

**MALAD KANDIVALI EDUCATION SOCIETY'S**  
**NAGINDAS KHANDWALA COLLEGE OF COMMERCE, ARTS &**  
**MANAGEMENT STUDIES & SHANTABEN NAGINDAS KHANDWALA**  
**COLLEGE OF SCIENCE**  
**MALAD [W], MUMBAI – 64**  
**AUTONOMOUS INSTITUTION**  
(Affiliated To University Of Mumbai)  
Reaccredited 'A' Grade by NAAC | ISO 9001:2015 Certified

**CERTIFICATE**

Name: **BHAVESH .B. BALDANIYA**

Roll No: **306**

Programme: BSc.CS

Semester: III

This is certified to be a bonafide record of practical works done by the above student in the college laboratory for the course **Hybrid Application Development(classcode: 2037UCSMD)** for the partial fulfilment of Third Semester of BSc IT/CS during the academic year 2020-21.

The journal work is the original study work that has been duly approved in the year 2020-21 by the undersigned.

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External Examiner

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Mr. Gangashankar Singh  
(Subject-In-Charge)

Date of Examination: (College Stamp)

**Subject: Hybrid Application Development  
INDEX**

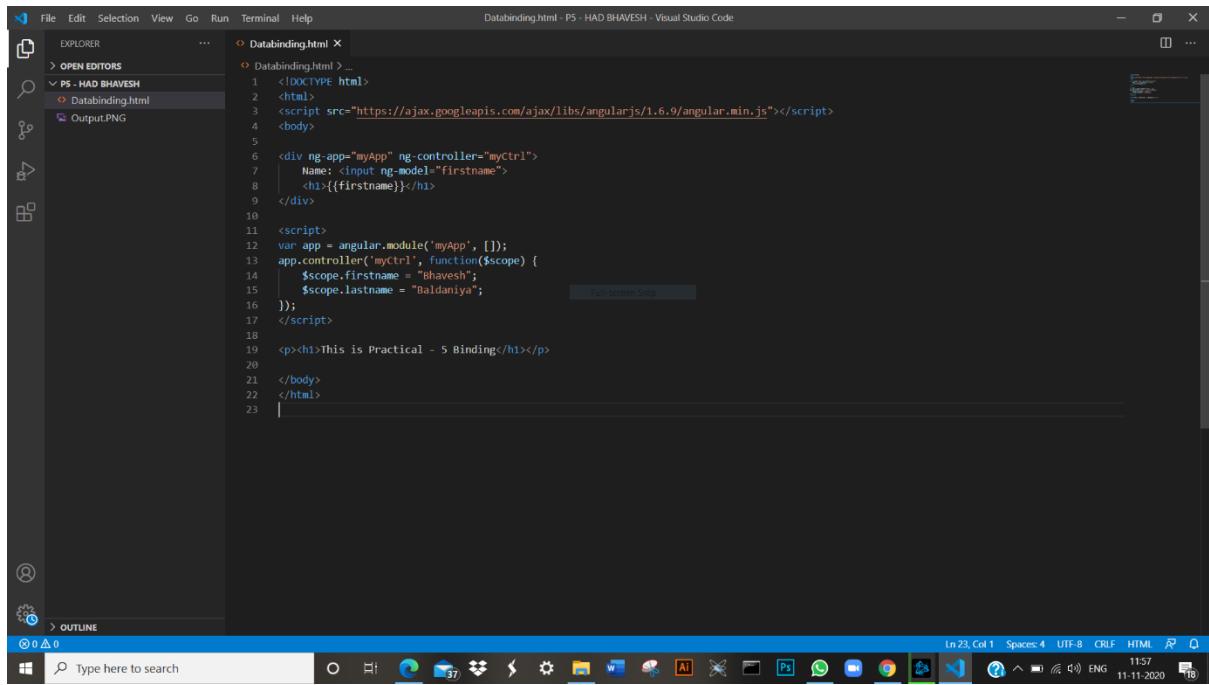
<b>Sr. No</b>	<b>Date</b>	<b>Topic</b>	<b>Sign</b>
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# PRACTICAL – 1

## Data Binding in Angular JS

- Data binding in AngularJS is the synchronization between the model and the view.
- The HTML container where the AngularJS application is displayed, is called the view. The view has access to the model, and there are several ways of displaying model data in the view. We can use the **ng-bind directive**, which will bind the inner HTML of the element to the specified model property.

### Code:



The screenshot shows the Visual Studio Code interface with the following details:

- File Bar:** File, Edit, Selection, View, Go, Run, Terminal, Help.
- Explorer:** Shows 'OPEN EDITORS' with 'Databinding.html' selected, and other files like 'PS - HAD BHAVESH' and 'Output.PNG'.
- Code Editor:** Displays the following HTML and JavaScript code for a simple AngularJS application:

```
<!DOCTYPE html>
<html>
<script src="https://ajax.googleapis.com/ajax/libs/angularjs/1.6.9/angular.min.js"></script>
<body>
<div ng-app="myApp" ng-controller="myCtrl">
<input ng-model="firstname">
<h1>{{firstname}}</h1>
</div>
<script>
var app = angular.module('myApp', []);
app.controller('myCtrl', function($scope) {
  $scope.firstname = 'Bhavesh';
  $scope.lastname = 'Balaniya';
});
</script>
<p>This is Practical - 5 Binding</p>
</body>
</html>
```

The code defines an AngularJS application with a controller named 'myCtrl'. It sets the 'firstname' model to 'Bhavesh' and the 'lastname' model to 'Balaniya'. The view uses the 'ng-bind' directive to display the 'firstname' value within an h1 tag. A script block also contains the AngularJS module definition and controller logic.

## **Output:**



**Bhavesh**

**This is Practical - 5 Binding**

[Full screen Edit]

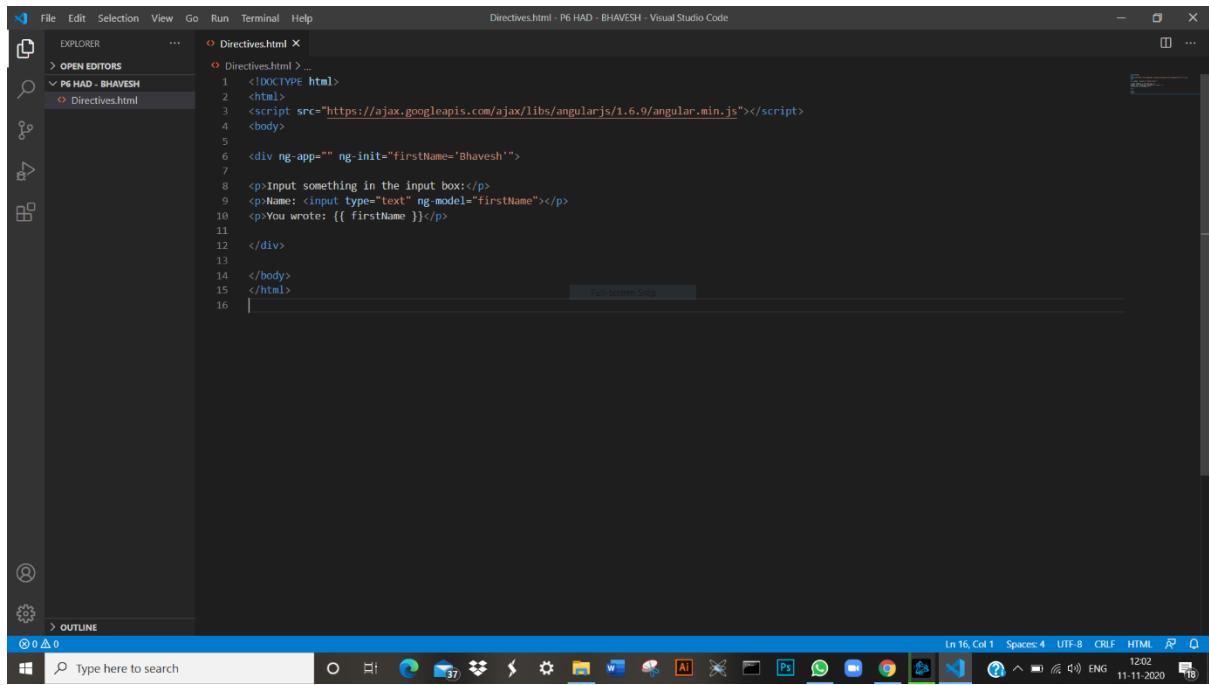


## PRACTICAL - 2

### Directives in Angular JS

- AngularJS lets you extend HTML with new attributes called **Directives**. AngularJS has a set of built-in directives which offers functionality to your applications.
- AngularJS directives are extended HTML attributes with the “**prefix ng-**”.
- The ng-app directive initializes an AngularJS application.

#### Code:



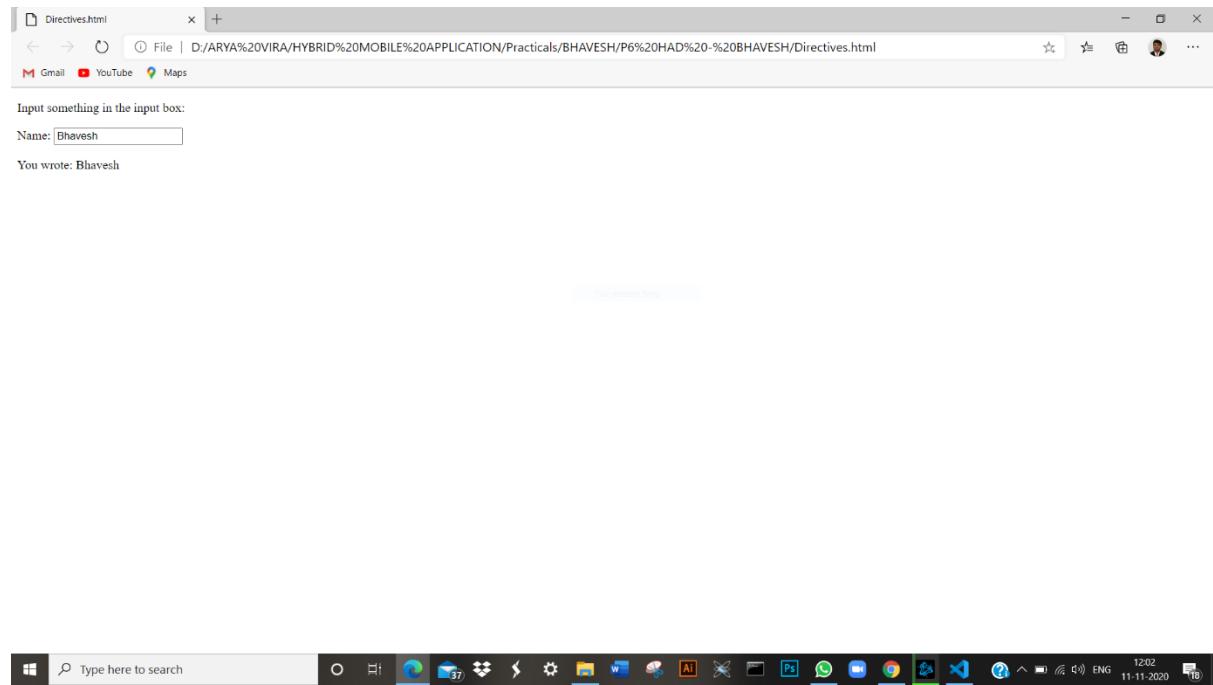
The screenshot shows the Visual Studio Code interface with the following details:

- File Bar:** File, Edit, Selection, View, Go, Run, Terminal, Help.
- Title Bar:** Directives.html - P6 HAD - BHAVESH - Visual Studio Code.
- Explorer:** Shows a folder named "P6 HAD - BHAVESH" containing "Directives.html".
- Editor:** Displays the content of "Directives.html":

```
<!DOCTYPE html>
<html>
<script src="https://ajax.googleapis.com/ajax/libs/angularjs/1.6.9/angular.min.js"></script>
<body>
<div ng-app="" ng-init="firstName='Bhavesh'">
<p>Input something in the input box:</p>
<p>Name: <input type="text" ng-model="firstName"></p>
<p>You wrote: {{ firstName }}</p>
</div>
</body>
</html>
```

- Bottom Status Bar:** In 16, Col 1, Spaces: 4, UTF-8, CRLF, HTML, 1202, 11-11-2020, ENG.

## **Output:**

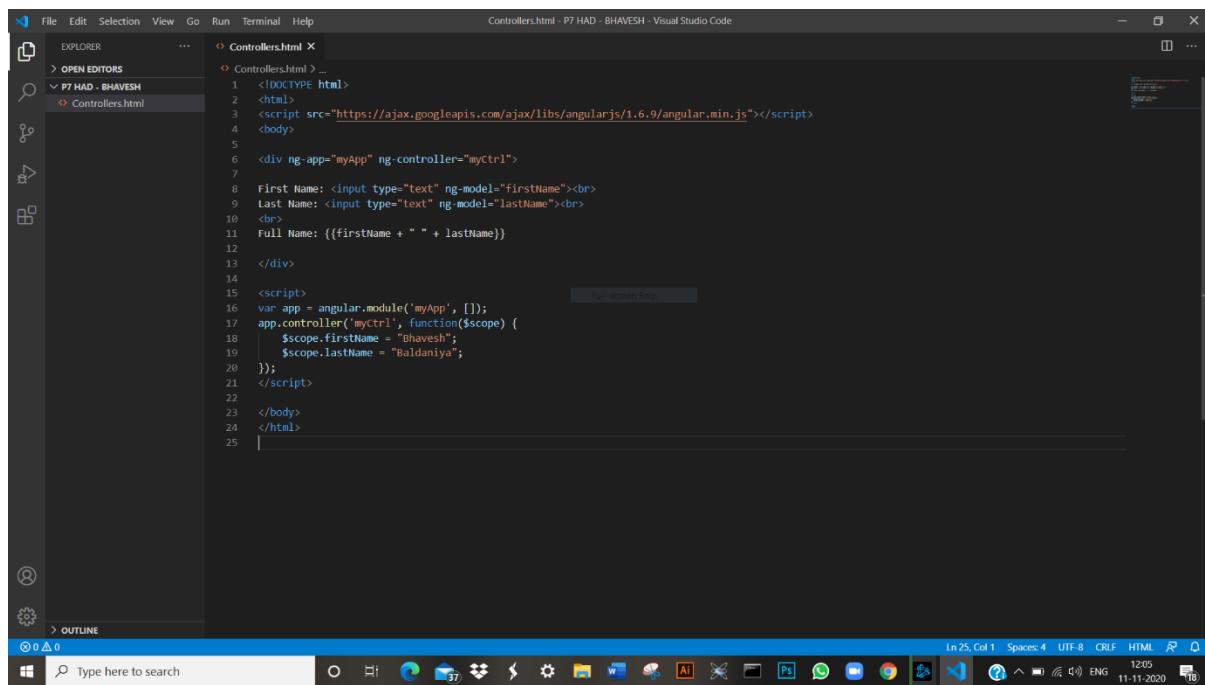


## PRACTICAL - 3

### Controllers in Angular JS

- AngularJS controllers **control the data** of AngularJS applications. AngularJS controllers are regular **JavaScript Objects**.
- 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**.
- AngularJS will invoke the controller with a **\$scope** object. In AngularJS, \$scope is the application object (the owner of application variables and functions). The controller creates two properties (variables) in the scope (**firstName** and **lastName**).
- The **ng-model** directives bind the input fields to the controller properties (firstName and lastName).

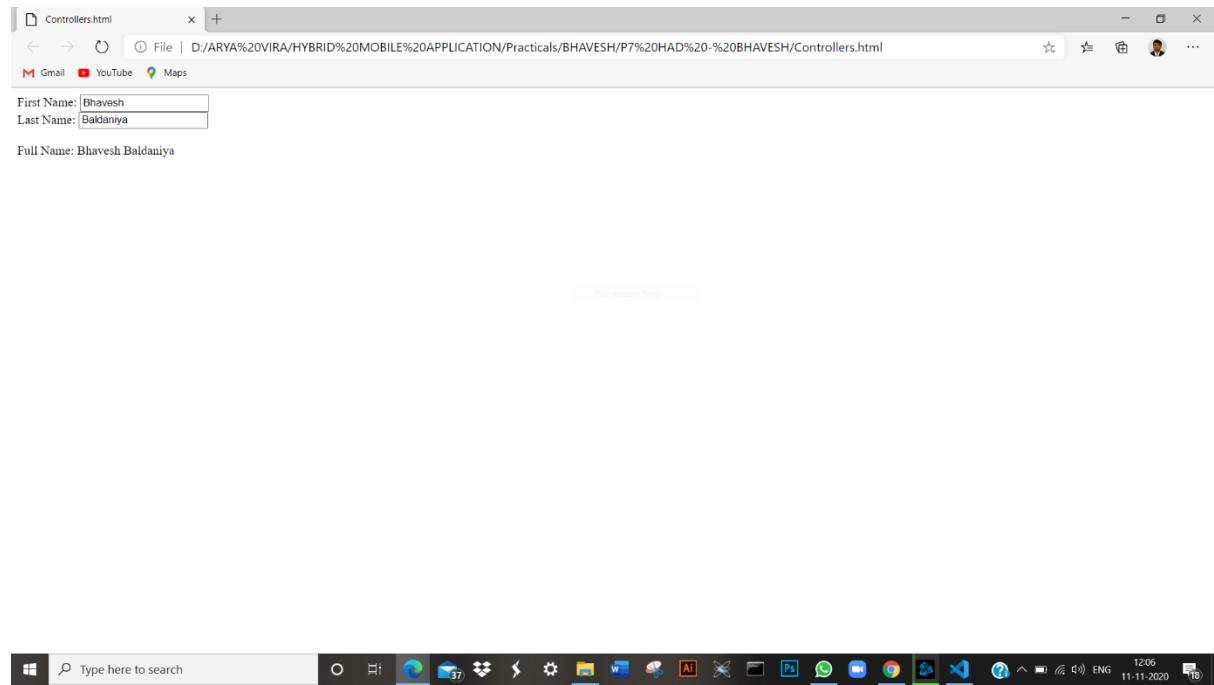
### Code:



The screenshot shows the Visual Studio Code interface with the file 'Controllers.html' open. The code is an AngularJS application with a controller named 'myCtrl'. It includes an HTML template with two text input fields for 'First Name' and 'Last Name', and a script block defining the controller which sets the scope's 'firstname' and 'lastname' properties to 'Bhavesh' and 'Baldaniya' respectively.

```
<!DOCTYPE html>
<html>
<script src="https://ajax.googleapis.com/ajax/libs/angularjs/1.6.9/angular.min.js"></script>
<body>
<div ng-app="myApp" ng-controller="myCtrl">
<br>
First Name: <input type="text" ng-model="firstName"><br>
Last Name: <input type="text" ng-model="lastName"><br>
<br>
Full Name: {{firstName + " " + lastName}}
</div>
<br>
<script>
var app = angular.module('myApp', []);
app.controller('myCtrl', function($scope) {
  $scope.firstname = "Bhavesh";
  $scope.lastname = "Baldaniya";
});
</script>
</body>
</html>
```

## **Output:**

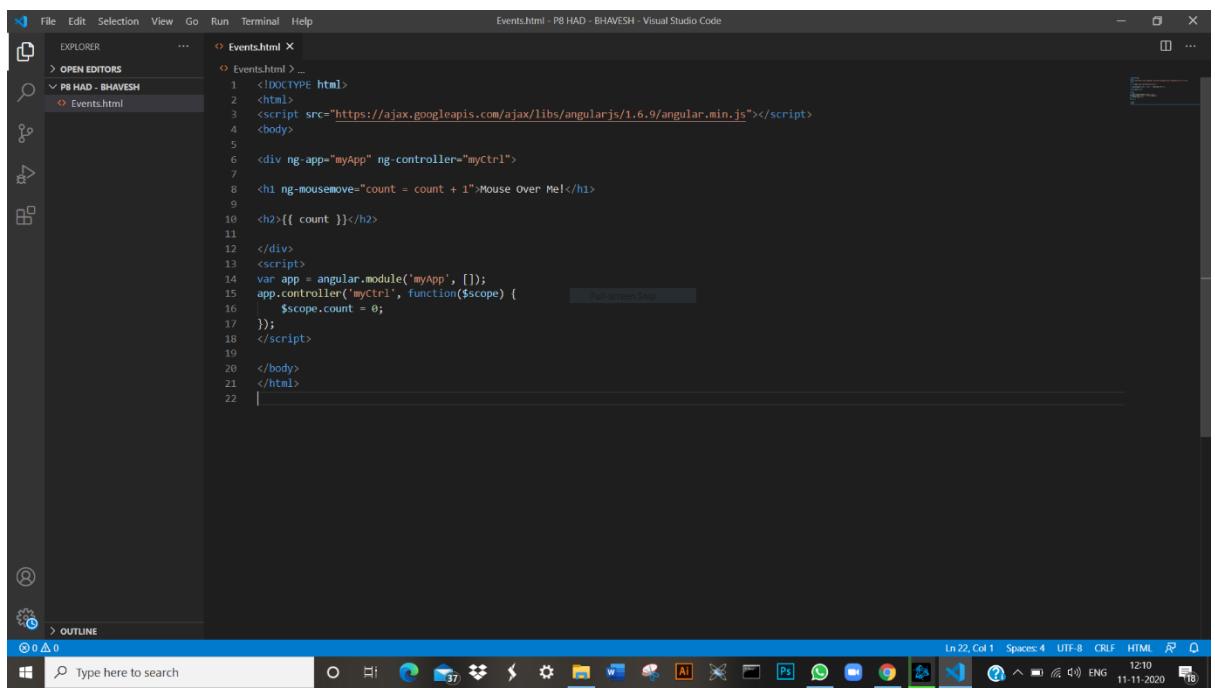


## PRACTICAL - 4

### Events in Angular JS

- AngularJS has its own HTML events directives. 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.
  - Mouse Events**
- Mouse events occur when the cursor moves over an element, in this order:
1. ng-mouseover
  2. ng-mouseenter
  - 3. ng-mousemove**
  4. ng-mouseleave
- Here I have used the ng-mousemove event to perform the Events in Angular JS.

### Code:



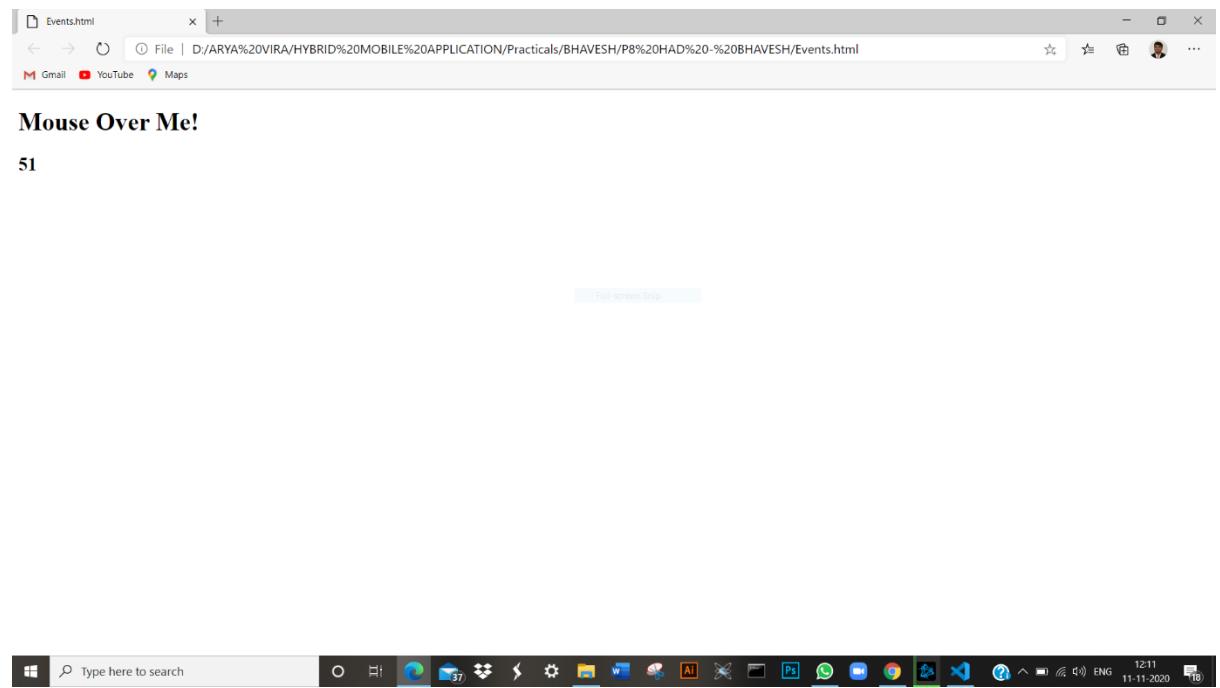
The screenshot shows the Visual Studio Code interface with a dark theme. The Explorer sidebar on the left shows a single file named "Events.html". The main editor area contains the following code:

```
<!DOCTYPE html>
<html>
<script src="https://ajax.googleapis.com/ajax/libs/angularjs/1.6.9/angular.min.js"></script>
<body>
<div ng-app="myApp" ng_controller="myCtrl">
<h1 ng-mousemove="count = count + 1">Mouse Over Me!

The code defines an AngularJS application with a controller named "myCtrl". It uses the "ng-mousemove" directive on an h1 element to increment a "count" variable by 1 each time the mouse moves over it. The controller also initializes the "count" variable to 0.


```

## **Output:**



## PRACTICAL – 5

### Ionic Create and Build First Project

#### Steps to Perform the Practical:

- **What is Hybrid App Development?**

This solution is a blend, hence the name hybrid, of both native and web solutions. Where the core of the application is written using web technologies (HTML, CSS, and JavaScript), which are then encapsulated within a native application. Through the use of plugins, these applications can have full access to the mobile device's features. To better understand this approach, let's break down how it all fits together.

- The heart of a hybrid-mobile application is still just an application that is written with HTML, CSS, and JavaScript. However, instead of the app being shown within the user's browser, it is run from within a native application and its own embedded browser, which is essentially invisible to the user. For example, an iOS application would use the WKWebView to display our application, while on Android it would use the WebView element to do the same function.
- This code is then embedded into a native application wrapper using a solution like Apache Cordova (also known as PhoneGap) or [Ionic's Capacitor](#). These solutions create a native shell application that is just the platform's webview component in which it will load your web application. This gives you the ability to create and publish true native applications that can be submitted to each of the platform's app stores for sale.
- Additionally, both Cordova and Capacitor have a plugin system that allows you to extend beyond the limitations of the 'browser' and access the full suite of capabilities of a user's mobile device. So, if you wanted to use TouchID on an iOS device as a login option, or wanted to connect to a Bluetooth device, this can be easily done by installing a plugin. These plugins are created by a wide range of developers and many are actively supported. Ionic even offers a complete ecosystem of supported plugins as part of its [Enterprise](#) solution. So, the limitations of a web-only application are easily overcome, allowing your application to have parity with native applications in their features.
- However, there are some drawbacks with this option. Similarly to the web-only application solution, the UI library has to be recreated. Here is where solutions like Ionic, NativeScript, Xamarin, React Native, and others step in. These options all provide robust UI components that look and feel like their native counterparts, giving you a full suite of building blocks for your application.
- The only other consideration to take into account is if your application is still running within the device's native browser. If so, you may encounter performance issues or other quirks specific to each platform or operating version.

- **How to create and ionic web app:**

The requirement for creating an Ionic web app is:

Node.js for interacting with the Ionic ecosystem\_Download the LTS version here.

A code editor for... writing code! We are fans of Visual Studio Code.

- **Command-line interface/terminal (CLI):**

Windows users: for the best Ionic experience, we recommend the built-in command line (cmd) or the PowerShell CLI, running in Administrator mode.

Mac/Linux users, virtually any terminal will work.

To open a terminal in Visual Studio Code, go to Terminal -> New Terminal.

\$ npm install -g @ionic/cli native-run Cordova-res. The -g option means install globally.

\$ ionic start dummy-project tabs

Then it will ask to choose a framework if you want to make it in angular choose angular

\$ cd dummy-project

\$ ionic serve.

To access the web page go on <http://localhost:8100>

- **Steps to perform the practical:**

1. **Installing nodejs:**

<https://nodejs.org/en/>

2. **Checking nodejs is installed.**

Go to your preferred path in cmd.

Type node --version

And

npm -- version

If both are installed.

3. **Installing angularjs**

Type the below code in cmd where node and npm is installed.

“npm install -g @angular/cli”

4. **Installing ionic**

Type the below code in cmd where node, angular and npm is installed.

“npm install -g @ionic/cli”

5. **To start an app in ionic.**

Type in cmd in the same path.

“Ionic start hello world blank”

6. **Now a folder will be created in the same path**

Change directory to that folder, by using.

“cd hello world”

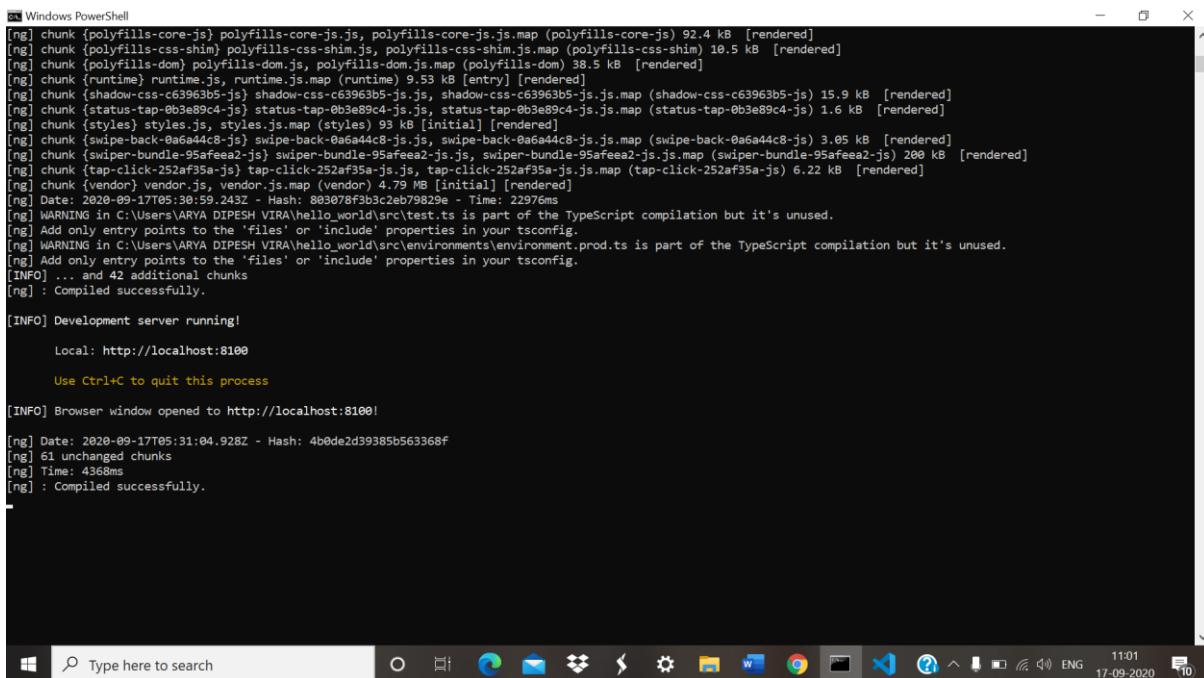
7. **and then in the hello\_world folder and type**

ionic serve

Now open,

“Chrome and type 127.0.0.1:8100” **And your app is created.**

## **Code:**



```
[ng] chunk {polyfills-core.js} polyfills-core.js, polyfills-core.js.map (polyfills-core.js) 92.4 kB [rendered]
[ng] chunk {polyfills-css-shim} polyfills-css-shim.js, polyfills-css-shim.js.map (polyfills-css-shim) 10.5 kB [rendered]
[ng] chunk {polyfills-dom} polyfills-dom.js, polyfills-dom.js.map (polyfills-dom) 38.5 kB [rendered]
[ng] chunk {runtime} runtime.js, runtime.js.map (runtime) 9.53 kB [entry] [rendered]
[ng] chunk {shadow-css-c63963b5.js} shadow-css-c63963b5.js, shadow-css-c63963b5.js.map (shadow-css-c63963b5.js) 15.9 kB [rendered]
[ng] chunk {status-tap-0b3e89c4.js} status-tap-0b3e89c4.js, status-tap-0b3e89c4.js.map (status-tap-0b3e89c4.js) 1.6 kB [rendered]
[ng] chunk {styles} styles.js, styles.js.map (styles) 93 kB [initial] [rendered]
[ng] chunk {swipe-back-0a6a44c8.js} swipe-back-0a6a44c8.js, swipe-back-0a6a44c8.js.map (swipe-back-0a6a44c8.js) 3.05 kB [rendered]
[ng] chunk {swiper-bundle-95afeea2.js} swiper-bundle-95afeea2.js, swiper-bundle-95afeea2.js.map (swiper-bundle-95afeea2.js) 200 kB [rendered]
[ng] chunk {tap-click-252af35a.js} tap-click-252af35a.js, tap-click-252af35a.js.map (tap-click-252af35a.js) 6.22 kB [rendered]
[ng] chunk {vendor} vendor.js, vendor.js.map (vendor) 4.79 MB [initial] [rendered]
[ng] Date: 2020-09-17T05:31:04.928Z - Hash: 4b0de2d39385b563368f
[ng] 61 unchanged chunks
[ng] Time: 4368ms
[ng] : Compiled successfully.

[INFO] Development server running!
Local: http://localhost:8100
Use Ctrl+C to quit this process

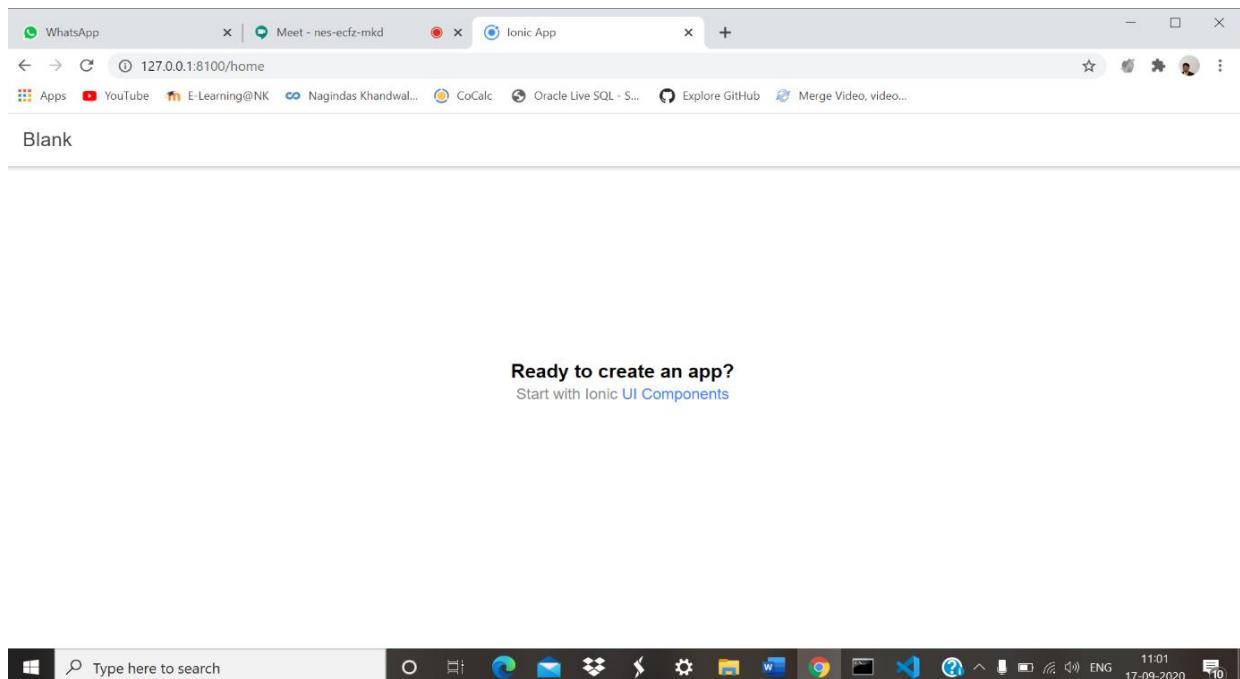
[INFO] Browser window opened to http://localhost:8100!

[ng] Date: 2020-09-17T05:31:04.928Z - Hash: 4b0de2d39385b563368f
[ng] 61 unchanged chunks
[ng] Time: 4368ms
[ng] : Compiled successfully.
```

- **Steps to create an ionic android app:**

- 1) After you have built the web app next command you should type is ionic cordova platform add android. This will add and android platform to your web app directory.
- 2) Now type ionic cordova build android to start building your android app.
- 3) Now type ionic cordova run android, If you have connect your machine to a phone and turned on USB debugging the app will export to your pc and if you are running an emulator the out will be like this.

## **Output:**



## PRACTICAL - 6

### Ionic Adding Cordova Android Platform

#### **What is Cordova?**

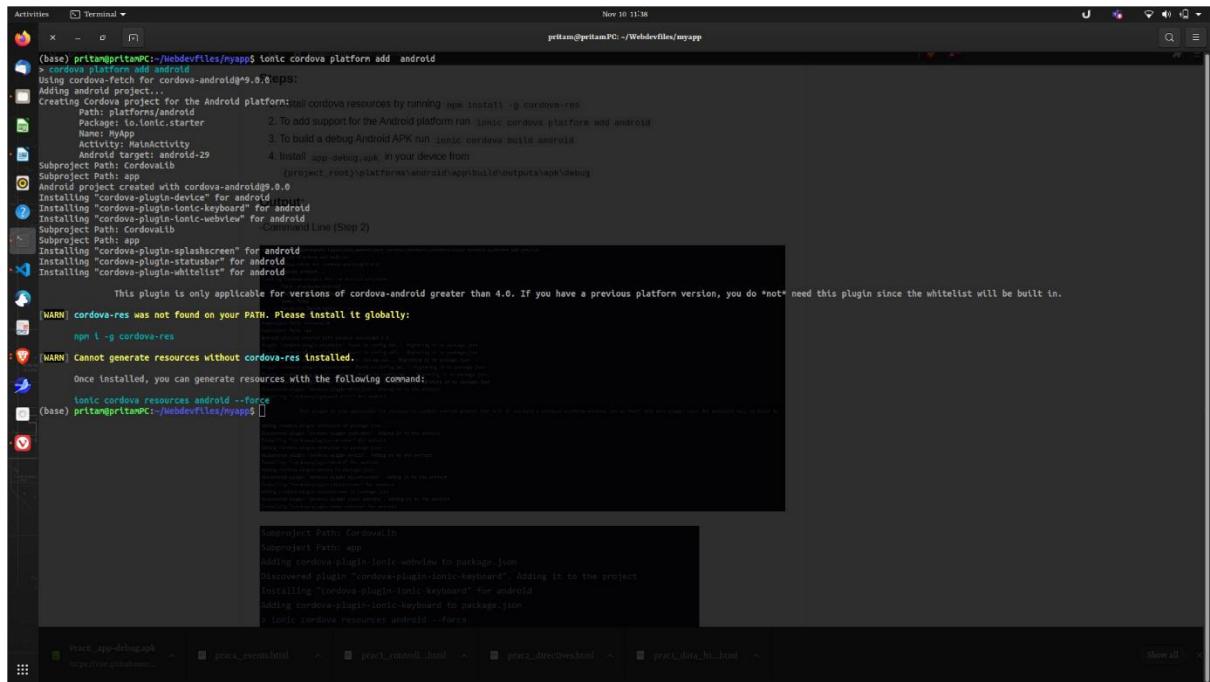
Apache Cordova is an open-source mobile development framework. It allows you to use standard web technologies - HTML5, CSS3, and JavaScript for crossplatform development. Applications execute within wrappers targeted to each platform, and rely on standards-compliant API bindings to access each device's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

Cordova can be used an integration for Ionic to export Ionic web apps to Native mobile applications like an Android APK.

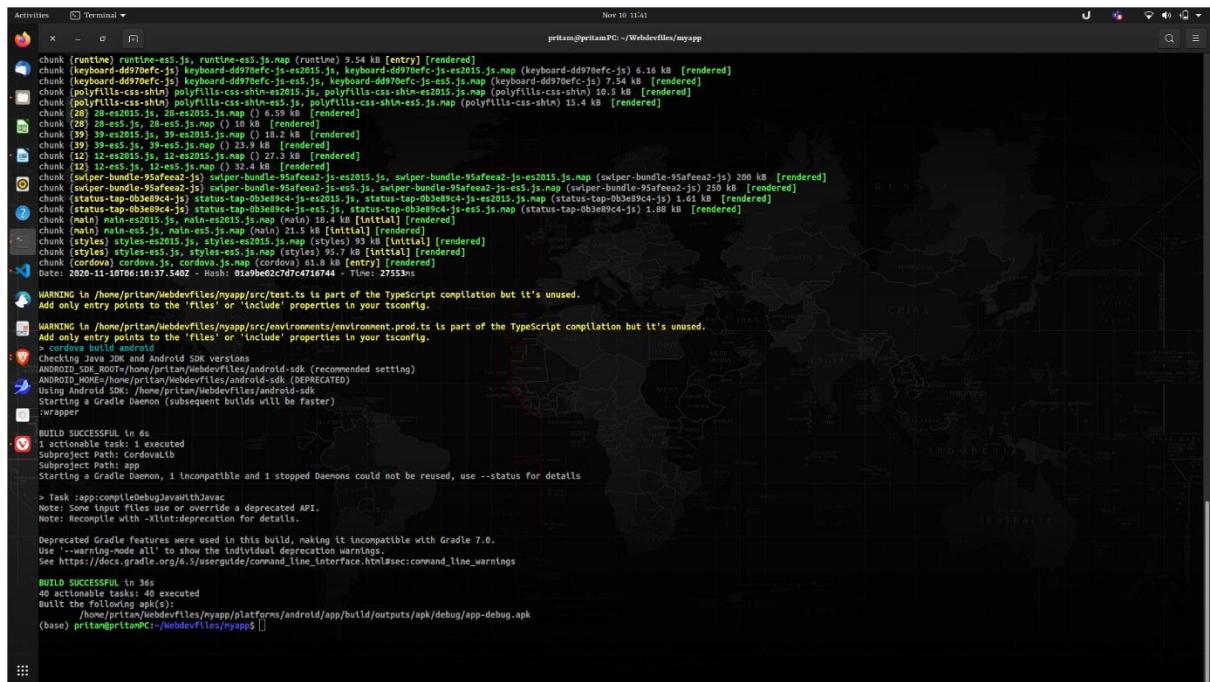
#### **Steps:**

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

## Code:



```
Activities Terminal Nov 10 11:38
(base) pritam@pritamPC:~/WebdevFiles/myapp$ ionic cordova platform add android
> cordova platform add android
Using cordova-fetch for cordova-android@~9.0.0-rc.1
Adding android
Creating Cordova project for the Android platform:
  Path: platforms/android
  Package: io.ionic.starter
  Name: app
  Activity: MainActivity
  Androdt target: android-29
  Subproject Path: CordovaLib
Subproject Path: app
Android project created with cordova-android@~9.0.0
Installing "cordova-plugin-device" for android
Installing "cordova-plugin-ionic-keyboard" for android
Installing "cordova-plugin-ionic-webview" for android
Subproject Path: CordovaLib
Subproject Path: app
Installing "cordova-plugin-splashscreen" for android
Installing "cordova-plugin-statusbar" for android
Installing "cordova-plugin-whitelist" for android
This plugin is only applicable for versions of cordova-android greater than 4.0. If you have a previous platform version, you do *not* need this plugin since the whitelist will be built in.
[WARN] cordova-res was not found on your PATH. Please install it globally.
  npx l -g cordova-res
[WARN] Cannot generate resources without cordova-res installed.
Once installed, you can generate resources with the following command:
  ionic cordova resources android --force
(base) pritam@pritamPC:~/WebdevFiles/myapp$
```



```
Activities Terminal Nov 10 11:41
pritam@pritamPC:~/WebdevFiles/myapp$ ionic build --prod
> ionic:build@0.0.1 /home/pritam/WebdevFiles/myapp
chunk [runtime] runtime-es5.js, runtime-es5.js.map (runtime) 9.54 kB [entry] [rendered]
chunk [keyboard-d970efc.js] keyboard-d970efc.js-es2015.js, keyboard-d970efc.js-es2015.js.map (keyboard-d970efc.js-es2015.js) 6.16 kB [rendered]
chunk [swiper-bundle-95afeea2.js] swiper-bundle-95afeea2.js-es2015.js, swiper-bundle-95afeea2.js-es2015.js.map (swiper-bundle-95afeea2.js-es2015.js) 259 kB [rendered]
chunk [polyfills-css-shim] polyfills-css-shim-es2015.js, polyfills-css-shim-es2015.js.map (polyfills-css-shim) 10.5 kB [rendered]
chunk [polyfills-css-shm] polyfills-css-shm-es5.js, polyfills-css-shm-es5.js.map (polyfills-css-shm) 15.4 kB [rendered]
chunk [28-es2015.js, 28-es2015.js.map] 28-es2015.js, 28-es2015.js.map () 6.59 kB [rendered]
chunk [29-es5.js, 29-es5.js.map] 29-es5.js, 29-es5.js.map () 10.5 kB [rendered]
chunk [30-es5.js, 30-es5.js.map] 30-es5.js, 30-es5.js.map () 18.1 kB [rendered]
chunk [39-es5.js, 39-es5.js.map] 39-es5.js, 39-es5.js.map () 23.9 kB [rendered]
chunk [12-es2015.js, 12-es2015.js.map] 12-es2015.js, 12-es2015.js.map () 27.3 kB [rendered]
chunk [13-es2015.js, 13-es2015.js.map] 13-es2015.js, 13-es2015.js.map () 27.3 kB [rendered]
chunk [swiper-bundle-95afeea2.js] swiper-bundle-95afeea2.js-es2015.js, swiper-bundle-95afeea2.js-es2015.js.map (swiper-bundle-95afeea2.js-es2015.js) 200 kB [rendered]
chunk [status-tap-0b3e89c4.js] status-tap-0b3e89c4.js-es2015.js, status-tap-0b3e89c4.js-es2015.js.map (status-tap-0b3e89c4.js-es2015.js) 259 kB [rendered]
chunk [status-tap-0b3e89c4.js] status-tap-0b3e89c4.js-es5.js, status-tap-0b3e89c4.js-es5.js.map (status-tap-0b3e89c4.js-es5.js) 1.61 kB [rendered]
chunk [status-tap-0b3e89c4.js] status-tap-0b3e89c4.js-es5.js.map (status-tap-0b3e89c4.js-es5.js) 1.88 kB [rendered]
chunk [main] main-es5.js, main-es5.js.map (main) 21.5 kB [initial] [rendered]
chunk [styles] styles-es2015.js, styles-es2015.js.map (styles) 93 kB [initial] [rendered]
chunk [styles] styles-es5.js, styles-es5.js.map (styles) 95.7 kB [initial] [rendered]
chunk [fonts] fonts-es2015.js, fonts-es2015.js.map (fonts) 1.6 kB [initial] [rendered]
Date: 2020-11-10T06:10:37.540Z - Hash: 019be02c7d7c471a7744 - Time: 27553ms

WARNING: In /home/pritam/WebdevFiles/myapp/src/test.ts is part of the TypeScript compilation but it's unused.
Add only entry points to the 'files' or 'include' properties in your tsconfig.

WARNING: In /home/pritam/WebdevFiles/myapp/src/environments/environment.prod.ts is part of the TypeScript compilation but it's unused.
Add only entry points to the 'files' or 'include' properties in your tsconfig.

Checking Java JRE and Android SDK versions
ANDROID_ROOT=/home/pritam/WebdevFiles/android-sdk (recommended setting)
ANDROID_HOME=/home/pritam/WebdevFiles/android-sdk (DEPRECATED)
Using Android SDK: /home/pritam/WebdevFiles/android-sdk
It is recommended to use a Gradle Daemon (subsequent builds will be faster)
(wrapper)

BUILD SUCCESSFUL in 6s
1 actionable task: 1 executed
Subproject Path: CordovaLib
Subproject Path: app
Starting a Gradle Daemon, 1 incompatible and 1 stopped daemons could not be reused, use --status for details
> Task :app:compileDebugJavaWithJavac
Note: Some input files use or override a deprecated API.
Note: Recompile with -Xlint:deprecation 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 36s
40 actionable tasks: 40 executed
Built the following apk(s):
  /home/pritam/WebdevFiles/myapp/platforms/android/app/build/outputs/apk/debug/app-debug.apk
(base) pritam@pritamPC:~/WebdevFiles/myapp$
```

## Output:

```
Activities Nov 10 11:59
pritan@pritanPC: ~/WebdevFiles/myapp

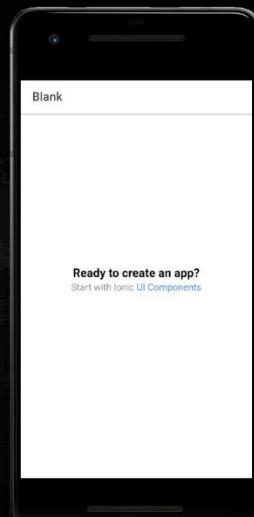
chunk [common] common-es2015.js, common-es5.js.map (common) 20.4 kB [rendered]
chunk [shadow-css-c63963b5.js] shadow-css-c63963b5.js-es2015.js.map (shadow-css-c63963b5.js) 15.9 kB [rendered]
chunk [18-es2015.js, 18-es2015.js.map] shadow-css-c63963b5.js-es2015.js.map (shadow-css-c63963b5.js-es2015.js.map) 16.1 kB [rendered]
chunk [18-es5.js, 18-es5.js.map] () 20.5 kB [rendered]
chunk [23-es2015.js, 23-es2015.js.map] () 21.6 kB [rendered]
chunk [23-es5.js, 23-es5.js.map] () 23.1 kB [rendered]
chunk [33-es2015.js, 33-es2015.js.map] () 58.6 kB [rendered]
chunk [33-es5.js, 33-es5.js.map] () 79.6 kB [rendered]
chunk [swiper-bundle-95afeea2.js] swiper-bundle-95afeea2.js-es2015.js.map (swiper-bundle-95afeea2.js) 200 kB [rendered]
chunk [swipe-back-0a6a44c8.js] swipe-back-0a6a44c8.js-es2015.js.map (swipe-back-0a6a44c8.js) 1.06 kB [rendered]
chunk [swipe-back-0a6a44c8.js] swipe-back-0a6a44c8.js-es5.js.map (swipe-back-0a6a44c8.js) 3.45 kB [rendered]
chunk [vendor] vendor-es2015.js, vendor-es2015.js.map (vendor) 4.45 MB [initial] [rendered]
chunk [vendor] vendor-es5.js, vendor-es5.js.map (vendor) 3.55 MB [initial] [rendered]
chunk [41-es5.js, 41-es5.js.map] () 22.2 kB [rendered]
chunk [22-es2015.js, 22-es2015.js.map] () 22.6 kB [rendered]
chunk [22-es5.js, 22-es5.js.map] () 28.1 kB [rendered]
chunk [15-es5.js, 15-es5.js.map] () 26.4 kB [rendered]
chunk [styles] styles-es2015.js, styles-es2015.js.map (styles) 93 kB [initial] [rendered]
chunk [styles] styles-es5.js, styles-es5.js.map (styles) 95.7 kB [initial] [rendered]
chunk [status-tap-0b3e9c4.js] status-tap-0b3e9c4.js-es2015.js.map (status-tap-0b3e9c4.js) 1.61 kB [rendered]
chunk [36-es2015.js, 36-es2015.js.map] () 24.1 kB [rendered]
chunk [36-es5.js, 36-es5.js.map] () 27.7 kB [rendered]
[✓] cordova [cordova] cordova.js, cordova.js.map (cordova) 61.6 kB [entry] [rendered]
Date: 2020-11-10T06:14:59.004Z - Hash: 91a09a02c7d7c071c744 - Time: 31428ms

WARNING In /home/pritan/WebdevFiles/myapp/src/test.ts is part of the TypeScript compilation but it's unused.
Add only entry points to the 'files' or 'include' properties in your tsconfig.
WARNING In /home/pritan/WebdevFiles/myapp/src/environments/environment.prod.ts is part of the TypeScript compilation but it's unused.
Add only entry points to the 'files' or 'include' properties in your tsconfig.

[✓] Check Java JDK and Android SDK versions
  ANDROID_HOME=/home/pritan/WebdevFiles/android-sdk (DEPRECATED)
    Using Android SDK: /home/pritan/WebdevFiles/android-sdk
      Project Path: /home/pritan/WebdevFiles
        SubProject Path: app

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/6.3/userguide/command_line_interface.html#sec:command_line_warnings

BUILD SUCCESSFUL in 76s
40 actionable tasks: 40 up-to-date
Built the following apk(s):
  /home/pritan/WebdevFiles/myapp/platforms/android/app/build/outputs/apk/debug/app-debug.apk
> native-run android --app platforms/android/app/build/outputs/apk/debug/app-debug.apk
[native-run] Selected emulator: emulator-5554
[native-run] Installing platforms/android/app/build/outputs/apk/debug/app-debug.apk...
[native-run] Starting application activity to:io.tonicstarter.tonicstarter.MainActivity...
[native-run] Run Successful
(base) pritan@pritanPC:~/WebdevFiles/myapp$
```



## PRACTICAL - 7

### Ionic 2/Ionic 4-Create, Generate and Add Pages

#### Steps to Perform the Practical:

<b>1.</b>	Ionic start project_name
<b>2.</b>	import new template named as – “Tutorial” --type=ionic-angular
<b>3.</b>	ionic start MyFirstApp Tutorial --type=ionic-angular
<b>4.</b>	Open your folder in CMD by using cd (folder name) now type “ionic serve” in CMD
<b>5.</b>	now open (visual studio application)  To add new page in ionic project command - “ionic g pages about”
<b>6.</b>	open the project folder that you had created
<b>7.</b>	In visual studio application open SRC>APP>APP.COMPONENT.TS>APP.MODULE.TS
<b>8.</b>	Now open Pages file in visual studio application/ new CMD window and then open - APP.MODULE.TS folder You will see many code of lines.
<b>9.</b>	Write this command - import { AboutPage } from './pages/about/about'; In below of the other page on 9 <sup>th</sup> line of the APP.MODULE.TS page.
<b>10.</b>	Now open APP.COMPONENT.TS folder and type this command – import { AboutPage } from './pages/about/about';
<b>11.</b>	In the APP.MODULE.TS page go to the the “@NgModule Part” (i.e line no 14 of APP.MODULE.TS page) and below the “ ListPage ” type AboutPage
<b>12.</b>	In the APP.MODULE.TS page go to the the “bootstrap : [Ionic App]”(i.e line no 26 of APP.MODULE.TS page) and below the “ ListPage ” type AboutPage
<b>13.</b>	. In the APP.COMPONENT.TS page go to the “this.pages” part (i.e. line no 32 of APP.COMPONENT.TS page) and below  “title: 'My First List', component: ListPage”  type title: 'AboutUs', component: AboutPage
<b>14.</b>	Save all the files

## Code:

```
Windows PowerShell
Microsoft Windows [Version 10.0.18362.1082]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\ARYA DIPESH VIRA\MyFirstApp>code .

C:\Users\ARYA DIPESH VIRA\MyFirstApp>ionic serve
> ionic-app-scripts.cmd serve --address localhost --port 8100 --livereload-port 35729 --dev-logger-port 53703 --nobrowser
[app-scripts] [15:22:52] ionic-app-scripts 3.2.4
[app-scripts] [15:22:52] watch started ...
[app-scripts] [15:22:52] build dev started ...
[app-scripts] [15:22:52] clean started ...
[app-scripts] [15:22:52] clean finished in 7 ms
[app-scripts] [15:22:52] copy started ...
[app-scripts] [15:22:52] deeplinks started ...
[app-scripts] [15:22:52] deeplinks finished in 15 ms
[app-scripts] [15:22:52] transpile started ...
[app-scripts] [15:22:55] transpile finished in 2.59 s
[app-scripts] [15:22:55] preprocess started ...
[app-scripts] [15:22:55] preprocess finished in less than 1 ms
[app-scripts] [15:22:55] webpack started ...
[app-scripts] [15:22:55] copy finished in 2.74 s
[app-scripts] [15:22:57] webpack finished in 2.77 s
[app-scripts] [15:22:57] sass started ...
[app-scripts] [15:22:59] sass finished in 1.32 s
[app-scripts] [15:22:59] postprocess started ...
[app-scripts] [15:22:59] postprocess finished in 17 ms
[app-scripts] [15:22:59] lint started ...
[app-scripts] [15:22:59] build dev finished in 6.79 s
[app-scripts] [15:22:59] watch ready in 6.95 s

[INFO] Development server running!
  Local: http://localhost:8100
  Use Ctrl+C to quit this process

[INFO] Browser window opened to http://localhost:8100!

[app-scripts] [15:23:02] lint finished in 3.81 s
```

The screenshot shows the Visual Studio Code interface with the following details:

- File Path:** app.module.ts - MyFirstApp - Visual Studio Code
- Code Content:**

```
src > app > TS app.module.ts > AppModule
1 import { BrowserModule } from '@angular/platform-browser';
2 import { NgModule, ErrorHandler } from '@angular/core';
3 import { IonicApp, IonicModule, IonicErrorHandler } from 'ionic-angular';
4 import { MyApp } from './app.component';
5
6 import { HelloIonicPage } from '../pages/hello-ionic/hello-ionic';
7 import { ItemDetailsPage } from '../pages/item-details/item-details';
8 import { ListPage } from '../pages/list/list';
9 import { AboutPage } from '../pages/about/about';
10
11 import { StatusBar } from '@ionic-native/status-bar';
12 import { SplashScreen } from '@ionic-native/splash-screen';
13
14 @NgModule({
15   declarations: [
16     MyApp,
17     HelloIonicPage,
18     ItemDetailsPage,
19     ListPage,
20     AboutPage
21   ],
22   imports: [
23     BrowserModule,
24     IonicModule.forRoot(MyApp),
25   ],
26   bootstrap: [IonicApp],
27   entryComponents: [
28     MyApp,
29     HelloIonicPage,
30     ItemDetailsPage,
31     ListPage,
32     AboutPage
33   ],
34   providers: [
35     StatusBar,
36     SplashScreen,
37     {provide: ErrorHandler, useClass: IonicErrorHandler}
38 ]
39 })
40 export class AppModule {}
```

- Bottom Status Bar:** Ln 16, Col 11 | Spaces: 2 | UTF-8 | LF | TypeScript 4.0.2 | 1529 | ENG | 21-09-2020 |

The screenshot shows the Visual Studio Code interface with the following details:

- File Path:** app.module.ts - MyFirstApp - Visual Studio Code
- Code Content:**

```
src > app > TS app.module.ts > AppModule
11 import { StatusBar } from '@ionic-native/status-bar';
12 import { SplashScreen } from '@ionic-native/splash-screen';
13
14 @NgModule({
15   declarations: [
16     MyApp,
17     HelloIonicPage,
18     ItemDetailsPage,
19     ListPage,
20     AboutPage
21   ],
22   imports: [
23     BrowserModule,
24     IonicModule.forRoot(MyApp),
25   ],
26   bootstrap: [IonicApp],
27   entryComponents: [
28     MyApp,
29     HelloIonicPage,
30     ItemDetailsPage,
31     ListPage,
32     AboutPage
33   ],
34   providers: [
35     StatusBar,
36     SplashScreen,
37     {provide: ErrorHandler, useClass: IonicErrorHandler}
38   ]
39 })
40 export class AppModule {}
```

- Bottom Status Bar:** Ln 16, Col 11 | Spaces: 2 | UTF-8 | LF | TypeScript 4.0.2 | 1529 | ENG | 21-09-2020 |

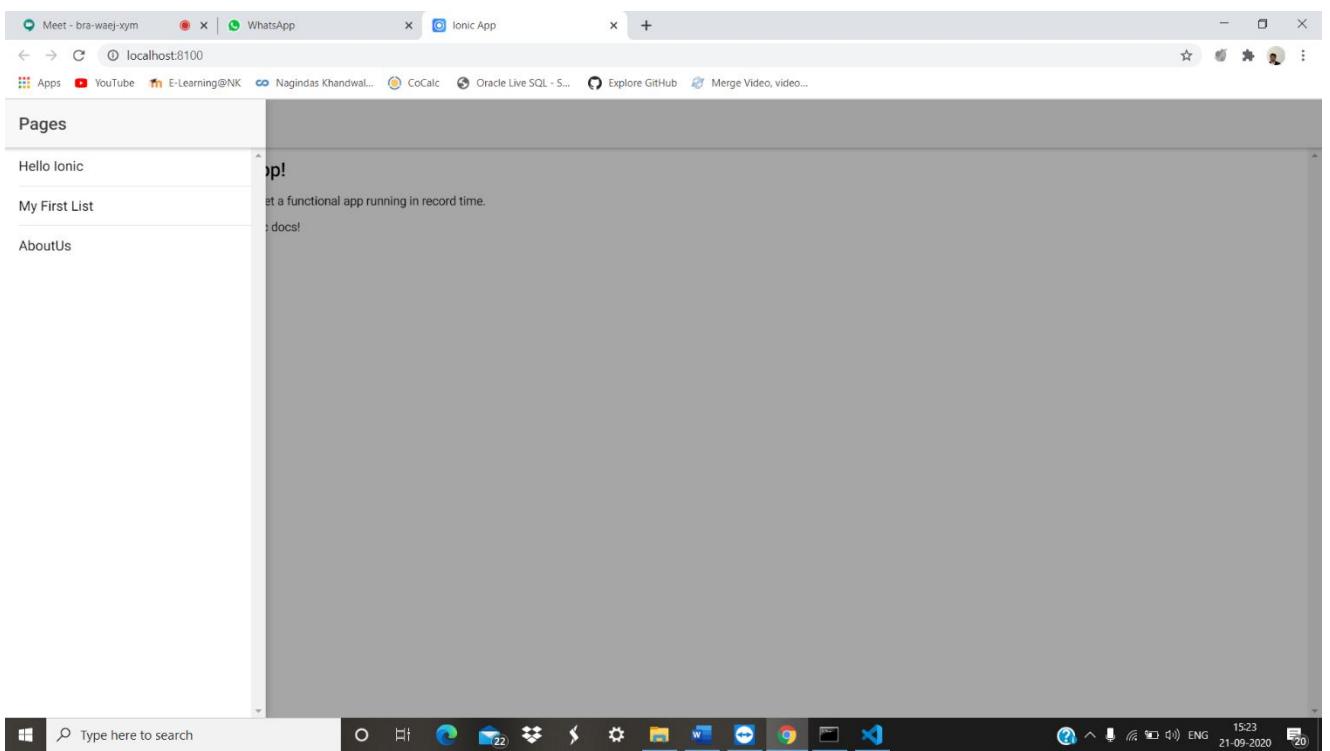
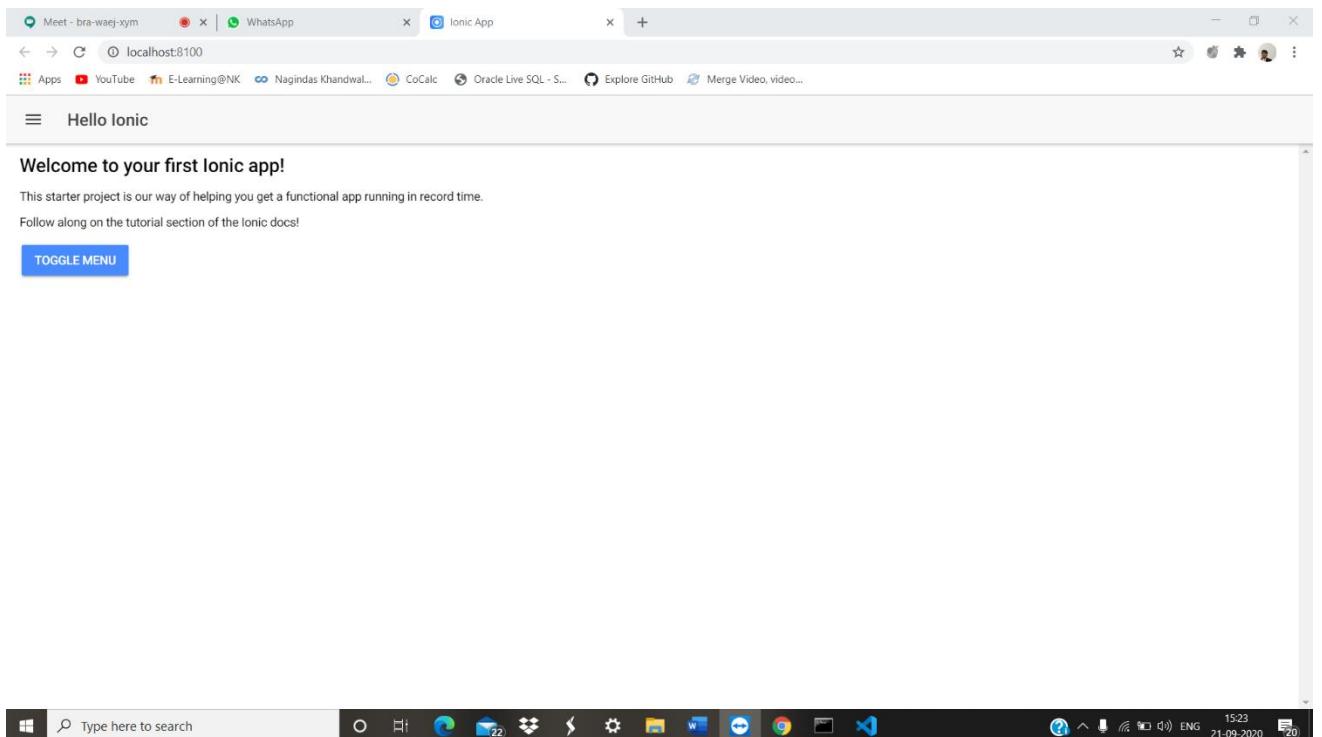
The screenshot shows the Visual Studio Code interface with the following details:

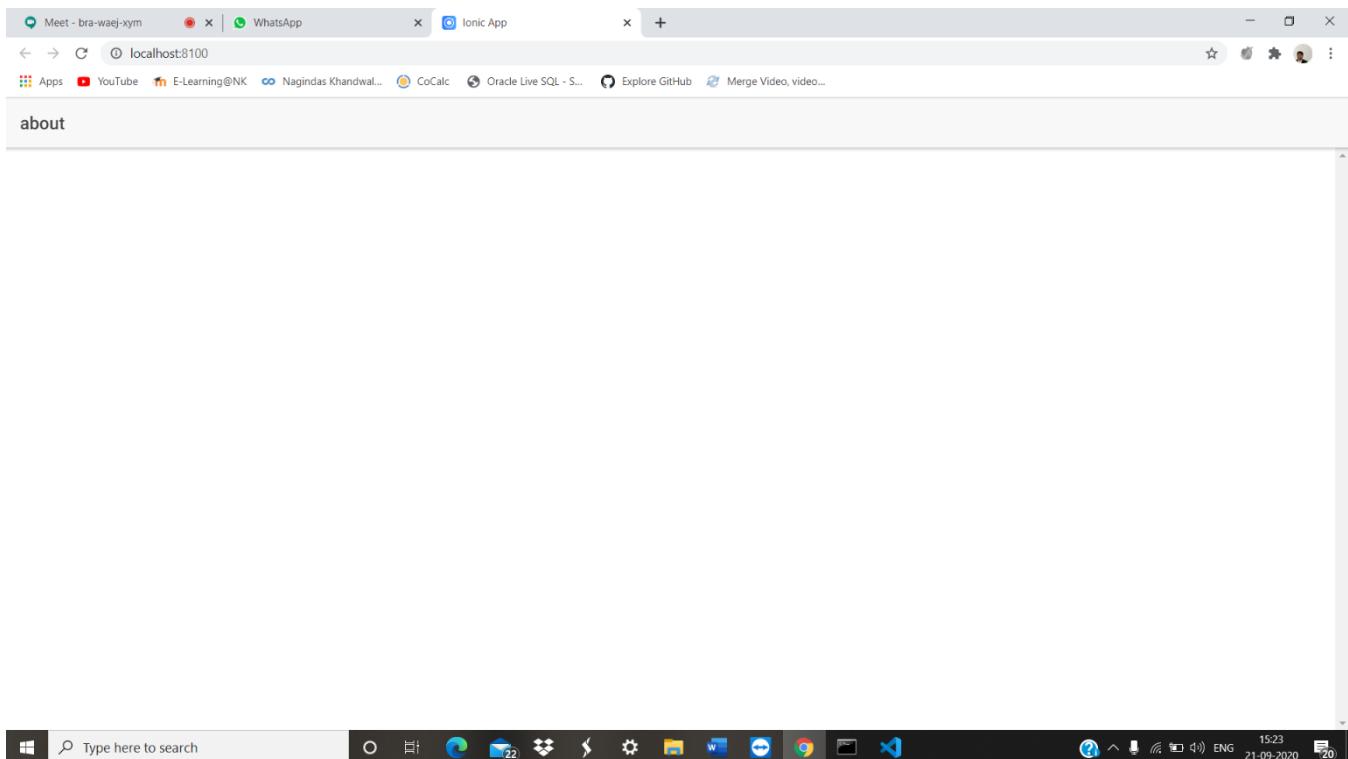
- File Explorer:** Shows the project structure under "MYFIRSTAPP".
- Editor:** The "app.component.ts" file is open in the center editor tab.
- Code:** The code for the app component is displayed, including imports for Component, ViewChild, Platform, MenuController, Nav, HelloIonicPage, ListPage, AboutPage, StatusBar, and SplashScreen. It defines a MyApp class with a constructor that initializes the platform, menu, statusBar, and splashScreen. It sets the root page to HelloIonicPage and defines three pages: Hello Ionic, My First List, and AboutUs.
- Status Bar:** Shows the line number (Ln 33, Col 23), character count (42 selected), spaces (Spaces: 2), encoding (UTF-8), line separator (LF), TypeScript version (4.0.2), and date (21-09-2020).

The screenshot shows the Visual Studio Code interface with the following details:

- File Explorer:** Shows the project structure under "MYFIRSTAPP".
- Editor:** The "app.component.ts" file is open in the center editor tab.
- Code:** The code for the app component is displayed, similar to the first screenshot but with some differences in the implementation of the constructor and the addition of a ready() function and openPage(page) method.
- Status Bar:** Shows the line number (Ln 33, Col 23), character count (42 selected), spaces (Spaces: 2), encoding (UTF-8), line separator (LF), TypeScript version (4.0.2), and date (21-09-2020).

## Output:





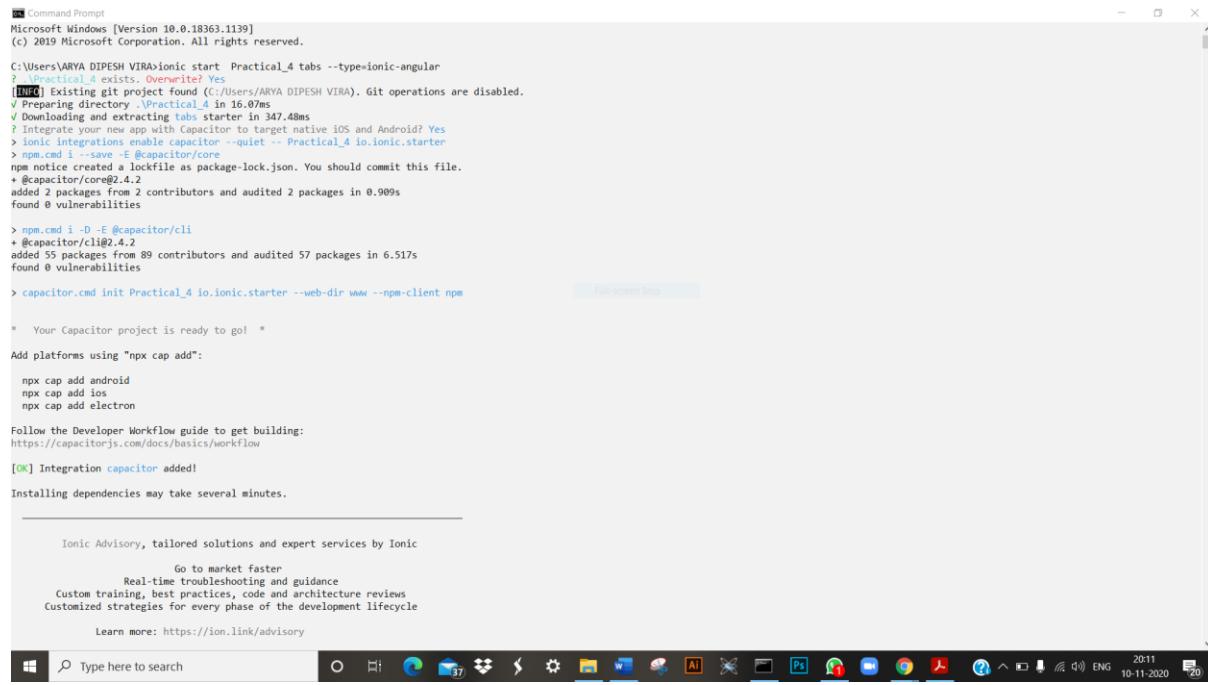
## PRACTICAL - 8

### Ionic CLI v3-start command templates and options

#### 1. Ionic Templates: Tabs

Tabs - A starting project with a simple tabbed interface

#### Code of Ionic Tabs:



```
C:\ Command Prompt
Microsoft Windows [Version 10.0.18363.1139]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\ARYA DIPESH VIRAionic start Practical_4 tabs --type=ionic-angular
? Practical_4 exists. Overwrite? Yes
[INFO] Existing git project found (C:/Users/ARYA DIPESH VIRA). Git operations are disabled.
✓ Preparing directory .\Practical_4 in 16.07ms
✓ Downloading and extracting tabs starter in 347.48ms
? Integrate your new app with Capacitor to target native iOS and Android? Yes
> ionic integrations enable capacitor --quiet -- Practical_4 io.ionic.starter
> npm i @capacitor/core
npm notice created a lockfile as package-lock.json. You should commit this file.
+ @capacitor/core@2.4.2
added 2 packages from 2 contributors and audited 2 packages in 0.909s
found 0 vulnerabilities

> npm.cmd i -D -E @capacitor/cli
+ @capacitor/cli@2.4.2
added 55 packages from 89 contributors and audited 57 packages in 6.517s
found 0 vulnerabilities

> capacitor.cmd init Practical_4 io.ionic.starter --web-dir www --npm-client npm
Full-screen Help

* Your Capacitor project is ready to go! *

Add platforms using "npx cap add":
  npx cap add android
  npx cap add ios
  npx cap add electron

Follow the Developer Workflow guide to get building:
https://capacitorjs.com/docs/basics/workflow

[OK] Integration capacitor added!

Installing dependencies may take several minutes.

Ionic Advisory, tailored solutions and expert services by Ionic
  Go to market faster
  Real-time troubleshooting and guidance
  Custom training, best practices, code and architecture reviews
  Customized strategies for every phase of the development lifecycle

Learn more: https://ion.link/advisory

Windows Type here to search 20:11 10-11-2020 ENG
```

```
> npm cmd i
npm WARN deprecated sw-toolbox@3.6.0: Please migrate to Workbox: https://developers.google.com/web/tools/workbox/guides/migrations/migrate-from-sw
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 chokidar@1.7.0: Chokidar 2 will break on node v14+. Upgrade to chokidar 3 with 15x less dependencies.
npm WARN deprecated rollup-plugin-commonjs@8.2.6: This package has been deprecated and is no longer maintained. Please use @rollup/plugin-commonjs.
npm WARN deprecated rollup-plugin-node-resolve@0.0.0: This package has been deprecated and is no longer maintained. Please use @rollup/plugin-node-resolve.
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 browserslist@2.11.3: Browserslist 2 could fail on reading Browserslist >>.0 config used in other tools.
npm WARN deprecated request@2.88.2: request has been deprecated, see https://github.com/request/request#issues/3142
npm WARN deprecated har-validator@0.1.5: this library is no longer supported
npm WARN deprecated resolve-url@0.2.1: https://github.com/lydell/resolve-url#deprecated
npm WARN deprecated uri@0.1.0: Please see https://github.com/lydell/uri#deprecated

> node-sass@4.14.1 install C:\Users\ARYA DIPESH VIRA\Practical_4\node_modules\node-sass
> node scripts/install.js

Cached binary found at C:\Users\ARYA DIPESH VIRA\AppData\Roaming\npm-cache\node-sass\4.14.1\win32-x64-72_binding.node

> uglifyjs-webpack-plugin@0.4.6 postinstall C:\Users\ARYA DIPESH VIRA\Practical_4\node_modules\uglifyjs-webpack-plugin
  node lib/post_install.js

> node-sass@4.14.1 postinstall C:\Users\ARYA DIPESH VIRA\Practical_4\node_modules\node-sass
  node scripts/build.js

Binary found at C:\Users\ARYA DIPESH VIRA\Practical_4\node_modules\node-sass\vendor\win32-x64-72\binding.node
Testing binary
Binary is fine
npm WARN optional SKIPPING OPTIONAL DEPENDENCY: fsevents@1.0.0 (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@2.1.2 (node_modules\watchpack\node_modules\chokidar\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"})

added 742 packages from 582 contributors and audited 802 packages in 44.37s

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

found 3 low severity vulnerabilities
  run `npm audit fix` to fix them, or `npm audit` for details

Join the Ionic Community! 🌟

Connect with millions of developers on the Ionic Forum and get access to live events, news updates, and more.

? Create free Ionic account? No

Your Ionic app is ready! Follow these next steps:
```

```
C:\ Command Prompt
Binary found at C:\Users\ARYA DIPESH VIRA\Practical_4\node_modules\node-sass\vendor\win32-x64-72\binding.node
Testing binary
Binary is fine
npm WARN optional SKIPPING OPTIONAL DEPENDENCY: fsevents@~1.0.0 (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@~2.1.2 (node_modules\watchpack\node_modules\chokidar\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"})

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? Create free Ionic account? No

Your Ionic app is ready! Follow these next steps:

- Go to your new project: cd ./Practical_4
- Run ionic serve within the app directory to see your app in the browser
- Run ionic capacitor add to add a native iOS + Android project using Capacitor
- Generate your app icon and splash screens using cordova res -skipconfig --copy
- Explore the Ionic docs for components, tutorials, and more: https://ion.link/docs
- Building an enterprise app? Ionic has Enterprise Support and Features: https://ion.link/enterprise-edition

C:\Users\ARYA DIPESH VIRA>
```

```
Windows PowerShell
added 742 packages from 582 contributors and audited 802 packages in 44.372s

9 packages are looking for funding
  run 'npm fund' for details

found 3 low severity vulnerabilities
  run 'npm audit fix' to fix them, or 'npm audit' for details

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- Run ionic serve within the app directory to see your app in the browser
- Run ionic capacitor add to add a native iOS or Android project using Capacitor
- Generate your app icon and splash screens using cordova-res --skip-config --copy
- Explore the Ionic docs for components, tutorials, and more: https://ion.link/docs
- Building an enterprise app? Ionic has Enterprise Support and Features: https://ion.link/enterprise-edition

C:\Users\ARYA DIPESH VIRA>cd Practical_4
C:\Users\ARYA DIPESH VIRA\Practical_4>code .

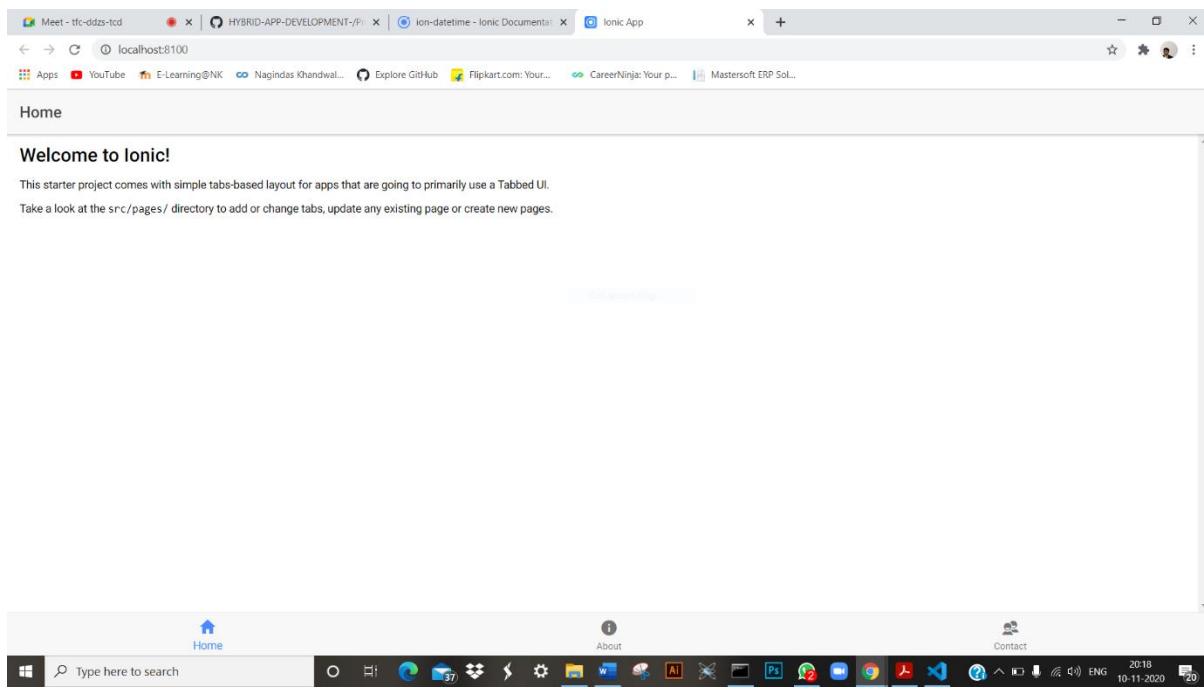
C:\Users\ARYA DIPESH VIRA\Practical_4>ionic serve -address localhost --port 8100 --livereload-port 35729 --dev-logger-port 53703 --nobrowser
[app-scripts] [20:16:46] ionic-app-scripts 3.2.4
[app-scripts] [20:16:47] watch started ...
[app-scripts] [20:16:47] build dev started ...
[app-scripts] [20:16:47] clean started ...
[app-scripts] [20:16:47] clean finished in 5 ms
[app-scripts] [20:16:47] copy started ...
[app-scripts] [20:16:47] copy finished ...
[app-scripts] [20:16:47] deeplinks finished in 28 ms
[app-scripts] [20:16:47] transpile started ...
[app-scripts] [20:16:53] transpile finished in 6.38 s
[app-scripts] [20:16:53] preprocess started ...
[app-scripts] [20:16:53] preprocess finished in 2 ms
[app-scripts] [20:16:53] webpack started ...
[app-scripts] [20:16:53] copy finished in 6.79 s
[app-scripts] [20:17:01] webpack finished in 7.97 s
[app-scripts] [20:17:01] sass started ...
[app-scripts] [20:17:04] sass finished in 2.69 s
[app-scripts] [20:17:04] postprocess started ...
[app-scripts] [20:17:04] postprocess finished in 6 ms
[app-scripts] [20:17:04] lint started ...
[app-scripts] [20:17:04] build dev finished in 17.23 s
```

```
C:\Windows PowerShell
C:\Users\ARYA DIPESH VIRAJ\Practical_ionicionic serve
> ionic-app-scripts serve --address localhost --port 8100 --livereload-port 35729 --dev-logger-port 53703 --nobrowser
[app-scripts] [20:16:46] ionic-app-scripts 3.2.4
[app-scripts] [20:16:47] watch started ...
[app-scripts] [20:16:47] build dev started ...
[app-scripts] [20:16:47] clean started ...
[app-scripts] [20:16:47] clean finished in 5 ms
[app-scripts] [20:16:47] copy started ...
[app-scripts] [20:16:47] dependencies started ...
[app-scripts] [20:16:47] dependencies finished in 28 ms
[app-scripts] [20:16:47] transpile started ...
[app-scripts] [20:16:53] transpile finished in 6.38 s
[app-scripts] [20:16:53] preprocess started ...
[app-scripts] [20:16:53] preprocess finished in 2 ms
[app-scripts] [20:16:53] webpack started ...
[app-scripts] [20:16:53] copy finished in 6.79 s
[app-scripts] [20:17:01] webpack finished in 7.97 s
[app-scripts] [20:17:01] sass started ...
[app-scripts] [20:17:01] sass finished in 2.69 s
[app-scripts] [20:17:04] postprocess started ...
[app-scripts] [20:17:04] postprocess finished in 6 ms
[app-scripts] [20:17:04] lint started ...
[app-scripts] [20:17:04] build dev finished in 17.23 s
[app-scripts] [20:17:04] watch ready in 17.42 s

[INFO]
Local: http://localhost:8100
Use Ctrl+C to quit this process

[INFO] Browser window opened to http://localhost:8100!
```

## **Output:**



## **2. Options: Date and Time Picker, Search-bar**

### **• Date and Time Picker**

Datetimes present a picker interface from the bottom of a page, making it easy for users to select dates and times. The picker displays scrollable columns that can be used to individually select years, months, days, hours and minute values. Datetimes are similar to the native input elements of type datetime-local, however, Ionic's Datetime component makes it easy to display the date and time in a preferred format, and manage the datetime values.

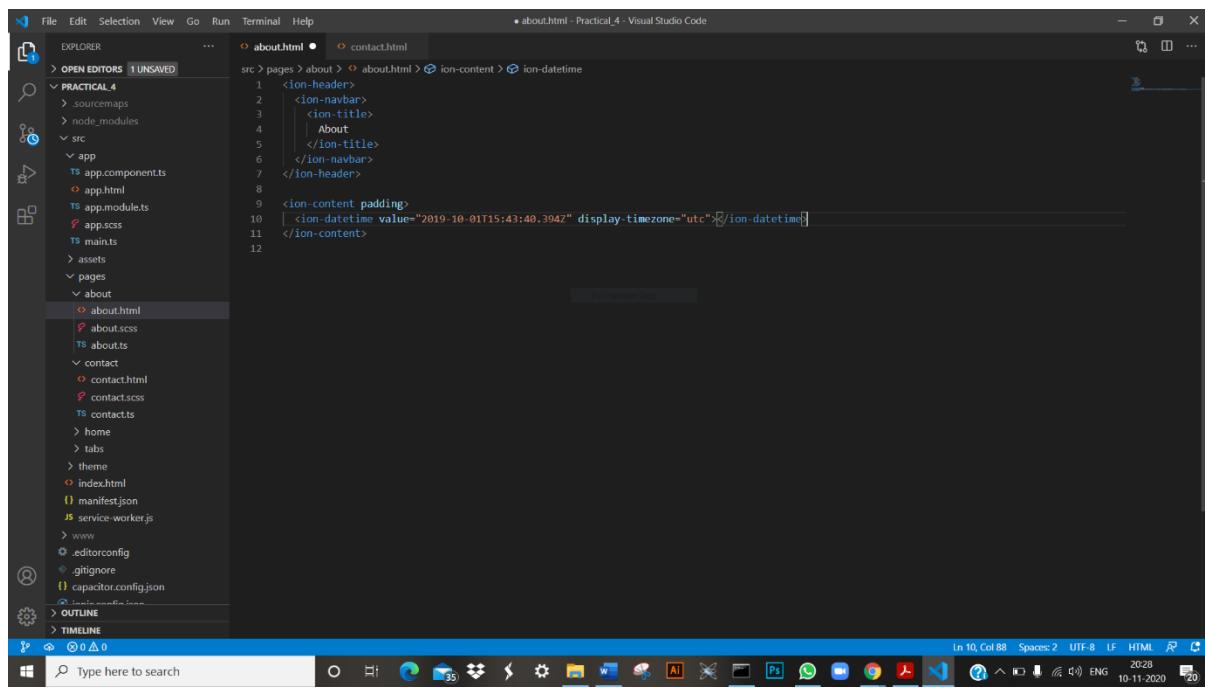
### **• Display Format**

The **displayFormat** property specifies how a datetime's value should be printed, as formatted text, within the datetime component. A few examples are provided in the chart below. The formats mentioned above can be passed in to the display format in any combination.

### **• Display Time Zone**

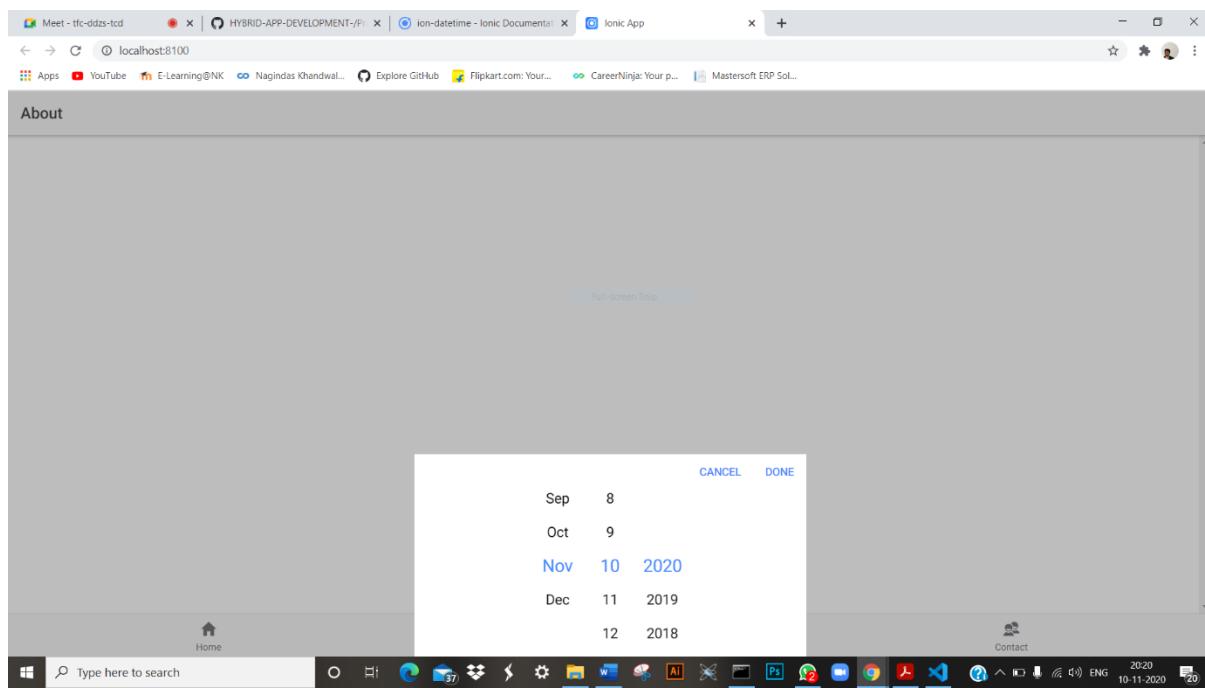
The **displayTimezone** property allows you to change the default behavior of displaying values relative to the user's local timezone. In addition to "UTC" valid time zone values are determined by the browser, and in most cases follow the time zone names of the [IANA time zone database](#), such as "Asia/Shanghai", "Asia/Kolkata", "America/New\_York".

## Code for Creating Date and Time Picker:



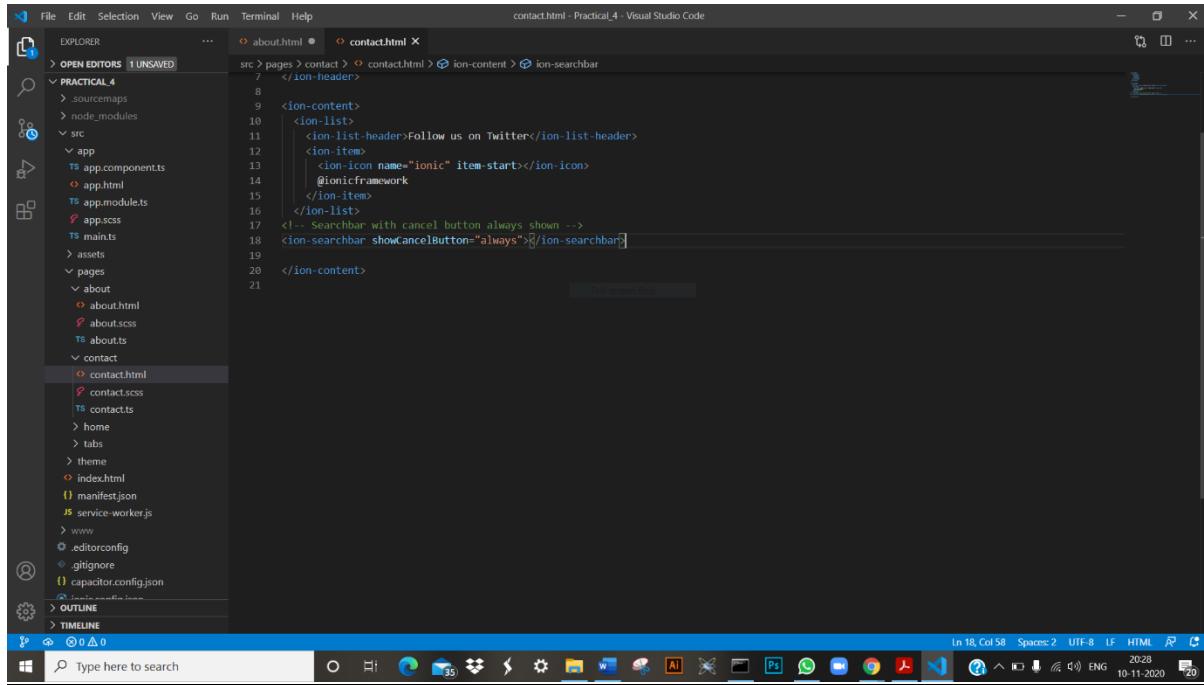
```
File Edit Selection View Go Run Terminal Help
about.html - Practical_4 - Visual Studio Code
OPEN EDITORS 1 UNSAVED
EXPLORER
PRACTICAL_4
src
app
  app.component.ts
  app.html
  app.module.ts
  app.scss
  mains.ts
assets
pages
  about
    about.html
    about.scss
    about.ts
  contact
    contact.html
    contact.scss
    contact.ts
  home
  tabs
  theme
  index.html
  manifest.json
  service-worker.js
  www
  .editorconfig
  .gitignore
  capacitor.config.json
OUTLINE
TIMELINE
Type here to search
  1 <ion-header>
  2   <ion-navbar>
  3     <ion-title>
  4       About
  5     </ion-title>
  6   </ion-navbar>
  7 </ion-header>
  8
  9   <ion-content padding>
10     <ion-datetime value="2019-10-01T15:43:40.394Z" display-timezone="utc"></ion-datetime>
11   </ion-content>
12
```

## Output:



- **Search-bar**
- Searchbars represent a text field that can be used to search through a collection. They can be displayed inside of a toolbar or the main content.
- A Searchbar should be used instead of an input to search lists. A clear button is displayed upon entering input in the searchbar's text field.

### Code:



The screenshot shows the Visual Studio Code interface with the following details:

- File Bar:** File, Edit, Selection, View, Go, Run, Terminal, Help.
- Title Bar:** contact.html - Practical\_4 - Visual Studio Code.
- Explorer Panel:** Shows the project structure under 'PRACTICAL\_4' with files like app.component.ts, app.module.ts, app.html, app.module.ts, app.css, mains, assets, pages, about, contact, index.html, manifest.json, service-worker.js, www, .editorconfig, .gitignore, and capacitor.config.json.
- Editor Area:** Displays the content of contact.html. The code includes an ion-header, ion-content, ion-list, ion-item, ion-icon, and an ion-searchbar with a cancel button.
- Bottom Status Bar:** Shows 'Line 18, Col 58' and other system information.
- Taskbar:** Shows various application icons.

```

<ion-header>
  <ion-searchbar showCancelButton="always"></ion-searchbar>
</ion-header>
<ion-content>
  <ion-list>
    <ion-item>
      <ion-icon name="ionic" item-start></ion-icon>
      IonicFramework
    </ion-item>
  </ion-list>
<!-- Searchbar with cancel button always shown -->
<ion-searchbar showCancelButton="always"></ion-searchbar>
</ion-content>

```

## **Output:**

