# Install

In order to install Angular CLI, the following should be installed in the development environment:

node (at least version 4.0)

npm (at least version 3.0)

Installing Angular CLI is as easy as typing the follow command:

**npm install -g @angular/cli**

# create a new project called my-project.

**ng new my-project**

This will cause several things to happen:

* directory my-project will be created
* directory structure and source files will be generated
* any needed dependencies will be installed
* TypeScript will be configured
* Karma test runner will be configured
* Protractor end-to-end test runner will be configured
* environment files will be created

# Build the application

**ng build**

This will generate a dist folder in homepath which contains a folder with the similar name to application. Copy this folder to any server, then open index.html from that folder.

# Run Application

Change to the my-project directory and run the following:

**ng serve**

Then open a browser and point it to <http://localhost:4200/>.

# Create elements

either "ng generate" or "ng g" command can be used

class

interface

enumeration

component

service

module

## Create A Class

**ng g class my-class-a**

This will create a file called my-class-a.ts under the src/app directory.

## Create an Interface

**ng g interface my-interface-a**

This will create a file called my-interface-a.ts under the src/app directory.

## Create an Enumeration

**ng g enum my-num**

This will create a file called my-enum.enum.ts under the src/app directory.

## Create A Component

**ng g component my-component-a**

This will do several things:

create a directory called my-component-a under src/app directory

generate four files under that directory

* my-component-a.component.css

Contains any css that would be needed for this component

Optional file that is pointed to by the component.ts file

* my-component-a.component.html

Contains any html that would be needed for this component Optional file that is pointed to by the component.ts file

html could be contained within the component.ts file, if desired

* my-component-a.component.spec.ts

unit test skeleton for this component

* my-component-a.component.ts

exports a class called MyComponentAComponent

implements an interface called OnInit

generates empty function called ngOnInit for OnInit interface

generates empty constructor function

decorates class with @Component

add selector for component, app-my-component-a

adds templateUrl, points to generated html file for component

adds styleUrls array, points to generated css file for component

modifies app.module.ts file, added MyComponentAComponent to declarations (every component has to belong to a module)

## Create a Service

**ng g service my-service-a**

This will generate a couple of files under the src/app directory:

* my-service-a.service.spec.ts

unit test skeleton for this service

* my-service-a.service.ts

exports a class called MyServiceAService

generates empty constructor function

decorates class with @Injectable

## Create A Module

**ng g module my-module-a**

This will do a couple things:

* create a directory my-module-a under src/app
* generate a file under that directory called my-module-a.module.ts
* exports a class name MyModuleAModule
* decorates that class with @NgModule

## Create Component In A Module

Components can be added to generated module by changing to the module directory:

cd src/app/my-module-a

**ng g component my-subcomponent-a**

OR

By prefixing the module name to the front of the new component name:

**ng g component my-module-a/my-subcomponent-a**

This will do several things:

* + create a directory my-subcomponent-a under the src/app/my-module-a directory
  + generate all the component files under this directory (see Create a component section for description of files)
  + add MySubcomponentAComponent to the my-module-a.module.ts file

# Types of Bindings ( data flow from component to html )

## Interpolation

This will be in html file

<button id='{{buttonName}}'>myButton</button>

This will be in component file.

let buttonName = 'addButton';

## PropertyBinding

This will be in html file

<button [id]='buttonName'>myButton</button>

This will be in component file.

let buttonName = 'addButton';

## AtrributeBinding

Attribute binding is same as property binding with the difference that we need to add attr. as prefix with attribute name.

This will be in html file

<tr>

<td [attr.colspan]="clspn"> A + B </td>

</tr>

## ClassBinding

The Angular Class binding is used to add or remove classes to and from the HTML elements. You can add CSS Classes conditionally to an element, hence creating a dynamically styled element.

This will be in html file

<button [ngClass]='addClasses()'>myButton</button>

This will be in component file.

boldClass and italicClass are two css classes declared in css file.

addClass(){

let classes = {

boldClass: true;

italicClass: true;

}

return classes;

}

## StyleBinding

We can set the inline styles of a HTML element using the style binding in angular.

This will be in html file

<button [style.fontSize.px]="'20'" >Big Button</button>

## Event binding ( data flow from html to component )

This will be in html file

<button (click)='onClickMethod()'>myButton</button>

OR

<button on-click='onClickMethod()'>myButton</button> ----- This is canonical form

This will be in component file.

boldClass and italicClass are two css classes declared in css file.

onClickMethod(){

console.log("button clicked");

}

# Two ways binding

This we can achieve using FormsModule. Here we are using ngModule in example.

This example contains ‘property Binding’ + ‘event Binding’

<input [(ngModule)] = ‘name’>

* Square bracket indicates event binding and parenthesis indicates property binding.

You entered: {{name}}

# ternary operator

isPass ? 'passed' : 'failed'

# Structural Directives

## \*ngIf ( this works as if condition)

<div \*ngIf="hero" class="name">{{hero.name}}</div>

## \*ngFor ( this works as forEach loop)

<ul>

<li \*ngFor="let hero of heroes">{{hero.name}}</li>

</ul>

## \*ngSwitch ( this works as Switch condition)

<div [ngSwitch]="hero?.emotion">

<app-happy-hero \*ngSwitchCase="'happy'" [hero]="hero"></app-happy-hero> <app-sad-hero \*ngSwitchCase="'sad'" [hero]="hero"></app-sad-hero>

<app-confused-hero \*ngSwitchCase="'confused'" [hero]="hero"></app-confused-hero>

# Pipes

## CurrencyPipe

Transforms a number to a currency string, formatted according to locale rules that determine group sizing and separator, decimal-point character, and other locale-specific configurations.

Ex:

{{ salary | currency : ‘USD’ : true : ‘1.3-3’}}

Currency pipe on salary with 3 parameters. 1) currency in USD, 2) true – indicates currency symbol not the code, 3) 1.3-3 – at least 1 digit before decimal, at least 3 and at max 3 digits after decimal.

## DatePipe

Formats a date value according to locale rules.

Ex: {{ dateOfBirth | date: ’fulldate’ }}

## DecimalPipe

Transforms a number into a string, formatted according to locale rules that determine group sizing and separator, decimal-point character, and other locale-specific configurations.

## DeprecatedCurrencyPipe

Formats a number as currency using locale rules.

## DeprecatedDatePipe

Formats a date according to locale rules.

## DeprecatedDecimalPipe

Formats a number as text. Group sizing and separator and other locale-specific configurations are based on the active locale.

## DeprecatedPercentPipe

Formats a number as percentage according to locale rules.

## I18nPluralPipe

Maps a value to a string that pluralizes the value according to locale rules.

## I18nSelectPipe

Generic selector that displays the string that matches the current value.

## JsonPipe

Converts a value into its JSON-format representation. Useful for debugging.

## KeyValuePipe

Transforms Object or Map into an array of key value pairs.

## LowerCasePipe

Transforms text to all lower case.

## PercentPipe

Transforms a number to a percentage string, formatted according to locale rules that determine group sizing and separator, decimal-point character, and other locale-specific configurations.

## SlicePipe

Creates a new Array or String containing a subset (slice) of the elements.

## TitleCasePipe

Transforms text to title case. Capitalizes the first letter of each word, and transforms the rest of the word to lower case. Words are delimited by any whitespace character, such as a space, tab, or line-feed character.

## UpperCasePipe

Transforms text to all upper case.

Ex: {{ fullName | uppercase }} – this will print fullName value in capital or uppercase letters.

# Reactive Forms

Should be import

import { [FormBuilder](https://angular.io/api/forms/FormBuilder), FormGroup, FormControl } from '@angular/forms';

## FormBuilder

An injectable service that provides factory methods for creating control instances.

## AbstractControl

The abstract base class for the concrete form control classes FormControl, FormGroup, and FormArray. It provides their common behaviors and properties.

## FormControl

Manages the value and validity status of an individual form control. It corresponds to an HTML form control such as <input> or <select>.

Ex: name : new FormControl(‘ ‘, Validators.required); // while using direct form control.

name: [‘ ‘] // while using form builder

## FormGroup

Manages the value and validity state of a group of AbstractControl instances. The group's properties include its child controls. The top-level form in your component is FormGroup.

Ex :

address : new FormGroup( {

\*\* create form controls here\*\*

}); // while using direct form control.

--------------------------------------------------------------------------------------

constructor(private fb: [FormBuilder](https://angular.io/api/forms/FormBuilder)) { }

address: this.fb.group({

\*\* create form controls here\*\*

}); // while using form builder

## FormArray

Manages the value and validity state of a numerically indexed array of AbstractControl instances.

1. phones: this.fb.array([
2. this.fb.control('')
3. ])

# Http client

import { [HttpClient](https://angular.io/api/forms/FormBuilder) } from '@angular/common/http';

constructor(http: HttpClient){ };

## Get method

this.http.get<User[]>(this.baseUrl);

## Get by Id

this.http.get<User>(this.baseUrl + '/' + id);

## POST method

this.http.post(this.baseUrl, user);

## PUT method

this.http.put(this.baseUrl + '/' + user.id, user);

## DELETE method

this.http.delete(this.baseUrl + '/' + id);

# Routing to another component directly

import {Router} from "@angular/router";

this.router.navigate(['list']);

There should be list route configuration in Router module.

# Lifecycle Hooks

## ngOnChanges()

Respond when Angular (re)sets data-bound input properties. The method receives a SimpleChanges object of current and previous property values.

Called before ngOnInit() and whenever one or more data-bound input properties change.

## ngOnInit()

Initialize the directive/component after Angular first displays the data-bound properties and sets the directive/component's input properties.

Called once, after the first ngOnChanges().

## ngDoCheck()

Detect and act upon changes that Angular can't or won't detect on its own.

Called during every change detection run, immediately after ngOnChanges() and ngOnInit().

## ngAfterContentInit()

Respond after Angular projects external content into the component's view / the view that a directive is in.

Called once after the first ngDoCheck().

## ngAfterContentChecked()

Respond after Angular checks the content projected into the directive/component.

Called after the ngAfterContentInit() and every subsequent ngDoCheck().

## ngAfterViewInit()

Respond after Angular initializes the component's views and child views / the view that a directive is in.

Called once after the first ngAfterContentChecked().

## ngAfterViewChecked()

Respond after Angular checks the component's views and child views / the view that a directive is in.

Called after the ngAfterViewInit() and every subsequent ngAfterContentChecked().

## ngOnDestroy()

Cleanup just before Angular destroys the directive/component. Unsubscribe Observables and detach event handlers to avoid memory leaks.

Called just before Angular destroys the directive/component.