Understanding and Configuring Dependency Injection

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Overview

What is dependency injection?

Providers

Injectors

Deciding where to provide services

Creating a Dependency

```
export class DashboardComponent {

}
```

Creating a Dependency

```
export class DashboardComponent {

  dataService: DataService;





}
```

Creating a Dependency

```
export class DashboardComponent {
  dataService: DataService;
  constructor() {
    this.dataService = new DataService();
  }
}
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Injecting a Dependency

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export class DashboardComponent {



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export class DashboardComponent {
  constructor(private dataService: DataService) {
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Why Is Dependency Injection Important?

Loosely coupled code

More flexible code

Easier to test

Providers

A provider tells an injector *how to create the service*.

Angular Documentation

Configure an injector with a service provider

https://angular.io/guide/dependency-injection#configure-an-injector-with-a-service-provider

Provider Tokens

```
@NgModule({
  declarations: [AppComponent,DashboardComponent],
  bootstrap: [AppComponent],
  providers: [DataService]
})
export class AppModule { }
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Provider Tokens

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Provider Recipes

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Provider Recipes

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@NgModule({
  declarations: [AppComponent,DashboardComponent],
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    DataService,
    { provide: LoggerService, useClass: LoggerService }
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Recipe

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Demo

Multiple ways to provide services

Injectors

The Roles of Injectors

- Deliver provided services when they're requested via constructor injection
- Maintain a single instance of each service provided
- Determine what to inject based on emitted metadata
- Delegate injection to parent injectors if necessary

The Importance of Metadata

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Provides information about parameters to injectors

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{
  "compilerOptions": {
    "outDir": "./dist/out-tsc",
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Enabled with the “emitDecoratorMetadata” compiler option

@Injectable() and @Component() decorator added to output metadata

Hierarchical Injectors

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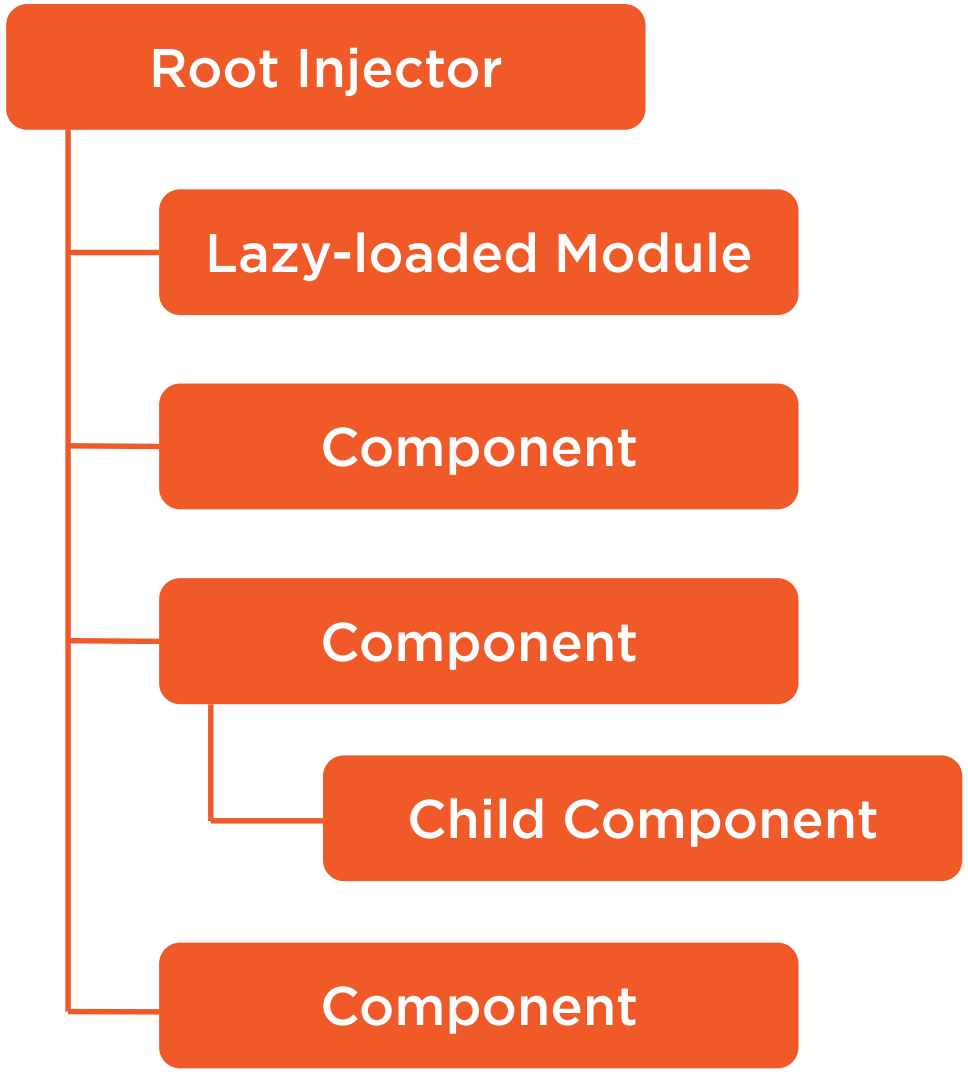

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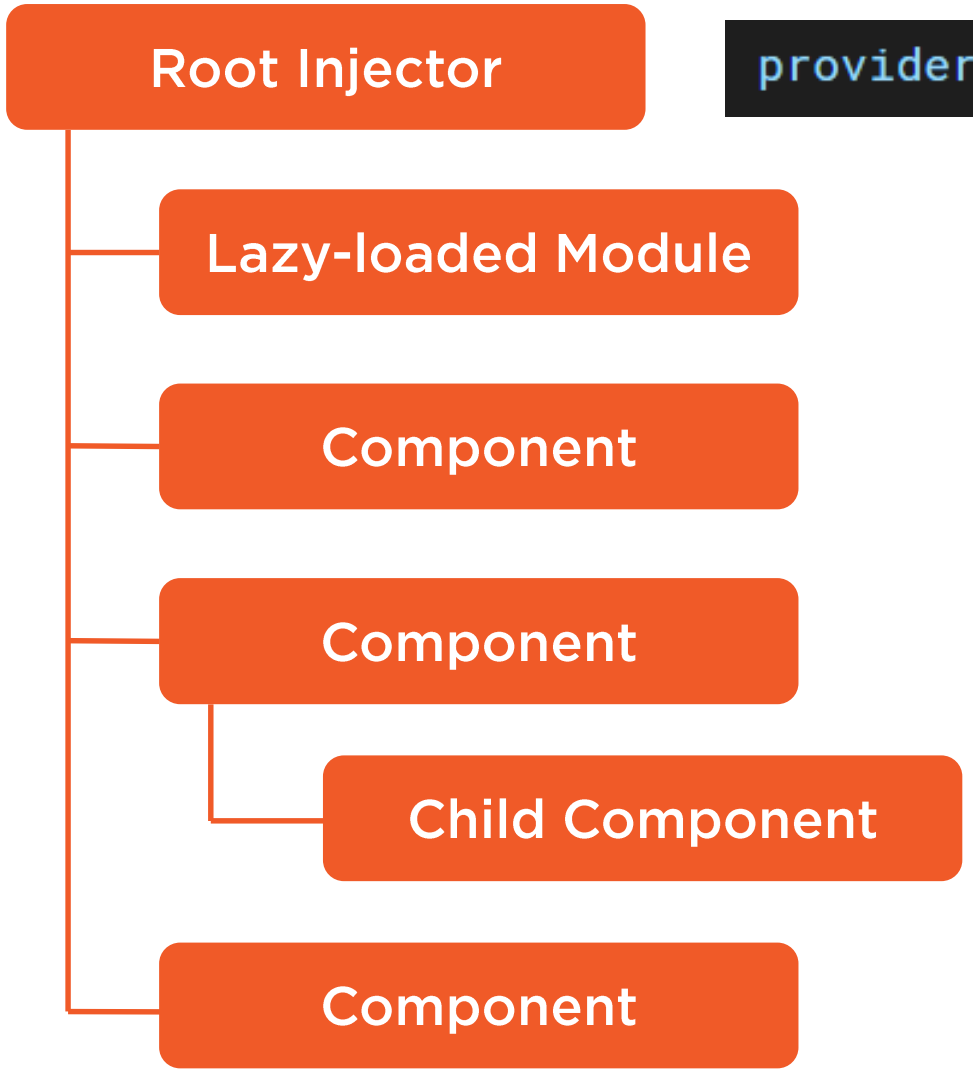


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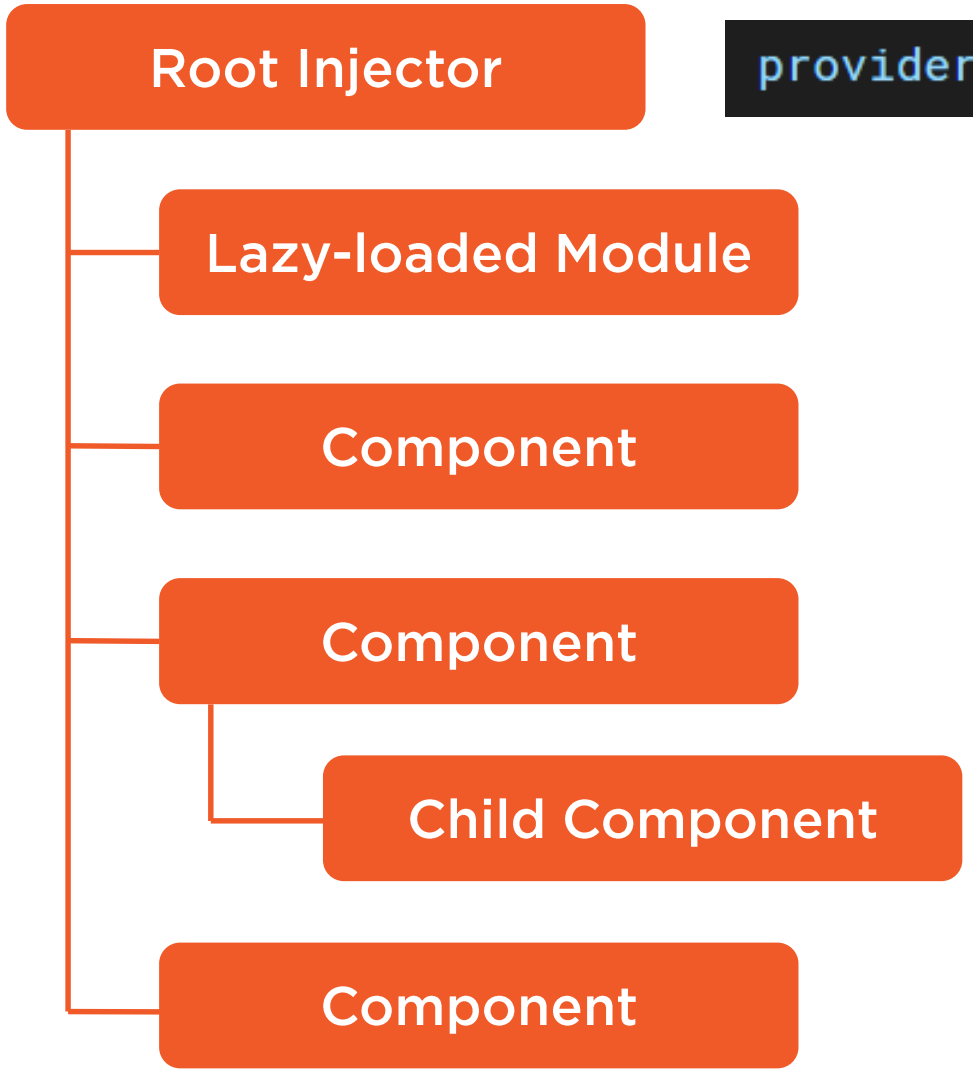
Hierarchical Injectors

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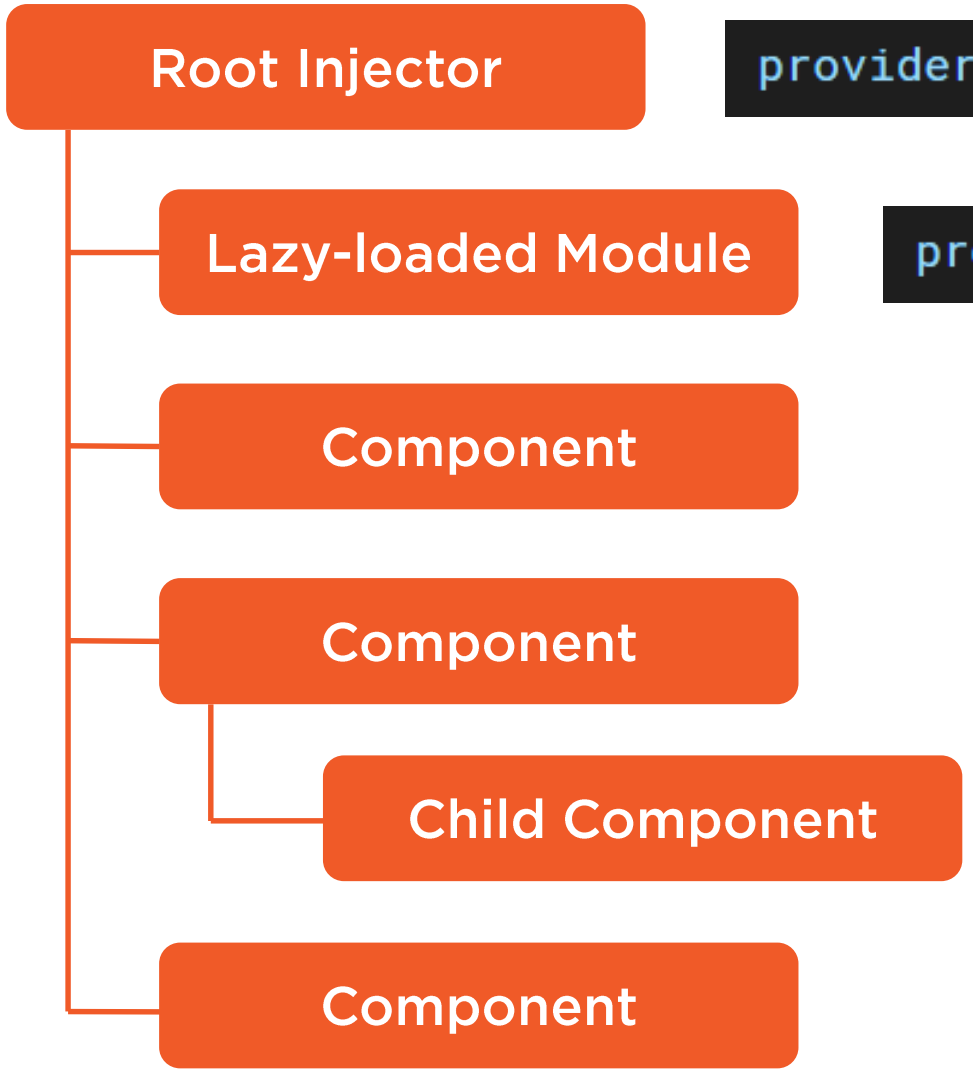


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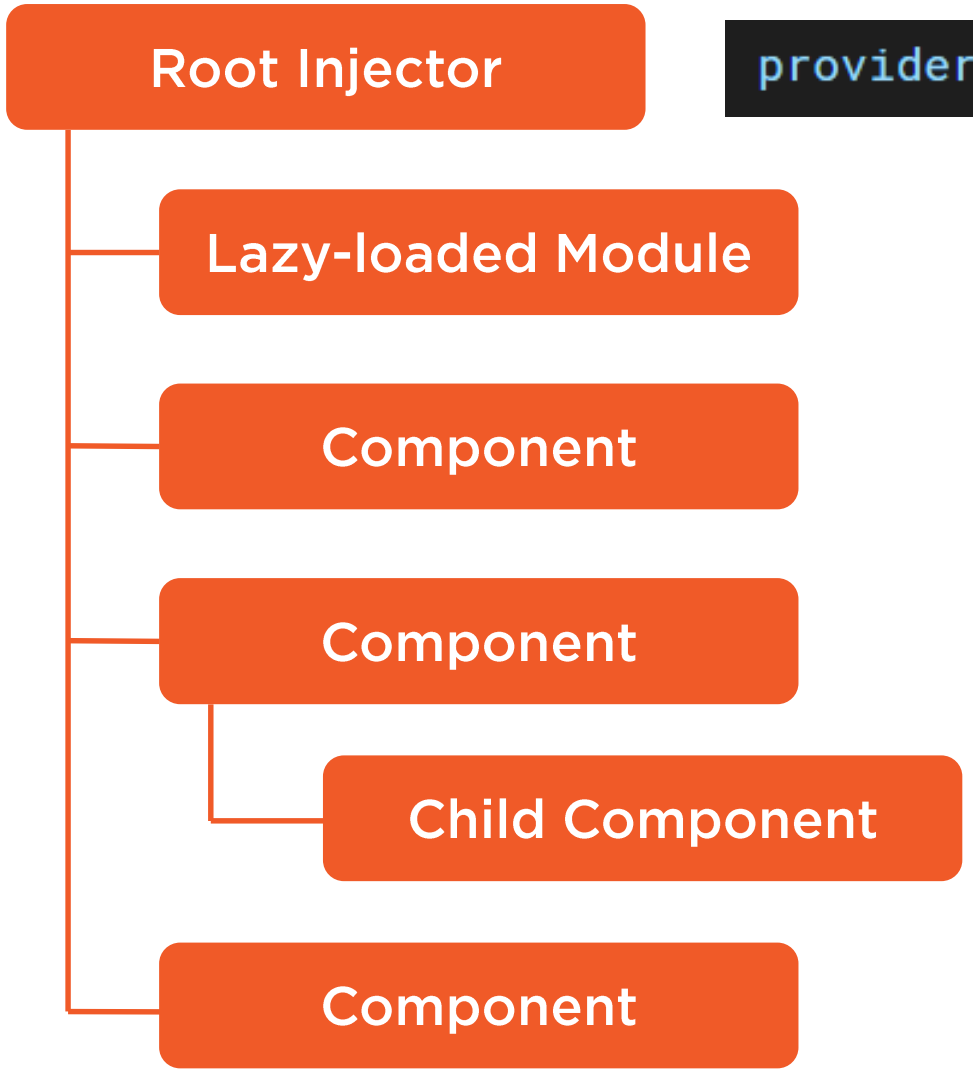


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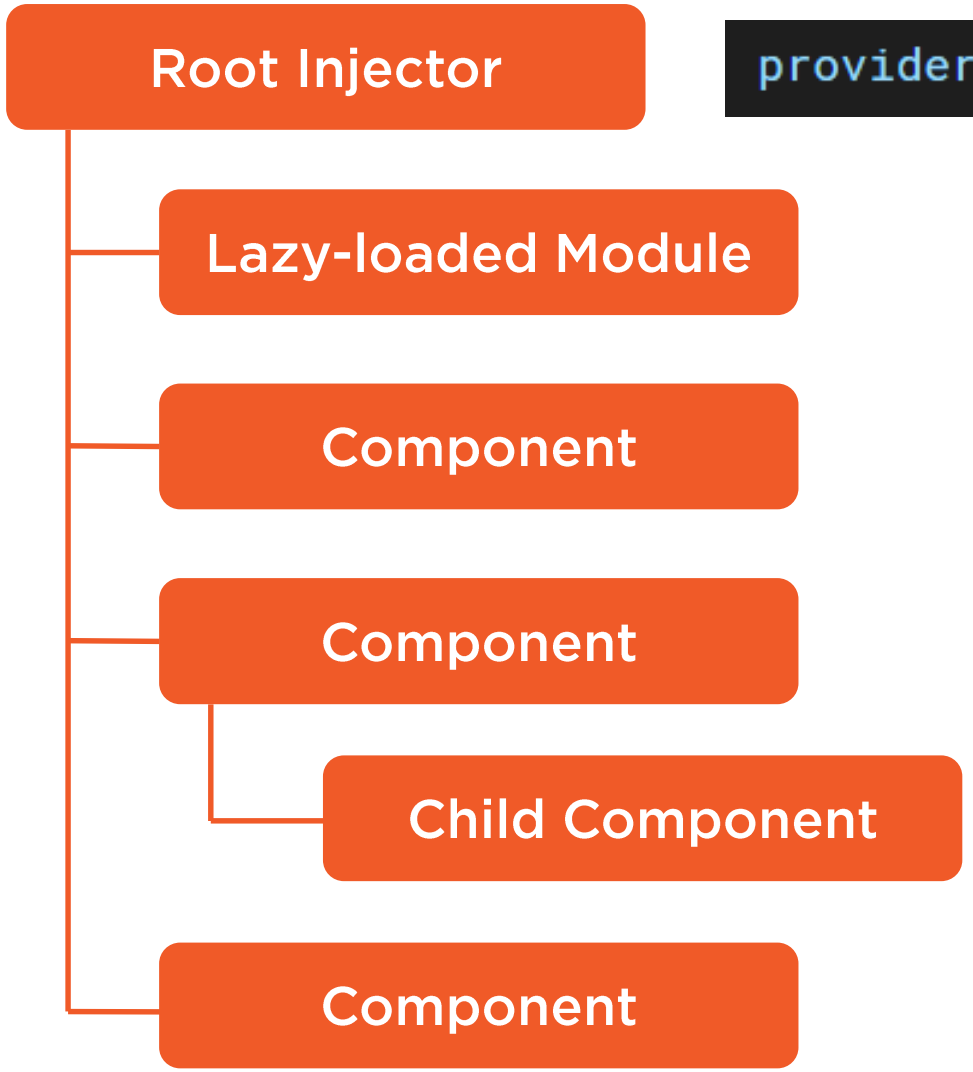


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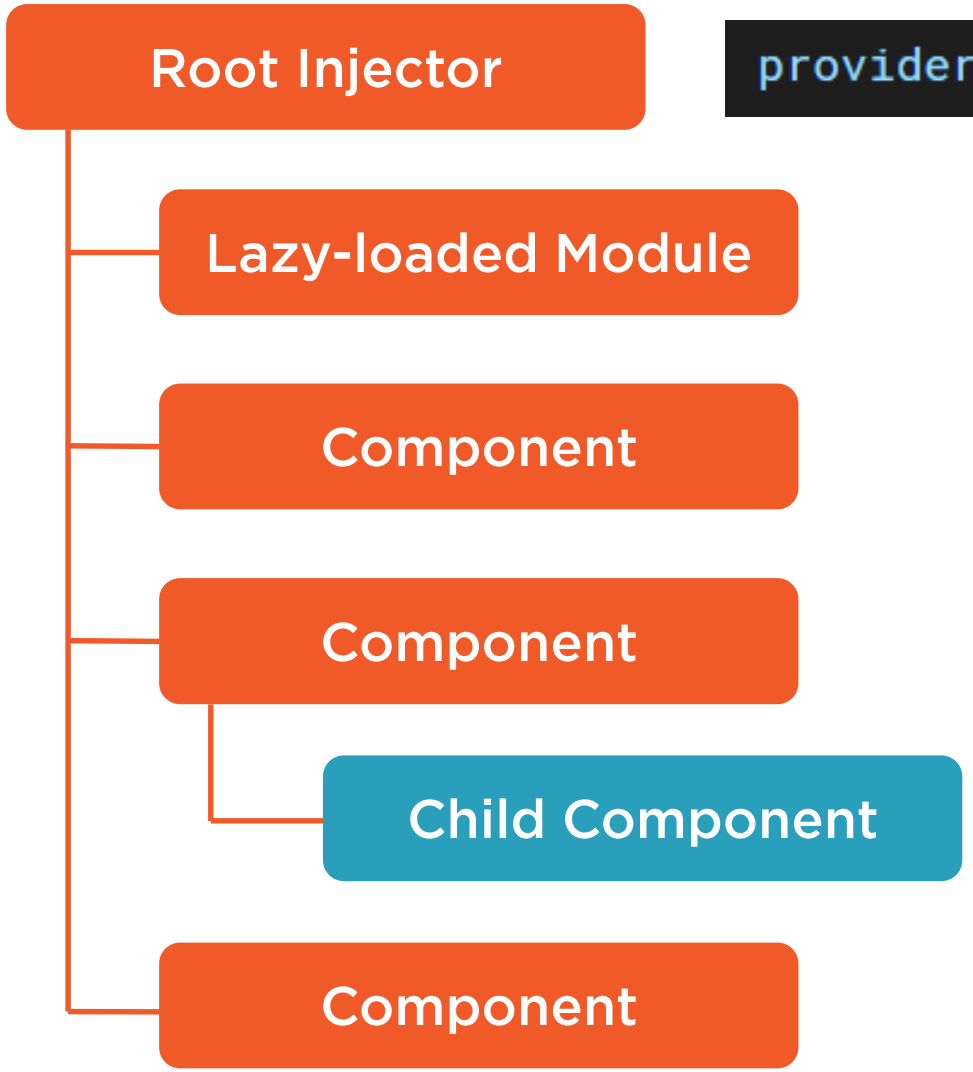


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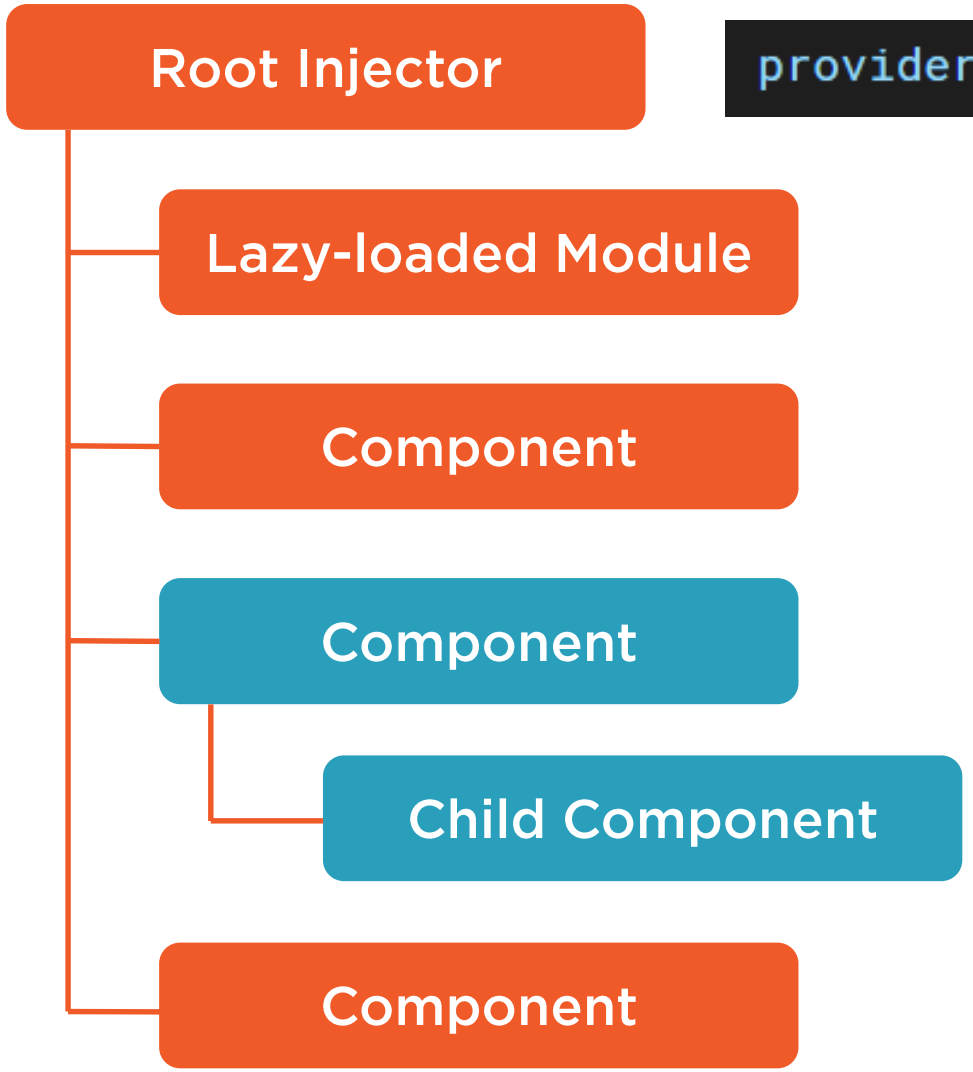


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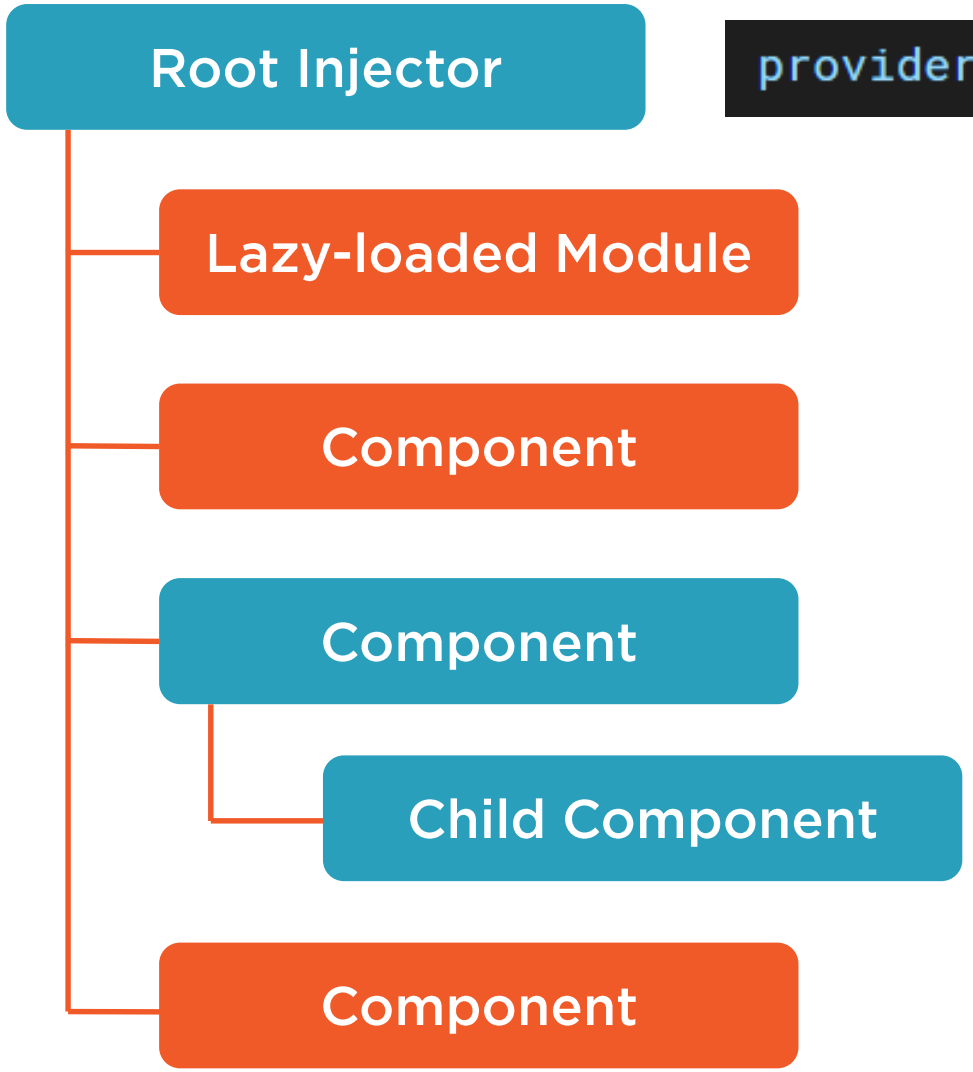


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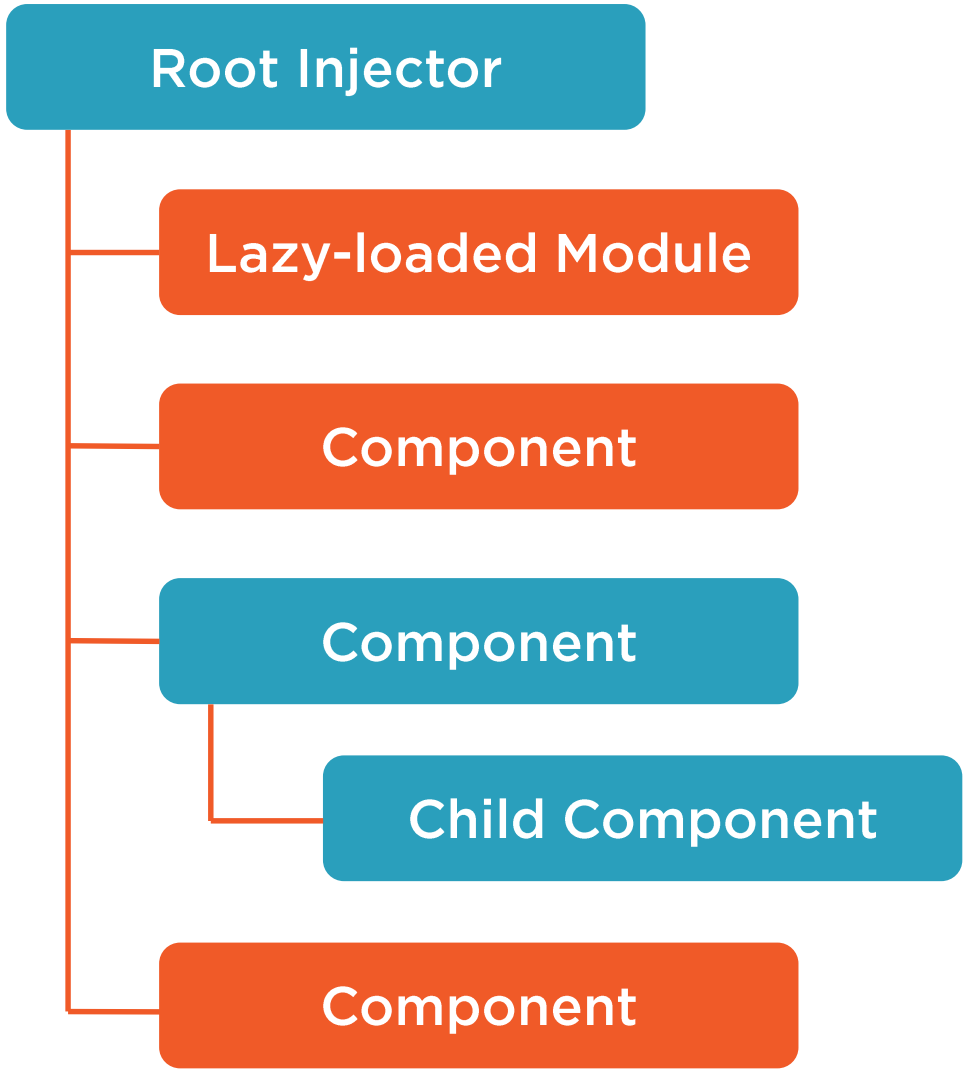

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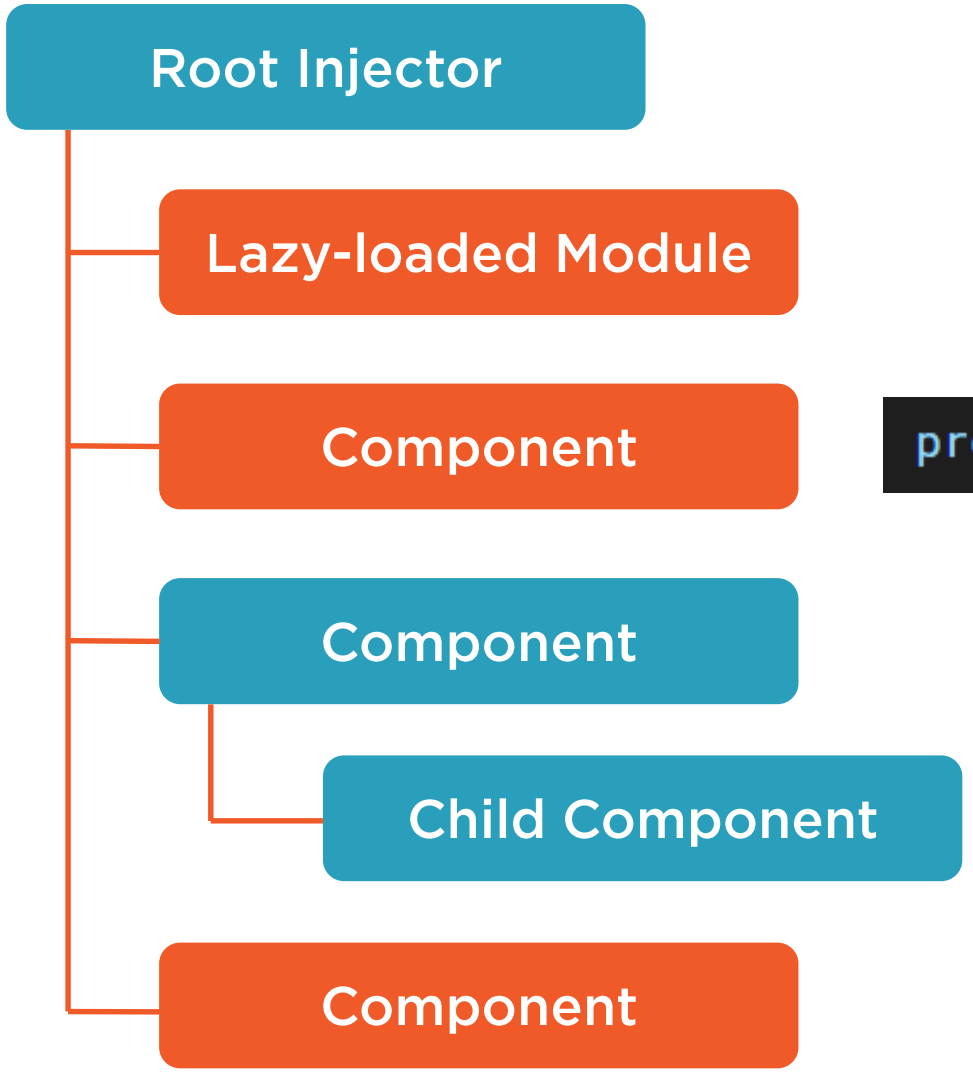


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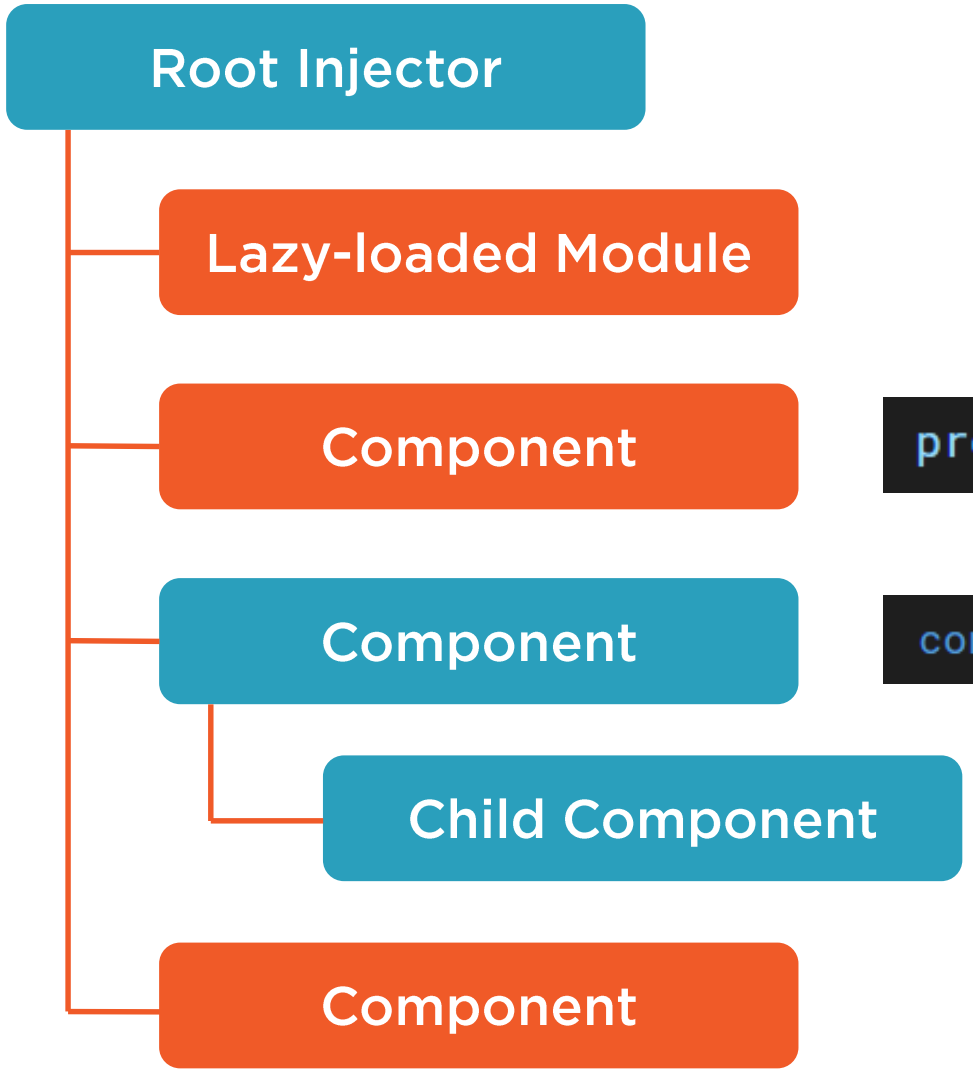


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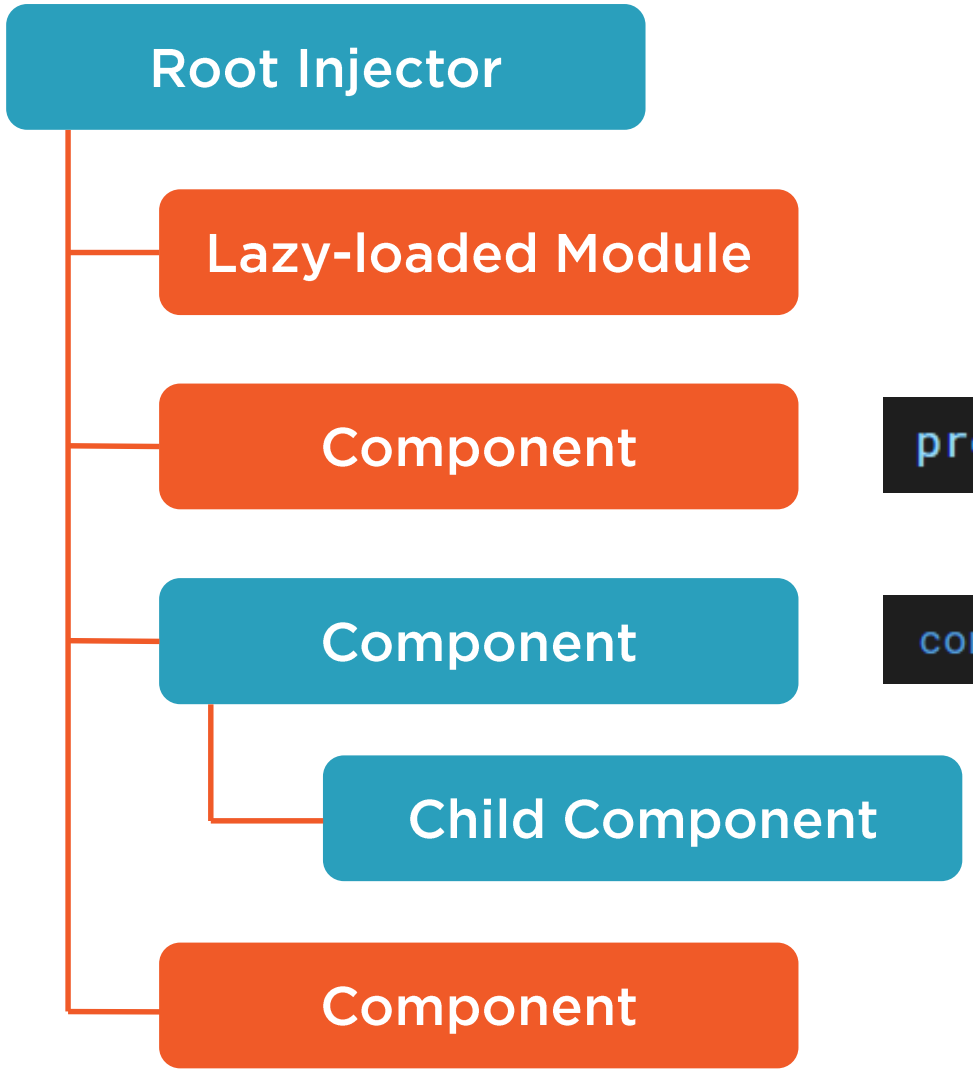


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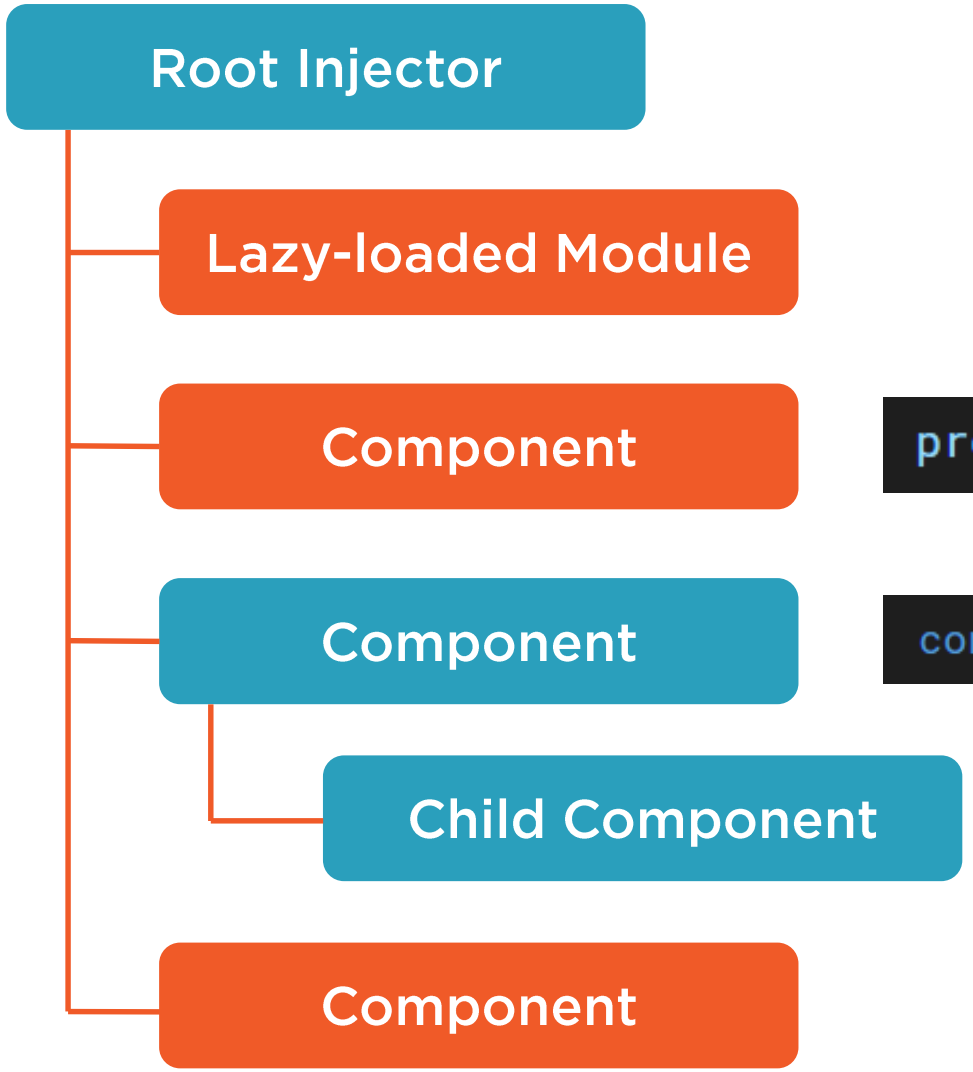


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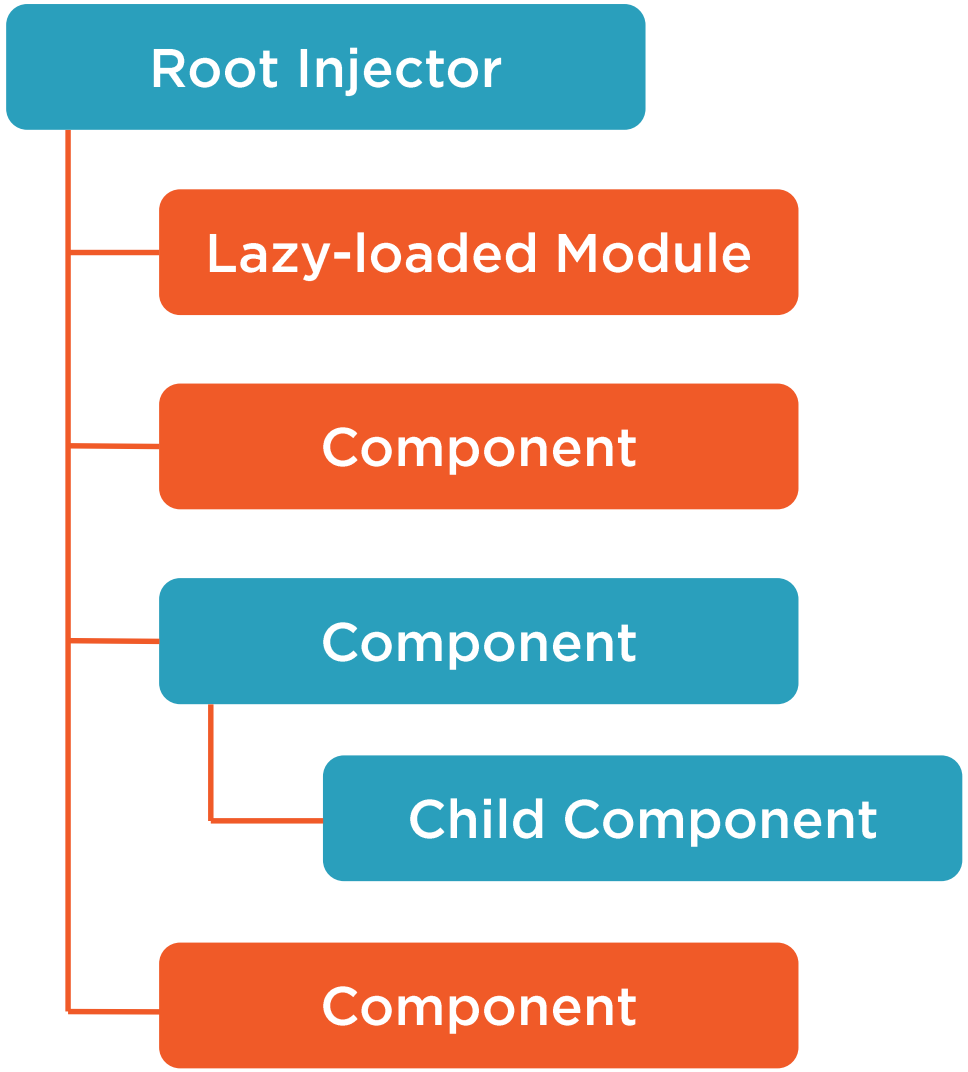

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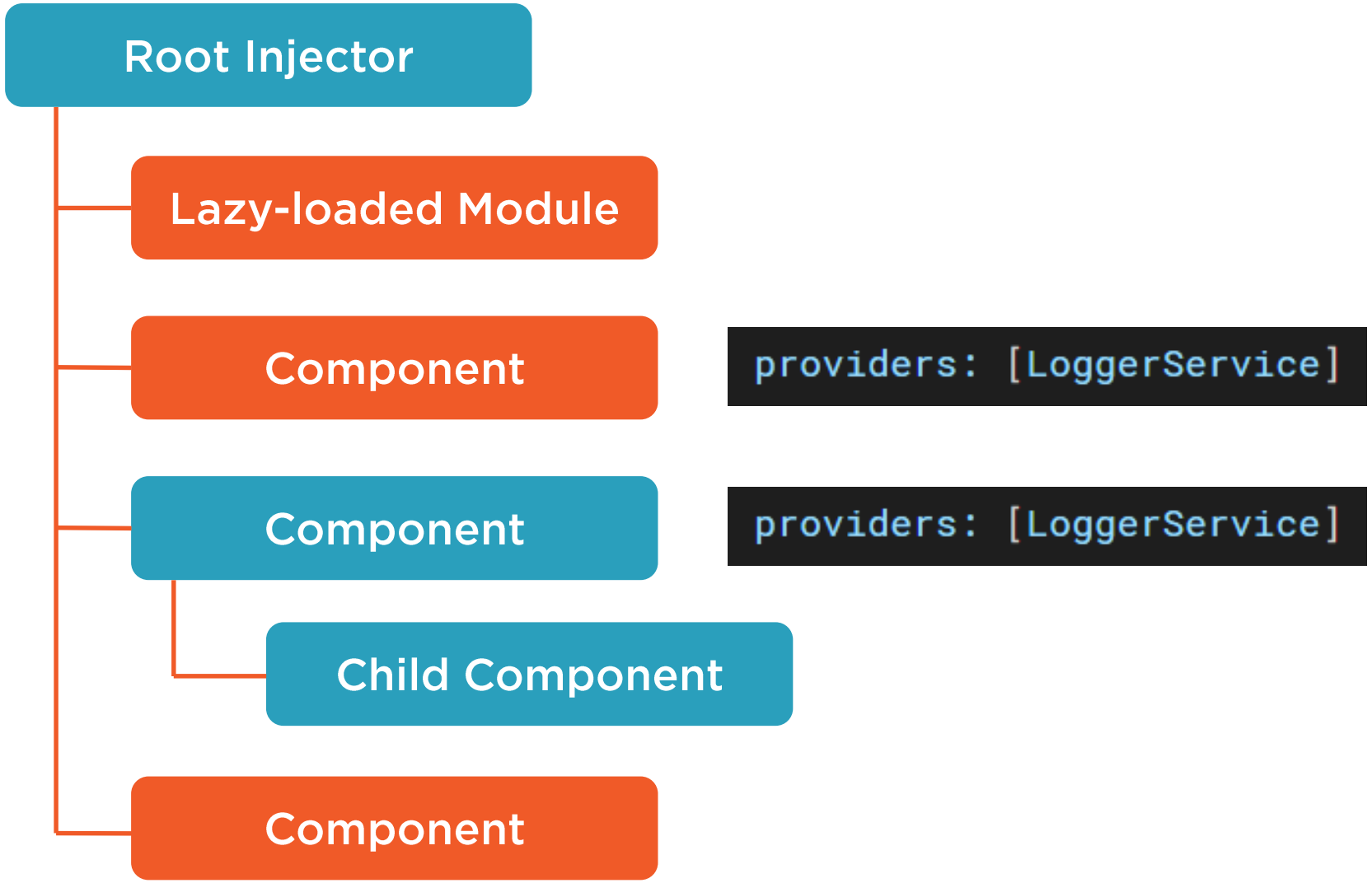

Demo

Hierarchical injectors

Deciding Where to Provide Services

- Provide in the root injector if needed everywhere
- Provide at the root AppModule rather the root AppComponent
- Provide component-specific services directly to component
- Consider creating a core module

Demo

Providing feature services

Demo

Creating a core module

Summary

- Providers
- Injectors
- Recipes for providers
- Injector hierarchy
- Deliver the right service at the right time