What is Angular 2

Angular 2 is a JavaScript framework for developing web applications.  
It is a complete rewrite of Angular 1.0 ,so learning AngularJS 1.0 is not required for creating Angular 2 applications.  
It is well suited for developing mobile applications unlike AngularJS 1.0 which was suitable for building desktop applications.It is also much faster than Angular 1.0.

It supports the modern browsers as well as the older browsers.Applications are better structured than previous versions of Angular.It supports server side rendering for faster rendering of views even on slow devices such as mobile.The size of Angular 2 library is smaller compared to previous versions.Also Angular 2 applications use ahead of time compilation which makes them faster.

Which languages are used to write Angular 2 applications

Angular 2 applications can be written in any of the following languages:

* Typescript   *Prefered Language for developing Angular 2 applications.*
* Javascript
* Dart

We don’t have to worry about the JavaScript or ECMAScript version as its the compiler’s responsibility to manage the version issues.

As Angular 2 is written in TypeScript so it is preferable to write Angular 2 applications in TypeScript or ECMA6. [*Typescript*](http://www.codecompiled.com/overview-of-typescript/)*is the prefered language to use for developing Angular 2 applications.*

Components

A component is a building block of Angular 2 application.Angular 2 application is created as a tree of components.A component is declared by using @Component() decorator function.

|  |  |
| --- | --- |
| 1  2  3  4  5  6 | @Component({  selector: 'first-component',  template: `<p>Hello from first component</p>`  })  export class FirstComponent {  } |

When we declare Component we define metadata for component.In this example we have defined selector and template metadata for the FirstComponent component.

Modules

Angular apps consists of different modules.Modules consists of collection of components,directives and services.

Angular modules are created using the *NgModules()* decorator function.  
Every Angular application consists of a root module apart from other feature modules.Every modules is created using NgModule decorator function.

Template

View of a component is declared by using the template.It is the template which is rendered.

We can define template in line in the component template metadata property:

|  |  |
| --- | --- |
| 1  2  3  4 | @Component({  selector: 'hello-component',  template: '{{Hello}}'  }) |

We can also define templates in separate html file and use the templateUrl property in component:

|  |  |
| --- | --- |
| 1  2  3  4 | @Component({  selector: 'hello-component',  templateUrl: './hello.html'  }) |

Data bindings which are supported in Angular 2

*Interpolation*In interpolation binding we specify the binding using expressions

|  |  |
| --- | --- |
| 1 | <h2>{{employee.name}}</h2> |

*Property Binding*  In property binding we bind the custom property using square brackets

|  |  |
| --- | --- |
| 1 | <h2 [innerText]="employee.name"></h2> |

*Event Binding*   In event binding we enclose the event name in parenthesis and assign the event handler method to the event:

|  |  |
| --- | --- |
| 1 | <button (click)="gotoDetail()">View Details</button> |

*Two-way Binding*In Angular 2 we define two way binding as:

|  |  |
| --- | --- |
| 1 | <input [(ngModel)]="employee.name"/> |

How Angular 2 application is launched

There is a single root module in every Angular application.Angular application is launched by bootstrapping this root module.

What is router-outlet

The route which is matched by the router is used display the component.The template defined by the component is displayed in an area defined by the router-outlet

NgModule

Angular module is class decorated with the @NgModule decorator function.

Its a decorator function which has one argument ,a metadata object with properties describing the module.  
Some of its important properties are:

* *declarations* views which belong to this module.
* *exports* declarations which are visible in the components of other modules.
* *imports* other modules whose classes are needed in this module.
* *providers* services which are provided by this module
* *bootstrap* This property is set by the root module

|  |  |
| --- | --- |
| 1  2  3  4 | @NgModule({  providers: list of providers,  exports:list of components,  imports:list of components }) |

What are the advantages of Angular 2 over Angular 1

Better performance because of these reasons

* Better *change detection.*
* Ahead of Time compilation (AOT) improves rendering speed.
* *Lazy Loading*.
* *TypeScript* can be used for developing Angular 2 applications.
* Better syntax and application structure.

What is lazy loading in Angular2

Angular 2 application is a collection of modules and components.There are two ways we can load Modules:

* Eager Module loading  Loading module at application startup
* Lazy loading  Loading Module only when required

Module which is required can be loaded instead of loading all the modules at application initialization.This has the obvious advantage of improving the application startup time.

We enable lazy loading in Angular 2 by using the loadChildren property in route

|  |  |
| --- | --- |
| 1 | { path: 'URL', loadChildren: 'modulePath#ClassName' } |

AOT compilation

AOT compilation stands for  ***Ahead Of Time compilation***, in it angular compiles  components to native JavaScript and HTML during the build time instead of runtime.

This drastically improves the performance of the Angular 2 application.With *Just in time compilation* ,the compilation happens on the users browser at runtime.In the case of Ahead of time compilation ,the application is compiled and optimized at the build time instead of run time.So this improves the rendering of the application UI.This approach should be used in production builds.