

# Cross Platform Mobile Programming

IF733

Ionic with Angular (I)

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# Agenda

- Why Angular
- Ionic Framework w/ Angular
  - Installation
  - Getting Started
- Page, Interface, Service

# Why Angular

## 1/3

app.js — w1\_2019

EXPLORER

OPEN EDITORS

- JS app.js
- W1\_2019
- JS app.js
- index.html

OUTLINE

MAVEN PROJECTS

JS app.js x

JS app.js ↗ listPengeluaran

```
1 const inputNama = document.querySelector('#input-nama');
2 const inputJumlah = document.querySelector('#input-jumlah');
3 const btnHapus = document.querySelector('#btn-hapus');
4 const btnTambah = document.querySelector('#btn-tambah');
5 const listPengeluaran = document.querySelector('#list-pengeluaran');
6 const totalPengeluaran = document.querySelector('#total-pengeluaran');
7 const alertCtrl = document.querySelector('ion-alert-controller');

8
9 let total = 0;
10
11 totalPengeluaran.textContent = total;
12
13 const clear = () => {
14   inputJumlah.value = null;
15   inputNama.value = null;
16 }
17
18 async function presentAlert() {
19   await alertCtrl.componentOnReady();
20
21   const alert = await alertCtrl.create({
22     header: 'Terjadi Kesalahan',
23     message: 'Mohon masukkan nama dan jumlah pengeluaran.',
24     buttons: ['Tutup']
25   });
26   return alert.present();
27 }
28
29 btnTambah.addEventListener('click', () => {
30   const nama = inputNama.value;
31   const jumlah = inputJumlah.value;
32   if (nama.trim().length <= 0 || jumlah.trim().length <= 0 || jumlah <= 0) {
```

In 5 Col 36 Spaces: 4 UFT-8 LF Babel JavaScript Prettier

# Why Angular

Complex Logic

Re-inventing the  
wheel, error-prone

State Management

UI behaves  
unpredictably

Routing

Smart routing is hard

Services, data  
bindings, etc.

Clearly defined rules  
and building blocks



Passing data, lazy  
loading, etc.

# Ionic Framework with Angular

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# Installation

1. Download and install NodeJS LTS/Dubnium v10.xx  
→ NPM, development server
2. Install Ionic CLI using NPM via terminal by running:  
`npm install -g ionic` (use `sudo` in mac/linux)
3. Navigate to your intended project directory, then run: `ionic start`, then type your project name, then choose the template (we'll use blank in this course), then type `n` when prompted with Ionic Appflow SDK to reject using it for now.
4. Open the project directory using VSCode, open the built-in terminal using shortcut `CTRL+`` (backtick), then run: `ionic serve`

Node.js

https://nodejs.org/en/

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Node.js® is a JavaScript runtime built on Chrome's V8 JavaScript engine.

Download for macOS (x64)

**10.16.0 LTS**  
Recommended For Most Users

**12.4.0 Current**  
Latest Features

Other Downloads | Changelog | API Docs      Other Downloads | Changelog | API Docs

Or have a look at the [Long Term Support \(LTS\) schedule](#).

Sign up for [Node.js Everywhere](#), the official Node.js Monthly Newsletter.

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Node.js Project Licensing Information.

```
andreRs-MacBook-Pro:ionic-projects andrer$ ionic start
```

Every great app needs a name! 😍

Please enter the full name of your app. You can change this at any time. To bypass this prompt next time, supply `name`, the first argument to `ionic start`.

```
? Project name: w2_2019
```

Let's pick the perfect starter template! 💪

Starter templates are ready-to-go Ionic apps that come packed with everything you need to build your app. To bypass this prompt next time, supply `template`, the second argument to `ionic start`.

```
? Starter template: blank
```

```
✓ Preparing directory ./w2_2019 - done!
```

```
✓ Downloading and extracting blank starter - done!
```

Installing dependencies may take several minutes.

✨ IONIC DEVAPP ✨

Speed up development with the **Ionic DevApp**, our fast, on-device testing mobile app

- ⚒ Test on iOS and Android without Native SDKs
- 🚀 LiveReload for instant style and JS updates

--> Install DevApp: <https://bit.ly/ionic-dev-app> <--

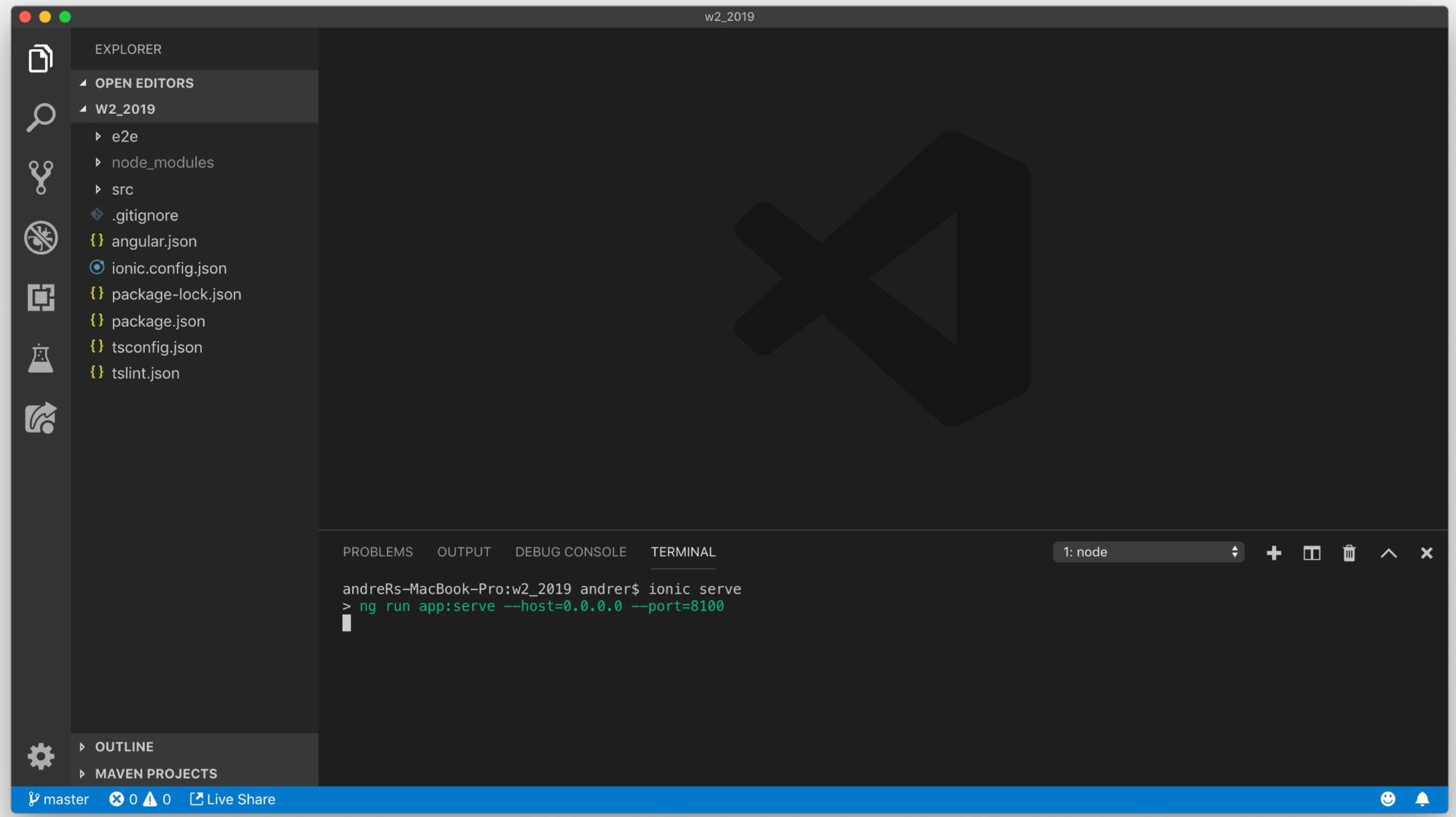
```
> npm i
```

[INFO] Next Steps:

- Go to your newly created project: `cd ./w2_2019`
- Run `ionic serve` within the app directory to see your app
- Build features and components: <https://ion.link/scaffolding-docs>
- Get Ionic DevApp for easy device testing: <https://ion.link/devapp>

Update available 4.12.0 → 5.0.2  
Run `npm i -g ionic` to update

```
andreRs-MacBook-Pro:ionic-projects andrer$
```

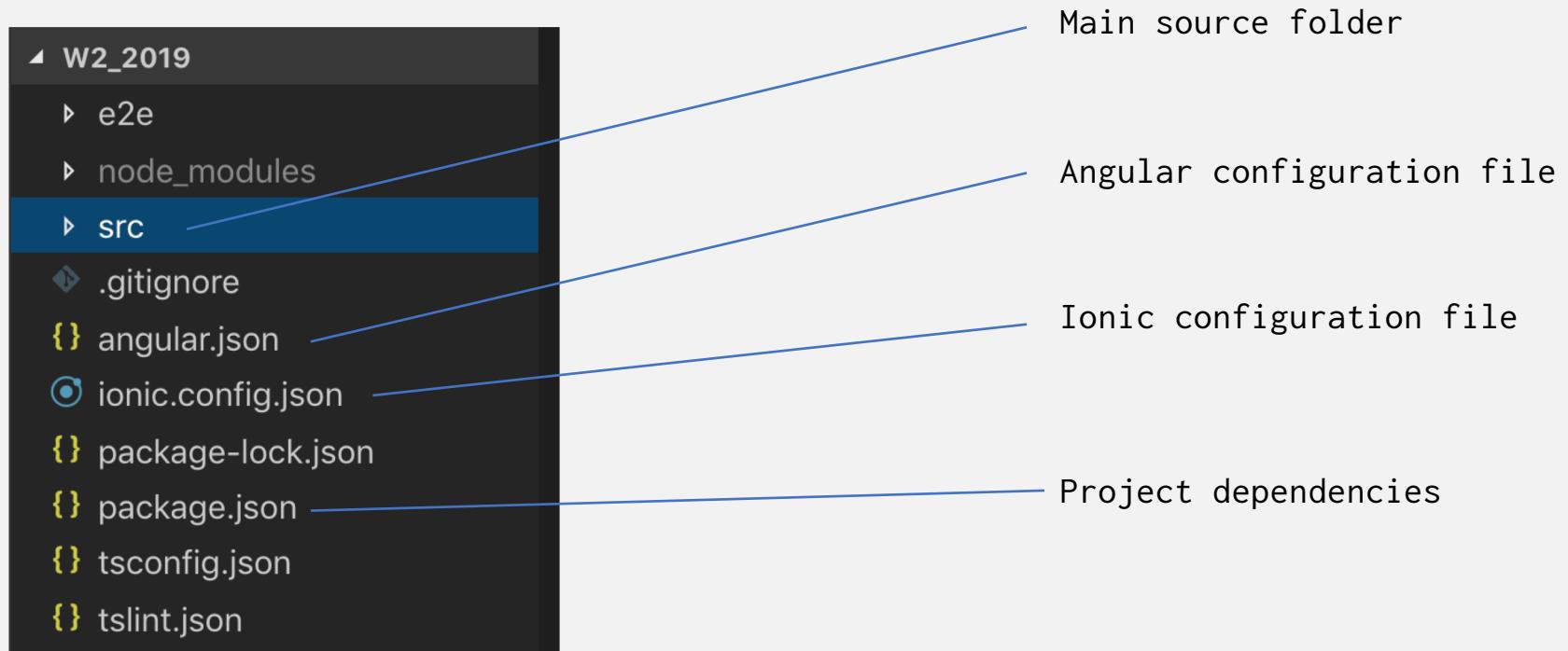


The screenshot shows a browser window with the title "Ionic App" and the URL "localhost:8100/home". The page content is a simple Ionic application titled "Ionic Blank" with the text "The world is your oyster." and "If you get lost, the [docs](#) will be your guide.". The browser's developer tools are open on the right side, specifically the "Console" tab. The console output includes several messages:

- Angular is running in `core.js:16829` the development mode. Call `enableProdMode()` to enable the production mode.
- ⚠ Native: tried `common.js:290` calling `StatusBar.styleDefault`, but Cordova is not available. Make sure to include `cordova.js` or run in a device/simulator
- ⚠ Native: tried `common.js:290` calling `SplashScreen.hide`, but Cordova is not available. Make sure to include `cordova.js` or run in a device/simulator
- ✖ A bad HTTP response code (404) was received when fetching the script.

Below the console, there are other tabs for "What's New" and "Highlights from the Chrome 74 update".

# Project Structure



Page, Interface, Service

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# Adding a New Page

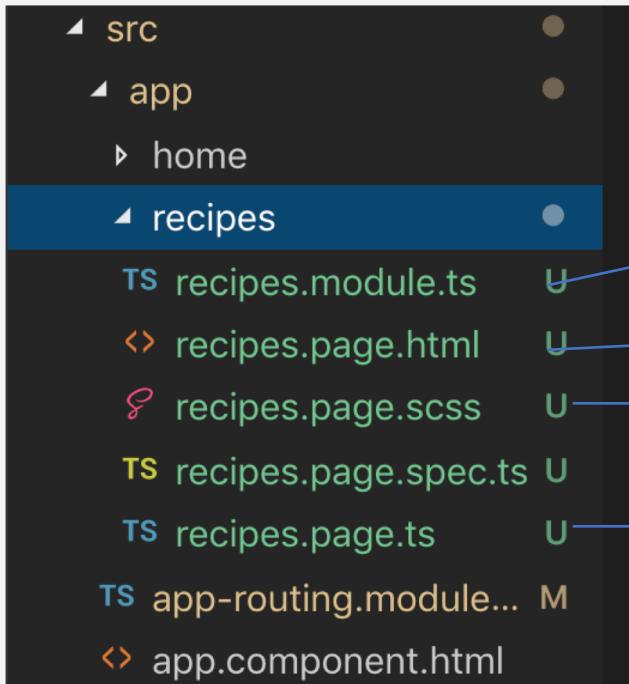
1. Run: `ionic generate`, then choose `page` then set the page name
2. Check the `src/app/app-routing.module.ts` and modify as needed

```
? What would you like to generate? page
? Name/path of page: recipes
> ng generate page recipes
CREATE src/app/recipes/recipes.module.ts (548 bytes)
CREATE src/app/recipes/recipes.page.scss (0 bytes)
CREATE src/app/recipes/recipes.page.html (126 bytes)
CREATE src/app/recipes/recipes.page.spec.ts (698 bytes)
CREATE src/app/recipes/recipes.page.ts (260 bytes)
UPDATE src/app/app-routing.module.ts (525 bytes)
[OK] Generated page!
```

```
src
  app
    home
    recipes
      recipes.module.ts
      recipes.page.html
      recipes.page.scss
      recipes.page.spec.ts
      recipes.page.ts
    app-routing.module.ts
    app.component.html
```

```
TS app-routing.module.ts ×
src > app > TS app-routing.module.ts > AppRoutingModule
1 import { NgModule } from '@angular/core';
2 import { PreloadAllModules, RouterModule, Routes } from '@angular/router';
3
4 const routes: Routes = [
5   { path: '', redirectTo: 'recipes', pathMatch: 'full' },
6   { path: 'recipes', loadChildren: './recipes/recipes.module#RecipesPageModule' },
7 ];
8
9 @NgModule({
```

# Page Structure



A screenshot of a file explorer interface, likely from a code editor like VS Code. The tree view shows the following directory structure:

- src
  - app
    - home
  - recipes
    - recipes.module.ts
    - recipes.page.html
    - recipes.page.scss
    - recipes.page.spec.ts
    - recipes.page.ts
  - app-routing.module...
  - app.component.html

Annotations with blue arrows point to specific files:

  - An arrow points to `recipes.module.ts` with the label "Page module -- lazy loading, routing, etc."
  - An arrow points to `recipes.page.html` with the label "HTML file"
  - An arrow points to `recipes.page.scss` with the label "Styling (SCSS)"
  - An arrow points to `recipes.page.ts` with the label "TypeScript file"

# Interface & JavaScript Object

src/app/recipes/recipe.model.ts

```
export interface Recipe {  
  id: string;  
  title: string;  
  imageUrl: string;  
  ingredients: string[];  
}
```

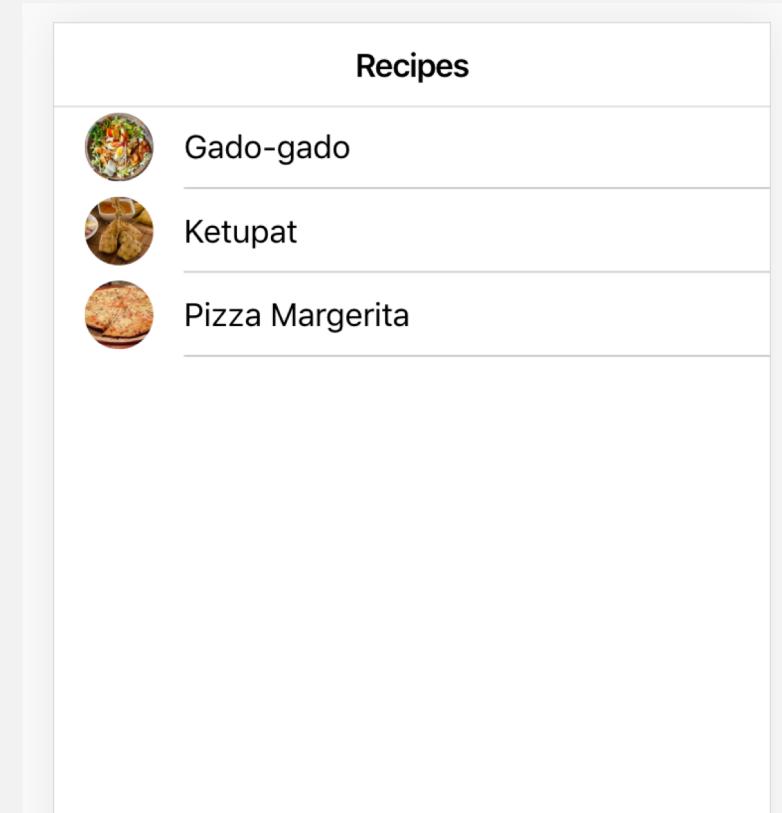
src/app/recipes/recipes.page.ts

```
import { Recipe } from './recipe.model';  
  
...  
  
export class RecipesPage implements OnInit {  
  
  recipes: Recipe[] = [  
    {  
      id: 'r1',  
      title: 'Gado-gado',  
      imageUrl:  
        'https://www.bbcgoodfood.com/sites/default/files/styles/r  
ecipe/public/recipe/recipe-image/2016/05/gado-gado-  
salad.jpg?itok=MTTSriC8',  
      ingredients: ['Lontong', 'Sawi', 'Bumbu Kecap', 'Tauge']  
    },  
  
    ...  
  ];
```

# Data Binding & <ion-avatar>

src/app/recipes/recipes.page.html

```
<ion-content>
  <ion-list>
    <ion-item *ngFor="let recipe of recipes">
      <ion-avatar slot="start">
        <ion-img [src]="recipe.imageUrl"></ion-img>
      </ion-avatar>
      <ion-label>{{ recipe.title }}</ion-label>
    </ion-item>
  </ion-list>
</ion-content>
```



# Routing

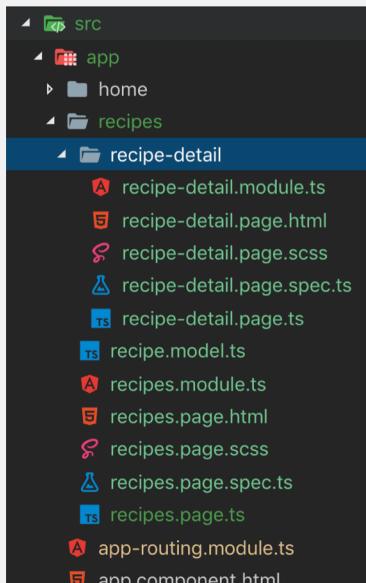
src/app/app-routing.module.ts

```
const routes: Routes = [
  { path: '', redirectTo: 'recipes', pathMatch: 'full' },
  { path: 'recipes', loadChildren:
    './recipes/recipes.module#RecipesPageModule' },
  { path: 'recipe-detail', loadChildren: './recipes/recipe-
    detail/recipe-detail.module#RecipeDetailPageModule' },
];
```



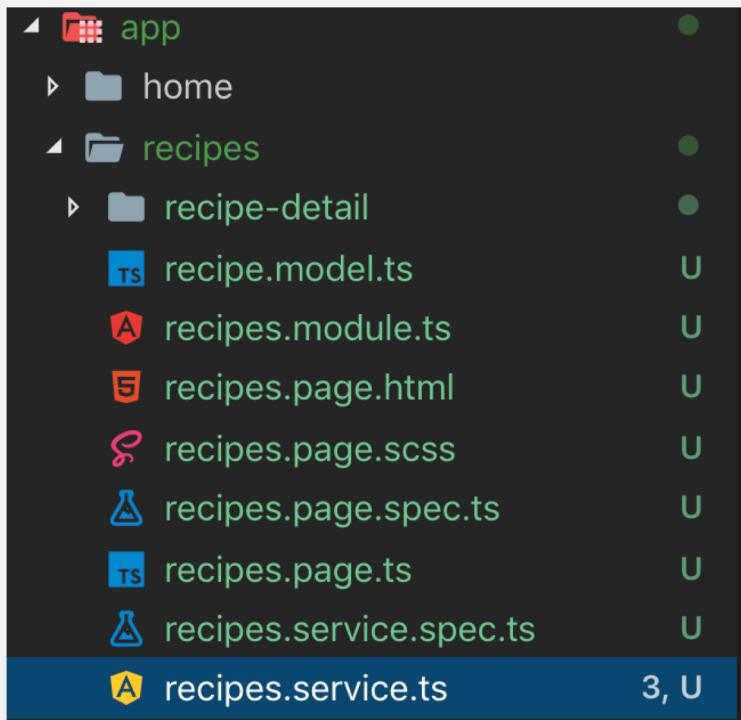
src/app/app-routing.module.ts

```
const routes: Routes = [
  { path: '', redirectTo: 'recipes', pathMatch: 'full' },
  {
    path: 'recipes',
    children: [
      {
        path: '',
        loadChildren: './recipes/recipes.module#RecipesPageModule'
      },
      {
        path: ':recipeId',
        loadChildren: './recipes/recipe-detail/recipe-detail.module#RecipeDetailPageModule'
      }
    ]
  }
];
```



# State Management with Services

```
> ionic generate service ServiceNameAnd/OrPath
```



```
▶ app
  ▷ home
  ▷ recipes
    ▷ recipe-detail
      recipe.model.ts
      recipes.module.ts
      recipes.page.html
      recipes.page.scss
      recipes.page.spec.ts
      recipes.page.ts
      recipes.service.spec.ts
      A recipes.service.ts
```

Services are a great way to share information among classes that don't know each other.

A service is typically a class with a narrow, well-defined purpose. It should do something specific and do it well.

# State Management with Services

```
> ionic generate service recipes/recipes
```

```
import { Injectable } from '@angular/core';
import { Recipe } from './recipe.model';

@Injectable({
  providedIn: 'root'
})

export class RecipesService {
  private recipes: Recipe[] = [
    {
      id: 'r1',
      title: 'Gado-gado',
      imageUrl:
        'https://www.bbcgoodfood.com/sites/default/files/styles/recipe/public/recipe/recipe-image/2016/05/gado-gado-salad.jpg?itok=MTTSriC8',
      ingredients: ['Lontong', 'Sawi', 'Bumbu Kecap', 'Tauge']
    },
    ...
  ];
}
```

```
constructor() { }

getAllRecipes() {
  return [...this.recipes];

getRecipe(recipeId: string) {
  return {
    ...this.recipes.find(recipe => {
      return recipe.id === recipeId;
    })
  };
}
```

src/app/recipes/recipes.service.ts

# State Management with Services

```
> ionic generate service recipes/recipes
```

```
src/app/recipes/recipes.page.ts
import { Component, OnInit } from '@angular/core';
import { Recipe } from './recipe.model';
import { RecipesService } from './recipes.service';

@Component({
  selector: 'app-recipes',
  templateUrl: './recipes.page.html',
  styleUrls: ['./recipes.page.scss'],
})
export class RecipesPage implements OnInit {
  recipes: Recipe[];

  constructor(private recipesService: RecipesService) { }

  ngOnInit() {
    this.recipes = this.recipesService.getAllRecipes();
  }
}
```

Questions?

Comments?

Thank you