Angular Framework - Intro

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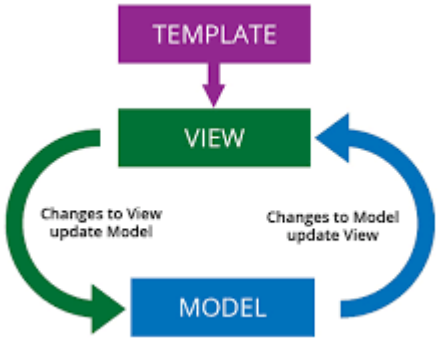
What is Angular?

- Angular is a JS framework.
- Angular is used to develop client-side web applications using HTML.
- Angular bootstraps JS with HTML Tags.
- Angular is used to make rich Web UI application.
- Angular enhances UI experience for user.
- Angular code is written in Type Script
  - TS is compiled into JS
  - JS is used in HTML Pages

Angular Enhances HTML

- Angular has set of directives to display dynamic contents in HTML page.
- Angular extends HMTL capabilities for a web application.
- Angular provides **two way data binding** and dependency injection that reduces lines of code.

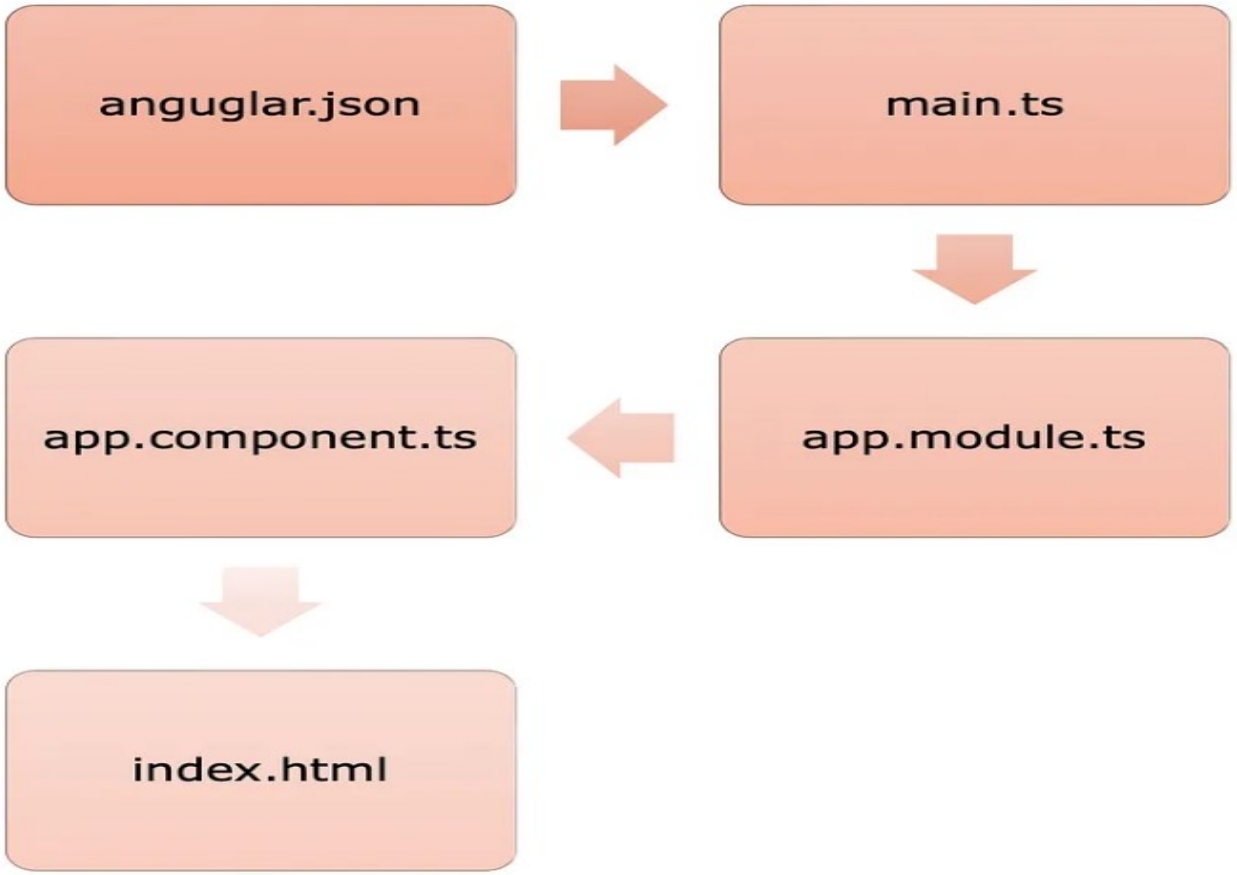


- Angular follows MVC Architechture

Angular Application

- Angular application is a Module.
- Module contains Components.
- Components uses Services.
- Services contains data and reusable business methods.
- Component is basic building block of Angular.
- Angular follows Component / Service Architecture.
- Internally follows MVC Architecture.

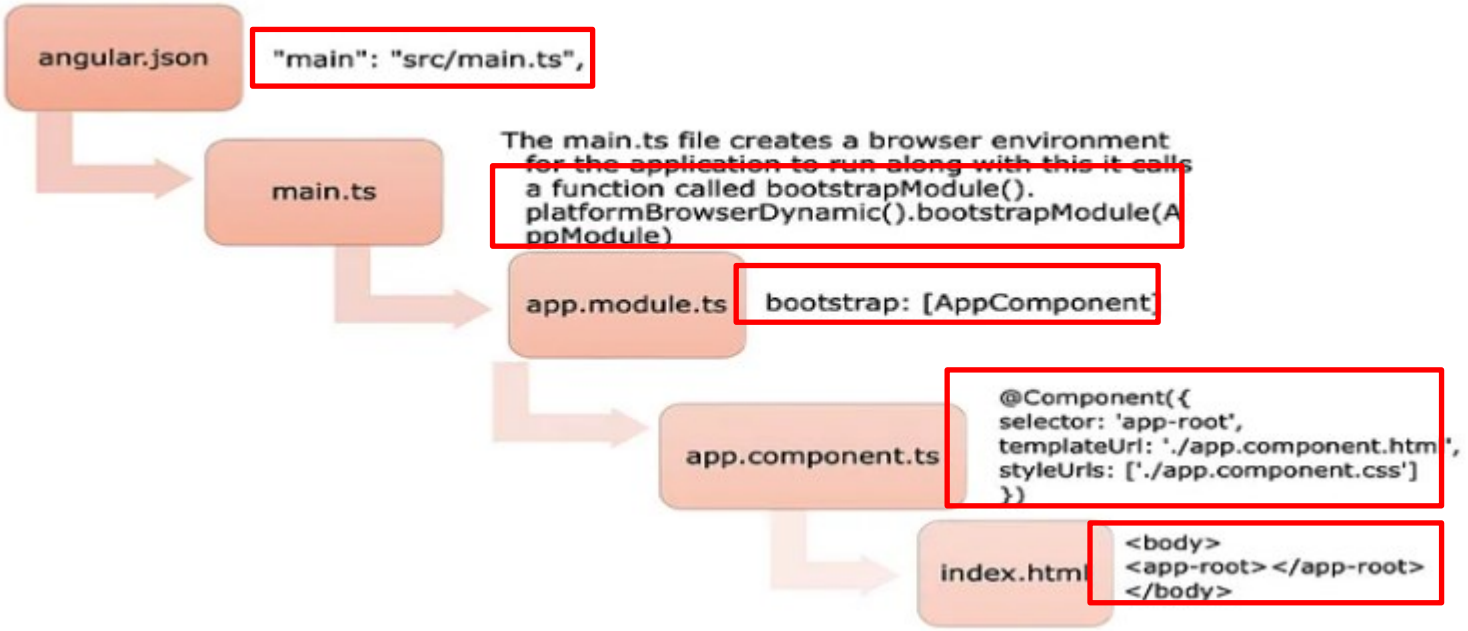
Angular Application Flow



Angular App flow …

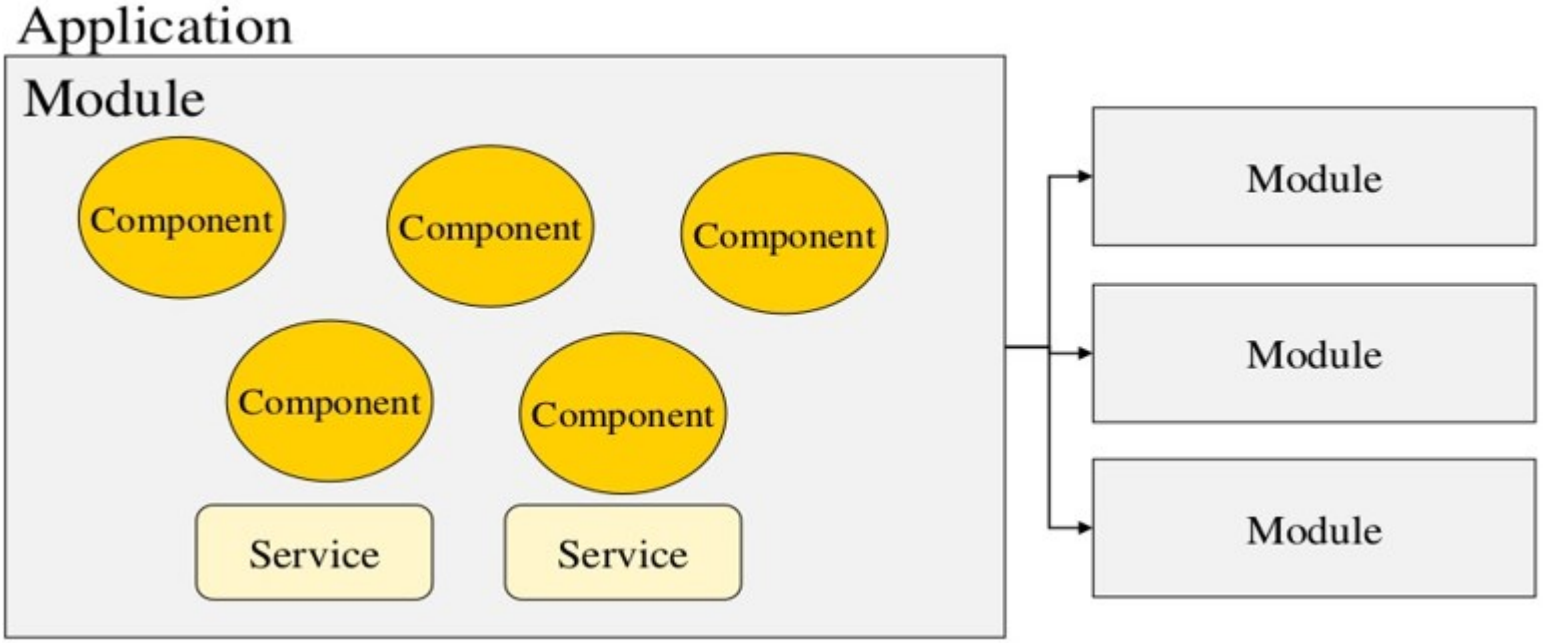
The diagram illustrates the sequential invocation of files during the launch of the Angular application.

Each of these files plays a crucial role in invoking subsequent files in the process.



index.html to **app.component.html.** First things are displayed from app.component.html

Angular Application Architecure



- An application is a Module
- Modules are reusable
- One Module's components and services can be used by another module

Angular Adding Components

1. Create angular app:
   a) ng new hello-component-app
   b) Create the Component file.

   Select the src/app folder, right-click, and click on the new file.
   Enter the name of the file as hello-world.component.ts

2. Import the required external Classes/Functions.

```
import { Component } from '@angular/core';
```

3. Create the Component class and export it.

```
export class HelloWorldComponent {
        message = 'Hello World';
}
```

Angular Adding Components . . .

4. Add @Component decorator

```
@Component({
})
export class HelloWorldComponent {
        message = 'Hello World';
}
```

5. Add metadata to @Component decorator

```
@Component({
        selector: 'app-hello-world',
        templateUrl: './hello-world.component.html',
        styleUrls: ['./hello-world.component.css']
})
```

Angular Application Architecure

6. Create the Template

Select the src/app folder, right-click, and click on the new file.

Enter the name of the file as hello-world.component.html.

Add following code

```
<h1>
        {{message}}!
</h1>
```

Angular Application Architecure

7. Create the CSS Styles

Select the src/app folder, right-click, and click on the new file.

Enter the name of the file as hello-world.component.css.

Add the following styles :

```
h1{
        font-family: Arial, Helvetica, sans-serif;
}
```

8. Register the Component in Angular Module

```
import { HelloWorldComponent } from './hello-world.component';
```

Angular Application Architecure

9. Add it to the declaration array.

```
declarations: [
        AppComponent, HelloWorldComponent
],
```

10. Verify app.module.ts

11. Now open the src/app/index.html and locate the following line.

    Replace the <app-root> with <app-hello-world>

    Before replacing :

```
<body>
   <app-root></app-root>
</body>
```

Angular Application Architecure

After replacing :

```
<body>
 <app-hello-world></app-hello-world>
</body>
```

12. Run the application

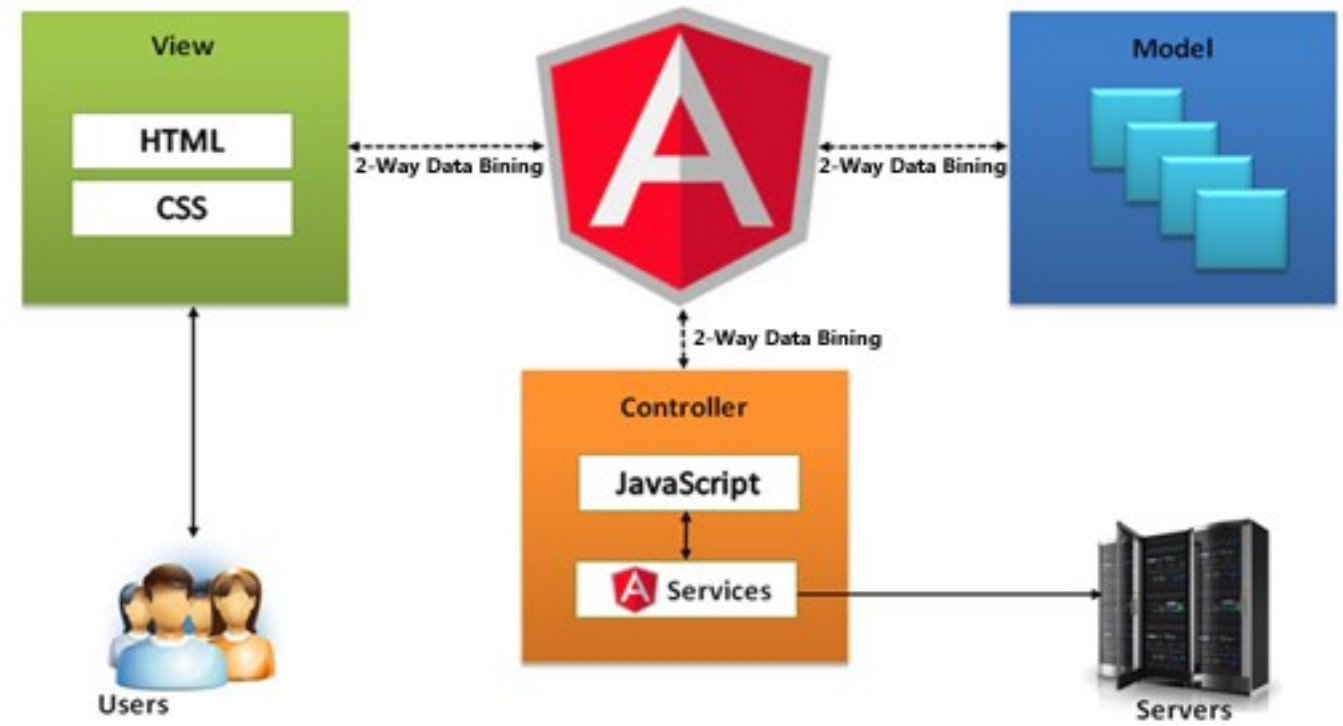
Angular MVC Architecture

- View:
  - Contains display logics.
  - Developed using HTML and Angular Directives.

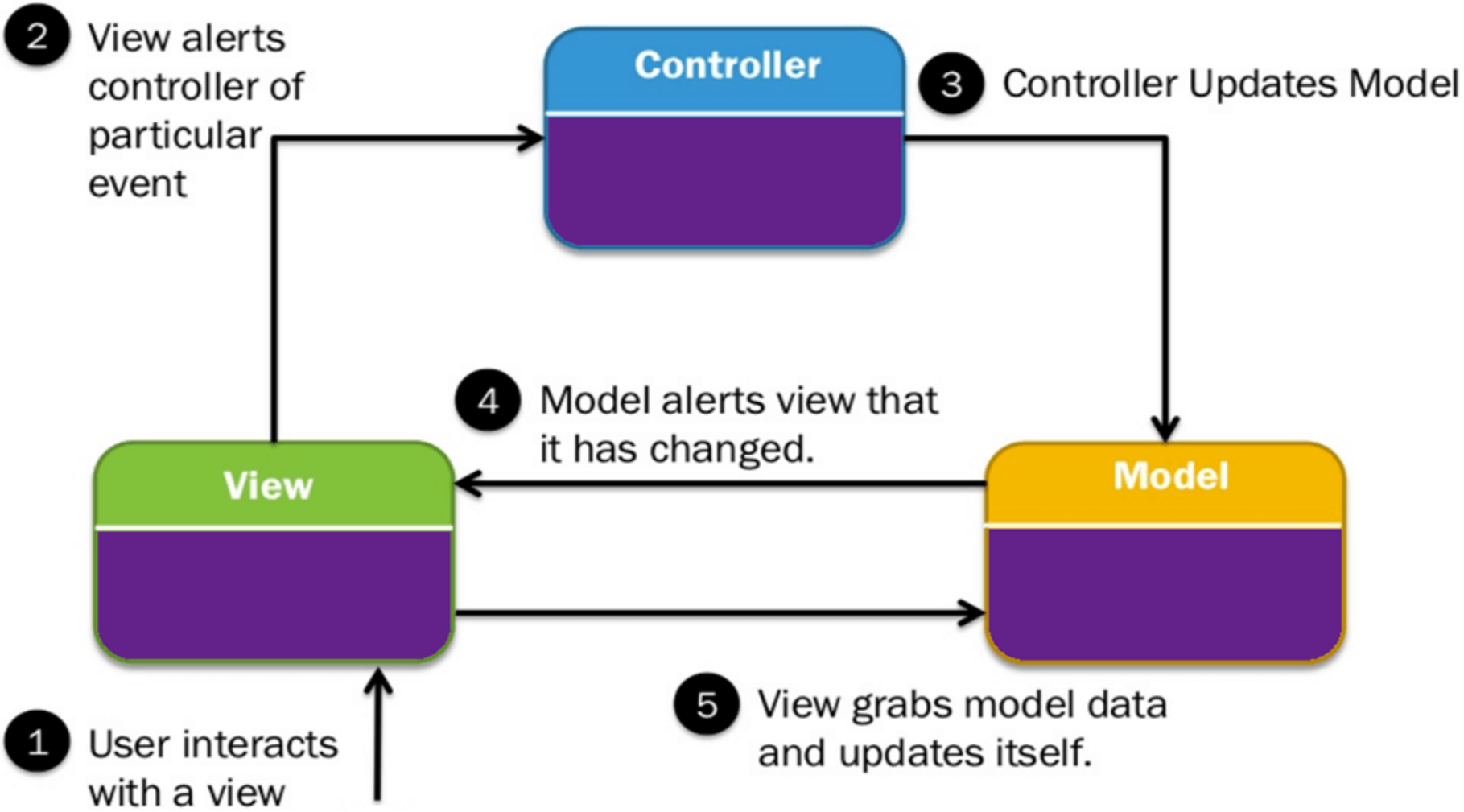
- Controller:
  - Contains navigation logic.
  - Decides data and view to be displayed.

- Model:
  - Carry data between Controller and View

Angular MVC Architecture …



Angular MVC Architecture …



Advantages of using Angular

- Two-way data binding :
  - As the data in the Model changes, the View does too.
  - It synchronizes the data between Model and View. As a result, when data is changed or modified, these two components automatically get updated.
- Optimised Server Communication:
  - Angular reduces the extra burden of CPUs by creating static files. Besides, the response time to API calls is tremendously quick in the framework.
- POJO Model:
  - Angular employs the Plain Old Javascript Objects (POJO) Model to make the code structure handy and independent.
  - Since POJO requires less coding, the applications built with Angular load quickly, and offer excellent user accessibility.

Advantages of using Angular …

- Directives :
  - Directives allows developers to assign special behaviors to the Document Object Model (DOM).

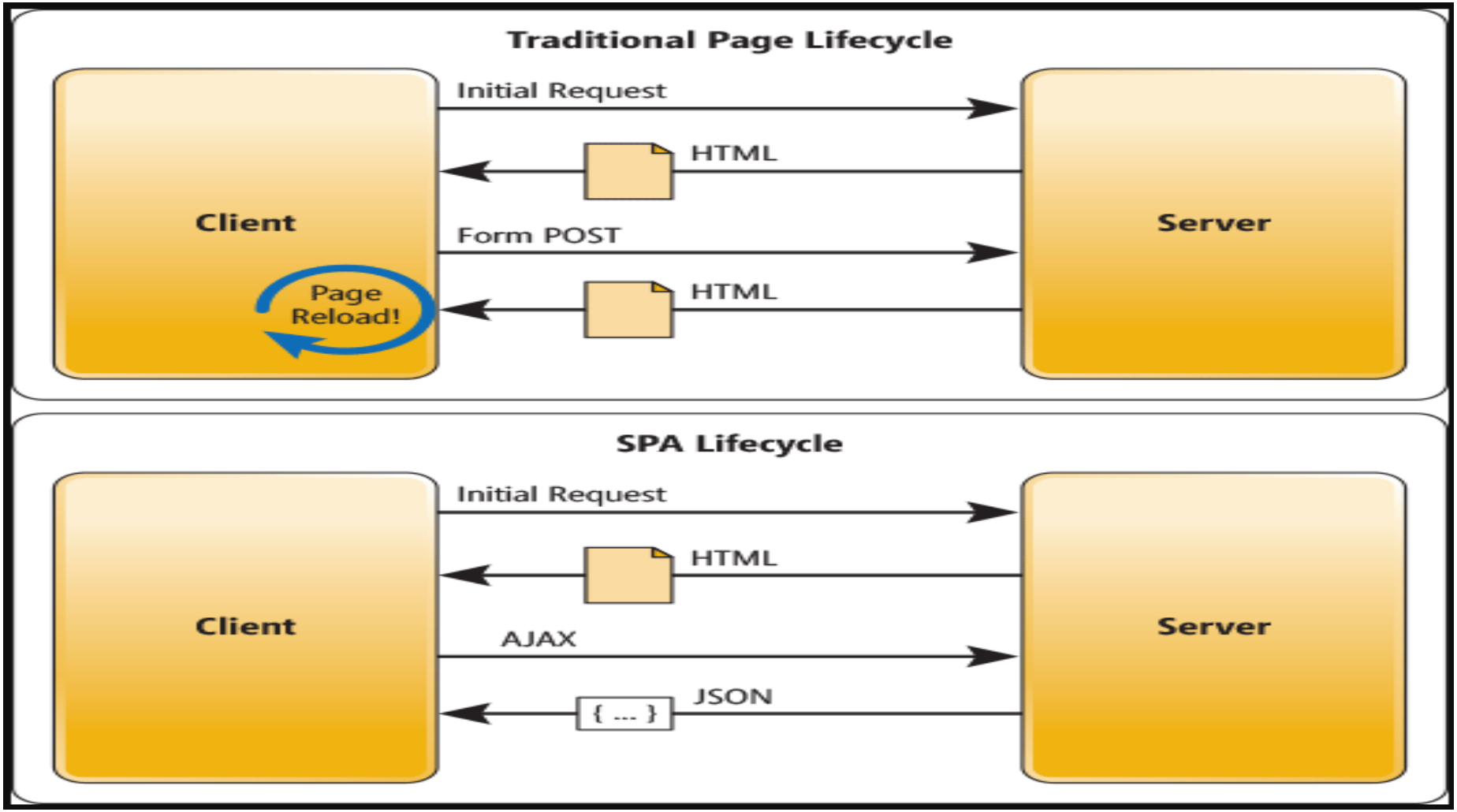
- Dependency Injection:
  - Dependencies define how different pieces of code interact with each other and how the changes in one component impact the other ones.

- Angular Material – Modern UI
  - It provides in-built components such as navigation elements, layout, button, indicators, and data tables.

Single Page Application

- There are two aspects to the smooth functioning of any single page application.
- One is that all the mandatory codes of JavaScript, CSS, and HTML are retrieved at one single instance when the page loads.
- The second is that they are retrieved as and when required depending on user behavior and action.

Single Page Application …



Thank You