SYIT Vandan Chokshi 3109 , 369

Hybrid Application Development Practicals

Practical 1 : AngularJS Data Binding

What is Data Binding in AngularJS?

Data-binding in AngularJS apps is the automatic synchronization of data between

the model and view components. The way that AngularJs implements data-binding lets

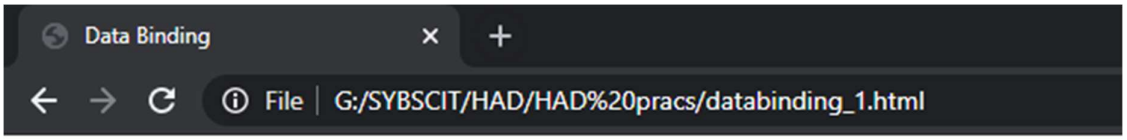
you treat the model as the single-source-of-truth in your application.

Code:

```
<!DOCTYPE html>
<html lang="en">
<title>Data Binding</title>
    <script src="https://ajax.googleapis.com/ajax/libs/angularjs/1.6.9/angular.min.js">
    </script>
<body>
<div ng-app=''>
    <h2>demonstration of Data Binding</h2>
    <input ng-init="placeholder='Type in textbox'" ng-model="binding"><br>
    <p ng-bind="binding"></p>
    <p>{{placeholder}}</p>
</div>
</div>
</body>
</html>

```

Output:

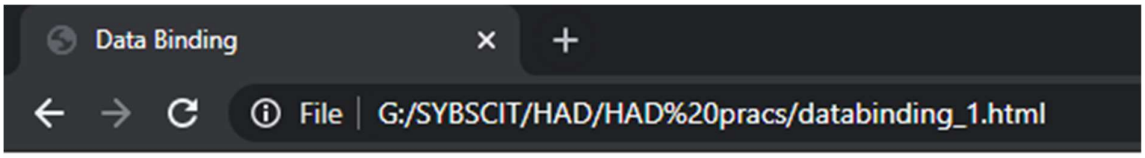
-Without any text



demonstration of Data Binding

Type in textbox

-With text



demonstration of Data Binding

Yeah boi

Yeah boi

Type in textbox

Practical 2 : AngularJS Directives

What are Directives in AngularJS?

AngularJs directives are extended HTML attributes with the prefix ng- . The ng-

app directive initializes an AngularJs application. The ng-init directive initializes application

data. The ng-model directive binds the value of HTML controls (input, select, textarea) to

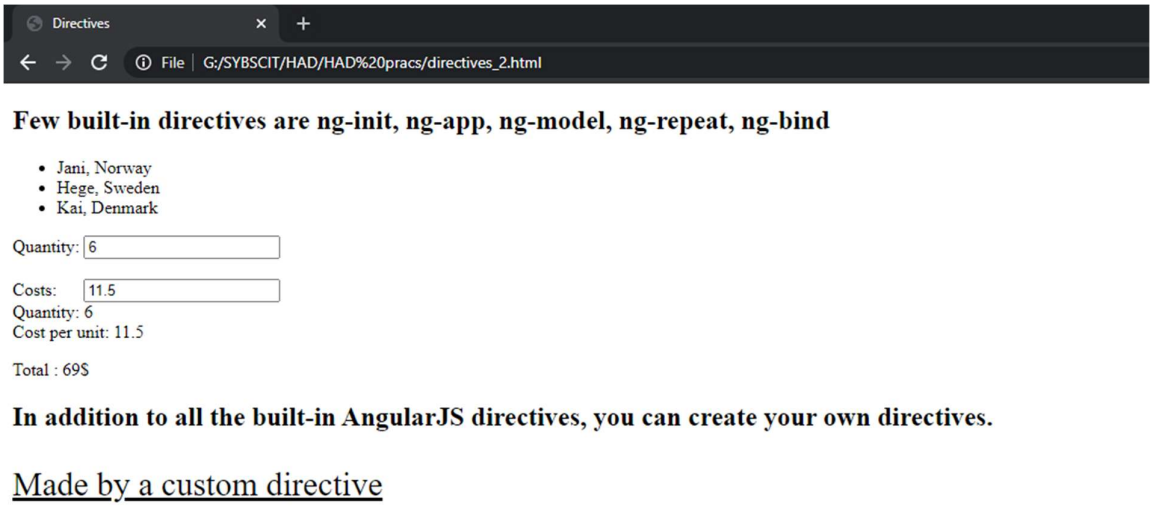
application data.

Code:

```
<!DOCTYPE html>

<html lang="en">

<title>Directives</title>

<script src="https://ajax.googleapis.com/ajax/libs/angularjs/1.6.9/angular.min.js"></script>

<body>

<div ng-app='myApp' ng-init="names=[
{name:'Jani',country:'Norway'},
{name:'Hege',country:'Sweden'},
{name:'Kai',country:'Denmark'}]">
<h2>Few built-in directives are  ng-init, ng-app, ng-model, ng-repeat, ng-bind</h2>
<ul>
        <li ng-repeat="x in names">
            {{ x.name + ', ' + x.country }}
        </li>
</ul>
    Quantity: <input type="number" ng-model="quantity">
    <br><br>
    Costs:      <input type="number" ng-model="price"> <br>
    Quantity:
    <div ng-bind="quantity" style="display:inline;"></div> <br>
    Cost per unit:
    <div ng-bind="price" style="display:inline;"></div>
    <p>Total : {{ quantity * price }}$</p>
    <h2>In addition to all the built-in AngularJS directives, you can create your own directives.</h2>
    <custom-directive></custom-directive>
    <script>
        const app = angular.module("myApp", []);
        app.directive("customDirective", function() {
            return {
                template : "<p style='font-style: arial;font-size: 30px;text-decoration: underline'>Made by a custom directive</p>"
            };
        });
    </script>
</div>
</body>
</html>
```

Output:

-Values entered



Practical 3 : AngularJS Controllers

What are Controllers in AngularJS?

AngularJS applications are controlled by controllers.

The ng-controller directive defines the application controller.

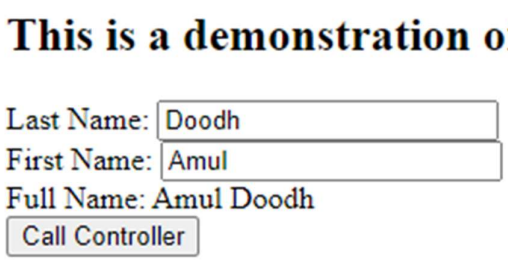
A controller is a JavaScript Object, created by a standard JavaScript object constructor.

Code:

```
<!DOCTYPE html>
<html lang="en">
<title>AngularJS Controllers</title>
    <script src="https://ajax.googleapis.com/ajax/libs/angularjs/1.6.9/angular.min.js">
    </script>
<body>
<div ng-app="myApp" ng-controller="myCtrl">
    <h2>This is a demonstration of Controllers</h2>
    Last Name: <input type="text" ng-model="lastName"><br>
    First Name: <input type="text" ng-model="firstName"><br>
    Full Name: {{fullName()}}<br>
    <div ng-controller="index">
        <input type="button" ng-click="function1()" ng-value="variable">
    </div>
</div>
<script>
    const app = angular.module('myApp', []);
    app.controller('myCtrl', function($scope) {
        $scope.firstName = "Amul";
        $scope.lastName = "Doodh";
        $scope.fullName = function() {
            return $scope.firstName + " " + $scope.lastName;
        };
    });
    app.controller("index", function ($scope) {
        $scope.variable = "Call Controller";
        $scope.function1 = function () {
            alert("Controller invoked");
        }
    });
</script>
</body>
</html>

```

Output:

-On initialising



-After pressing the button

Practical 4 : AngularJS Events

What are Events in AngularJS?

AngularJS includes certain directives which can be used to provide custom behavior on various DOM events, such as click, mouseover etc.

The event directives allows us to run AngularJS functions at certain user events.

An AngularJS event will not overwrite an HTML event, both events will be executed.

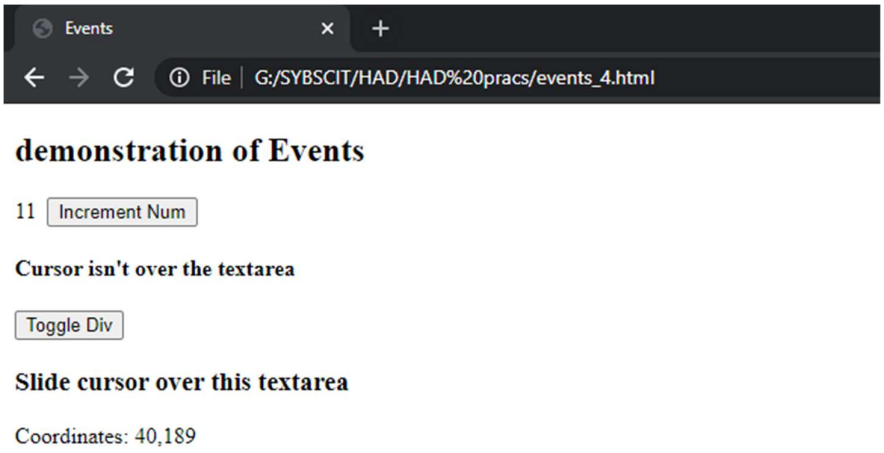
You can pass the $event object as an argument when calling the function. The $event object contains the browser's event object.

Code:

```
<!DOCTYPE html>
<html lang="en">
<title>Events</title>
<script src="https://ajax.googleapis.com/ajax/libs/angularjs/1.6.9/angular.min.js">
</script>
<body>
<div ng-app="event">
<h2>demonstration of Events</h2>
<div ng-controller="eventController1" ng-init="value=0">
{{value}} 
    <button ng-click="value=value+1">Increment Num</button>
    <br>
    <h4 ng-mouseover="mouseover()" ng-mouseleave="mouseleft()" style="width: fit-content;cursor: pointer">{{text}}</h4>
    <button ng-click="show()">Toggle Div</button>
    <div ng-show="showNames"  ng-init="names=[
    {name:'Jani',country:'Norway'},
    {name:'Hege',country:'Sweden'},
    {name:'Kai',country:'Denmark'}]">
            <ul>
                <li ng-repeat="x in names">
                {{ x.name + ', ' + x.country }}
                </li>
            </ul>
        </div>
    <h3 ng-mousemove="move($event)" style="width: fit-content">Slide cursor over this textarea</h3>
    <p>Coordinates: {{x + ',' + y}}</p>
</div>
</div>
<script>
const app = angular.module('event', []);
app.controller('eventController1', function ($scope) {
    $scope.text = "Hover the cursor over this text";
    $scope.mouseover = function() {
        $scope.text = "Cursor is over the textarea";
    }
    $scope.mouseleft = function() {
        $scope.text = "Cursor isn't over the textarea";
    }
    $scope.showNames = false;
    $scope.show = function() {
        $scope.showNames = !$scope.showNames;
    }
    $scope.move = function(event_object) {
        $scope.x = event_object.clientX;
        $scope.y = event_object.clientY;
    }
});
</script>
</body>
</html>
```

Output:

-After triggering all events



Practical 5 : Ionic Create and Build First Project

What is a hybrid app?

Like native apps, run on the device, and are written with web technologies (HTML5, CSS and JavaScript). Hybrid apps run inside a native container, and leverage the device's browser engine (but not the browser) to render the HTML and process the JavaScript locally. A web-to-native abstraction layer enables access to device capabilities that are not accessible in Mobile Web applications, such as the accelerometer, camera and local storage.

How to create and web app in Ionic:

Requirements:

1. Node.js with npm in path

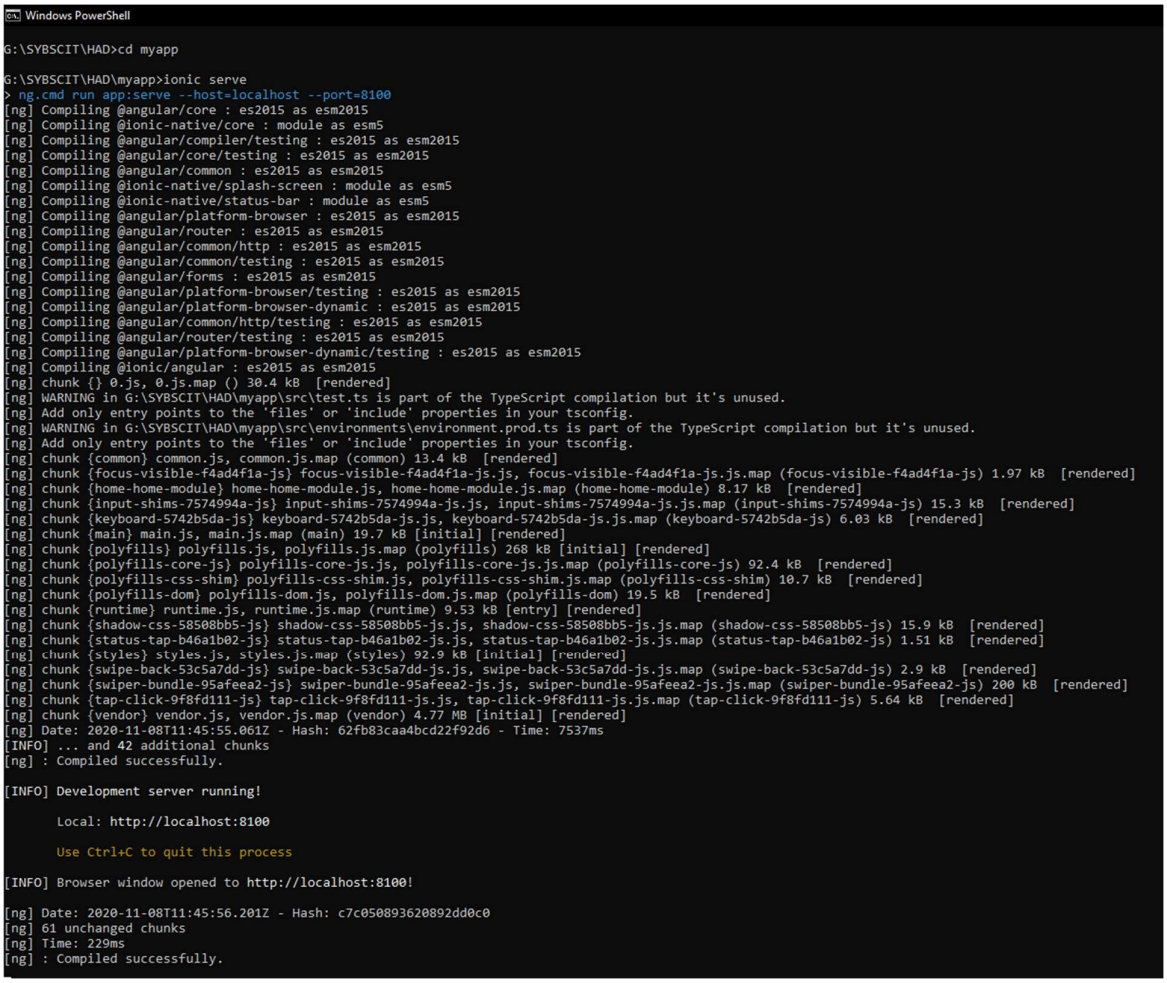
Steps:

1. Open command prompt
2. Run `npm install -g ionic`
3. Create a folder for your ionic project by running `md <folder_name>`
4. Navigate to the folder by running `cd <folder_name>`

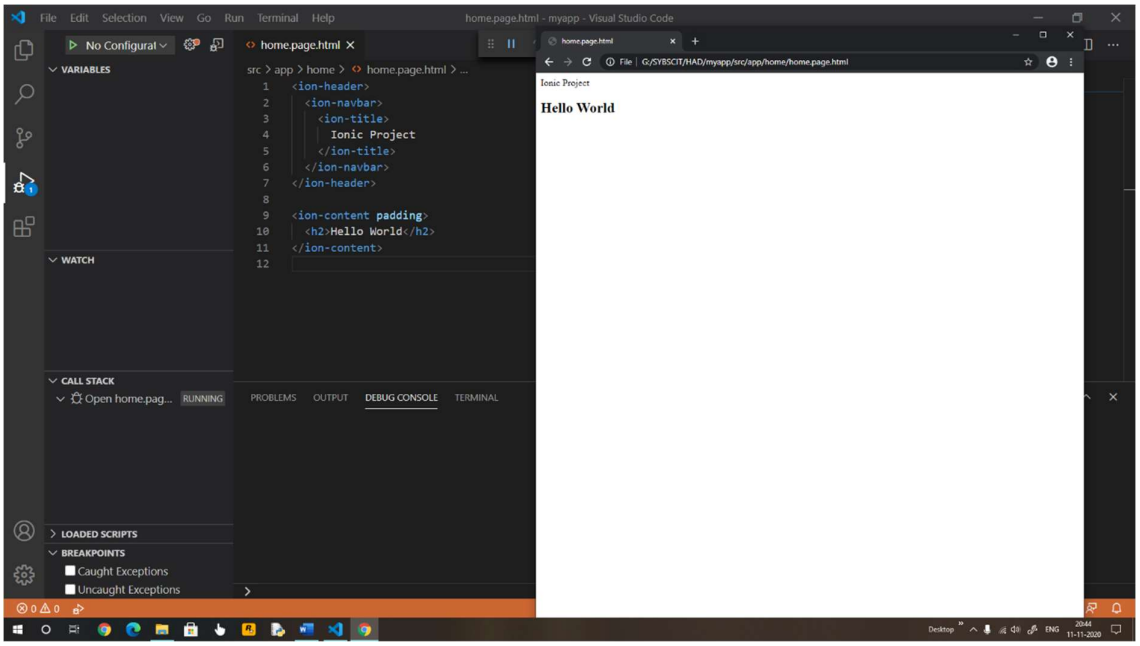
5. To create an ionic app run `ionic start <app_name> blank`
6. Then it will ask to choose a framework so choose `Angular JS`
7. Navigate to the folder by running `cd <app_name>`
8. Then to start running the ionic web page on the server type `ionic serve`
9. To access the web page go on http://localhost:8100

Output:

-Command Line (Step 8)



-Browser (Step 9)



Practical 6 : Ionic Adding Cordova Android Platform

What is Cordova?

Cordova is an open-source mobile development framework. It allows you to use standard web technologies such as HTML5, CSS3, and JavaScript for cross-platform development, avoiding each mobile platforms' native development language. Applications execute within wrappers targeted to each platform, and rely on standards-compliant API bindings to access each device's sensors, data, and network status.

Requirements:

1. Java 8 in path and JAVA_HOME set
2. Android SDK with ANDROID_SDK_ROOT set
3. Gradle in path

Steps:

1. Install cordova resources by running `npm install -g cordova-res`
2. To add support for the Android platform run `ionic cordova platform add android`
3. To build a debug Android APK run `ionic cordova build android`
4. Install `app-debug.apk` in your device
   from `{project_root}\platforms\android\app\build\outputs\apk\debug`

Output:

-Command Line (Step 2)

```
>ionic cordova build android
> ng.cmd run app:ionic-cordova-build --platform=android
Generating ES5 bundles for differential loading...
ES5 bundle generation complete.

chunk {polyfills} polyfills-es2015.js, polyfills-es2015.js.map (polyfills) 268 kB [initial] [rendered]
chunk {polyfills-es5} polyfills-es5.js, polyfills-es5.js.map (polyfills-es5) 735 kB [initial] [rendered]
chunk {0} 0-es2015.js, 0-es2015.js.map () 31.2 kB  [rendered]
chunk {0} 0-es5.js, 0-es5.js.map () 37.8 kB  [rendered]
chunk {8} 8-es2015.js, 8-es2015.js.map () 11.4 kB  [rendered]
chunk {8} 8-es5.js, 8-es5.js.map () 14.2 kB  [rendered]
chunk {2} 2-es2015.js, 2-es2015.js.map () 67.1 kB  [rendered]
chunk {2} 2-es5.js, 2-es5.js.map () 92.8 kB  [rendered]
chunk {4} 4-es2015.js, 4-es2015.js.map () 16.3 kB  [rendered]
chunk {4} 4-es5.js, 4-es5.js.map () 20.6 kB  [rendered]
chunk {3} 3-es2015.js, 3-es2015.js.map () 6.16 kB  [rendered]
chunk {3} 3-es5.js, 3-es5.js.map () 8.09 kB  [rendered]
chunk {7} 7-es2015.js, 7-es2015.js.map () 16.6 kB  [rendered]
chunk {7} 7-es5.js, 7-es5.js.map () 19.7 kB  [rendered]
chunk {1} 1-es2015.js, 1-es2015.js.map () 47.7 kB  [rendered]
chunk {1} 1-es5.js, 1-es5.js.map () 56.8 kB  [rendered]
```

```
> cordova.cmd build android
Checking Java JDK and Android SDK versions
ANDROID_SDK_ROOT=undefined (recommended setting)
ANDROID_HOME=undefined (DEPRECATED)
```

-Command Line (Step 3)

```
Subproject Path: CordovaLib
Subproject Path: app
Starting a Gradle Daemon, 1 incompatible and 1 stopped Daemons could not be reused, use --status for details

Deprecated Gradle features were used in this build, making it incompatible with Gradle 7.0.
Use '--warning-mode all' to show the individual deprecation warnings.
See https://docs.gradle.org/6.5/userguide/command_line_interface.html#sec:command_line_warnings

BUILD SUCCESSFUL in 13s
40 actionable tasks: 40 up-to-date
```

-Android App (After Step 4)

Practical 7 : Ionic Create, Generate and Add Pages

What are Ionic Pages?

An Ionic page is just an Angular component.

The Ionic Page handles registering and displaying specific pages based on URLs. It's used underneath NavController so it will never have to be interacted with directly. ... Unlike traditional web apps, URLs don't dictate navigation in Ionic apps.Steps:

1. Open command prompt as administrator
2. Create a folder for your ionic project by running md <folder_name>
3. Navigate to the folder by running cd <folder_name>
4. To create an ionic app run ionic start <app_name> blank
5. Then it will ask to choose a framework so choose `Angular JS``
6. Navigate to the folder by running cd <app_name>
7. To generate and add a page run ionic g page <page_name>
8. This will create a folder with all the components of your page in {project_root}\src\app\{page_name}
9. Then to start running the ionic web page on the server type `ionic serve`
10. To access the web page go on http://localhost:8100/{page_name}

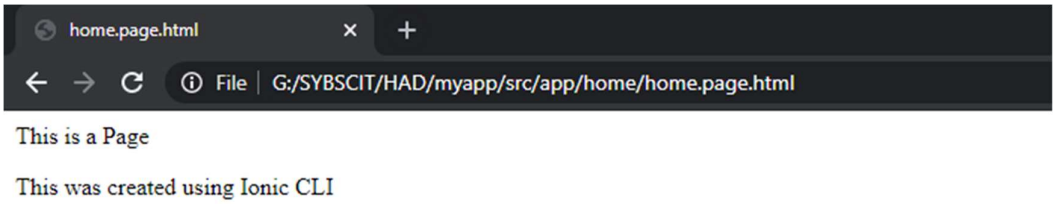
Code:

src > app > home > home.page.html > ion-content

```
<ion-header>
  <ion-toolbar>
    <ion-title>This is a Page</ion-title>
  </ion-toolbar>
</ion-header>

<ion-content>
  <p>This was created using Ionic CLI</p>
</ion-content>
```

Output;

-Browser (Step 10)



Practical 8 : Ionic Use Tabs Starter Template

What are Ionic Starter Templates?

Ionic Starter Templates are ready-to-go starter packs for your next Ionic app.

Starters are constructed within the Ionic starters repository by overlaying a starter app onto a set of base files, constructing a compressed archive of the files, and uploading it around the world. The Ionic CLI then downloads and extracts the starter template archive and personalizes files for each new app.

Steps:

1. Open command prompt as administrator
2. Create a folder for your ionic project by running `md <folder_name>`
3. Navigate to the folder by running `cd <folder_name>`
4. To create an ionic app run `ionic start <app_name> tabs`
5. Then it will ask to choose a framework so choose `Angular JS`
6. Navigate to the folder by running `cd <app_name>`
7. Then to start running the ionic web page on the server type `ionic serve`
8. To access the web page go on http://localhost:8100

Code:

un Terminal Help home.page.html - myapp - Visual Studio Code

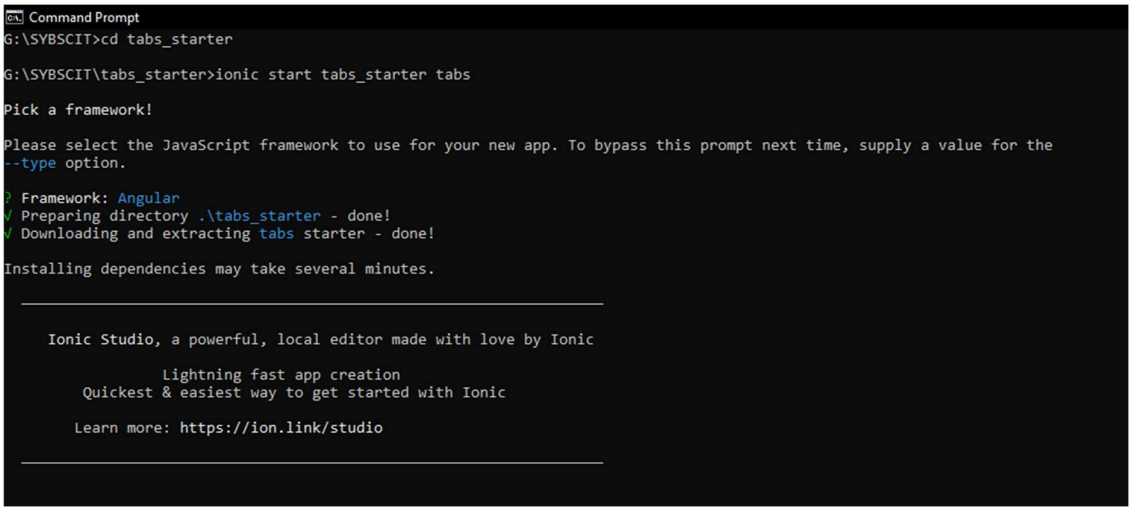
home.page.html ×

src > app > home > home.page.html > ...

```
1   <ion-header [translucent]="true">
2     <ion-toolbar>
3       <ion-title>
4         Tab 1
5       </ion-title>
6     </ion-toolbar>
7   </ion-header>
8
9   <ion-content [fullscreen]="true">
10    <ion-header collapse="condense">
11      <ion-toolbar>
12        <ion-title size="large">Tab 1</ion-title>
13      </ion-toolbar>
14    </ion-header>
15
16    <app-explore-container name="Tab 1 page"></app-explore-container>
17  </ion-content>
18
```

Output:

-Command Line (Step 4)



```
> npm.cmd i
npm WARN deprecated tslint@6.1.3: TSLint has been deprecated in favor of ESLint. Please see https://github.com/palantir/tslint/issues/4534 for more information.
npm WARN deprecated request@2.88.2: request has been deprecated, see https://github.com/request/request/issues/3142
npm WARN deprecated chokidar@2.1.8: Chokidar 2 will break on node v14+. Upgrade to chokidar 3 with 15x less dependencies.
npm WARN deprecated har-validator@5.1.5: this library is no longer supported
npm WARN deprecated fsevents@1.2.13: fsevents 1 will break on node v14+ and could be using insecure binaries. Upgrade to fsevents 2.
npm WARN deprecated urix@0.1.0: Please see https://github.com/lydell/urix#deprecated
npm WARN deprecated resolve-url@0.2.1: https://github.com/lydell/resolve-url#deprecated

> core-js@3.6.4 postinstall G:\SYBSCIT\tabs_starter\tabs_starter\node_modules\core-js
> node -e "try{require('./postinstall')}catch(e){}"

Thank you for using core-js ( https://github.com/zloirock/core-js ) for polyfilling JavaScript standard library!

The project needs your help! Please consider supporting of core-js on Open Collective or Patreon:
> https://opencollective.com/core-js
> https://www.patreon.com/zloirock

Also, the author of core-js ( https://github.com/zloirock ) is looking for a good job -)


> @angular/cli@10.0.8 postinstall G:\SYBSCIT\tabs_starter\tabs_starter\node_modules\@angular\cli
> node ./bin/postinstall/script.js

npm notice created a lockfile as package-lock.json. You should commit this file.
npm WARN optional SKIPPING OPTIONAL DEPENDENCY: fsevents@~2.1.2 (node_modules\rollup\node_modules\fsevents):
npm WARN notsup SKIPPING OPTIONAL DEPENDENCY: Unsupported platform for fsevents@2.1.3: wanted {"os":"darwin","arch":"any"} (current: {"os":"win32","arch":"x64"})
npm WARN optional SKIPPING OPTIONAL DEPENDENCY: fsevents@^1.2.7 (node_modules\watchpack-chokidar2\node_modules\chokidar\node_modules\fsevents):
npm WARN notsup SKIPPING OPTIONAL DEPENDENCY: Unsupported platform for fsevents@1.2.13: wanted {"os":"darwin","arch":"any"} (current: {"os":"win32","arch":"x64"})
npm WARN optional SKIPPING OPTIONAL DEPENDENCY: fsevents@^1.2.7 (node_modules\webpack-dev-server\node_modules\chokidar\node_modules\fsevents):
npm WARN notsup SKIPPING OPTIONAL DEPENDENCY: Unsupported platform for fsevents@1.2.13: wanted {"os":"darwin","arch":"any"} (current: {"os":"win32","arch":"x64"})

added 1501 packages from 1224 contributors and audited 1506 packages in 120.341s

74 packages are looking for funding
  run `npm fund` for details

found 1 high severity vulnerability
  run `npm audit fix` to fix them, or `npm audit` for details

[INFO] Next Steps:

      - Go to your newly created project: cd .\tabs_starter
      - Run ionic serve within the app directory to see your app
      - Build features and components: https://ion.link/scaffolding-docs
      - Run your app on a hardware or virtual device: https://ion.link/running-docs

G:\SYBSCIT\tabs_starter>tabs_star
```

-Browser (Step 8)