our application. We should note that after installing those packages we should add it to our application references within app.php file in the config folder

1. How to make use of uploaded images in the views?

We can use the address of uploaded images to storage section as the value of src attribute of img tag.

1. How can we implement an file upload feature where the files are secured/protected?

It is good practice to not store uploaded file in the same storage as webserver in order to prevent any kind of malicious upload to run their code in webserver and instead store them in services like AWS S3. Also, we should strictly check for the file extension of uploaded files and prevent any unwanted extension include in the uploaded files. Using UUID for uploading files is also another good practice to apply.

1. What is an API?

API stands for Application Program Interface and is an entry gate to a distributed systems where the API expose a clear contract from a piece of software to any other pieces of software as a means of defining the proper way of interacting and communicating of clients with the server such that different clients knows how they can use the server and get essential information like available functionalities or correct format of sending their requests to the server aligning with what sever is expecting and know what they can expect as the response from the server and its format like JSON , XML or other formats.

In this manner the client (front-end) can call those functionalities that they need and server also offers by sending requests to API and the server process the request and send back the response to the client.