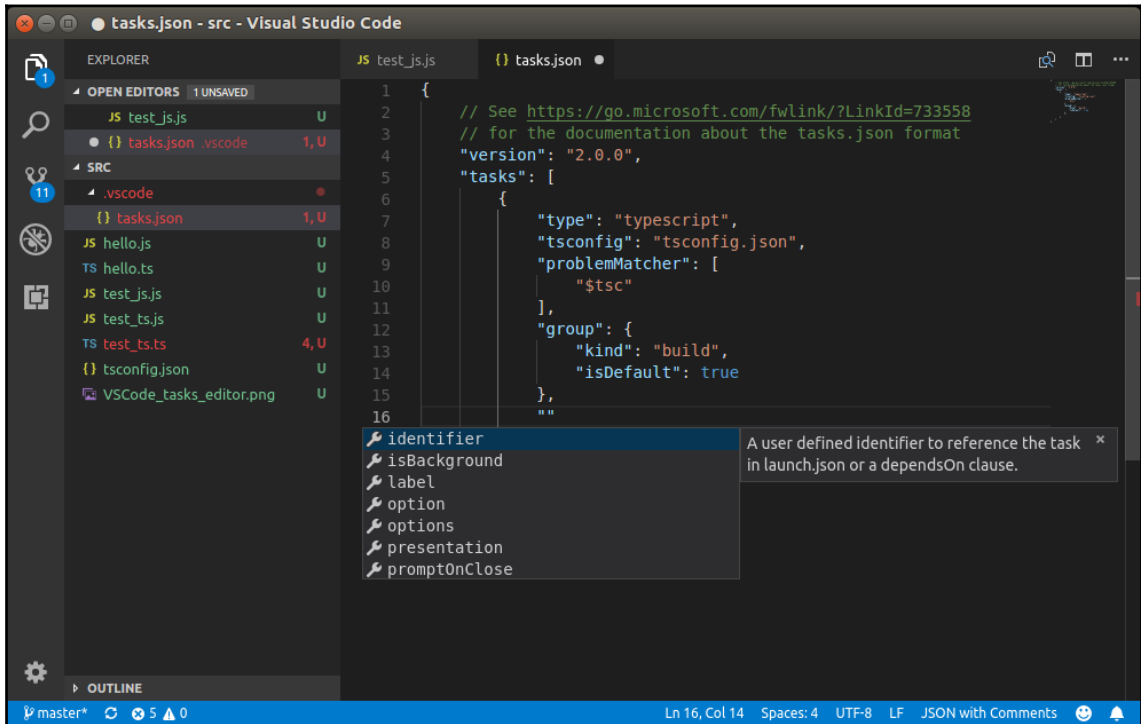
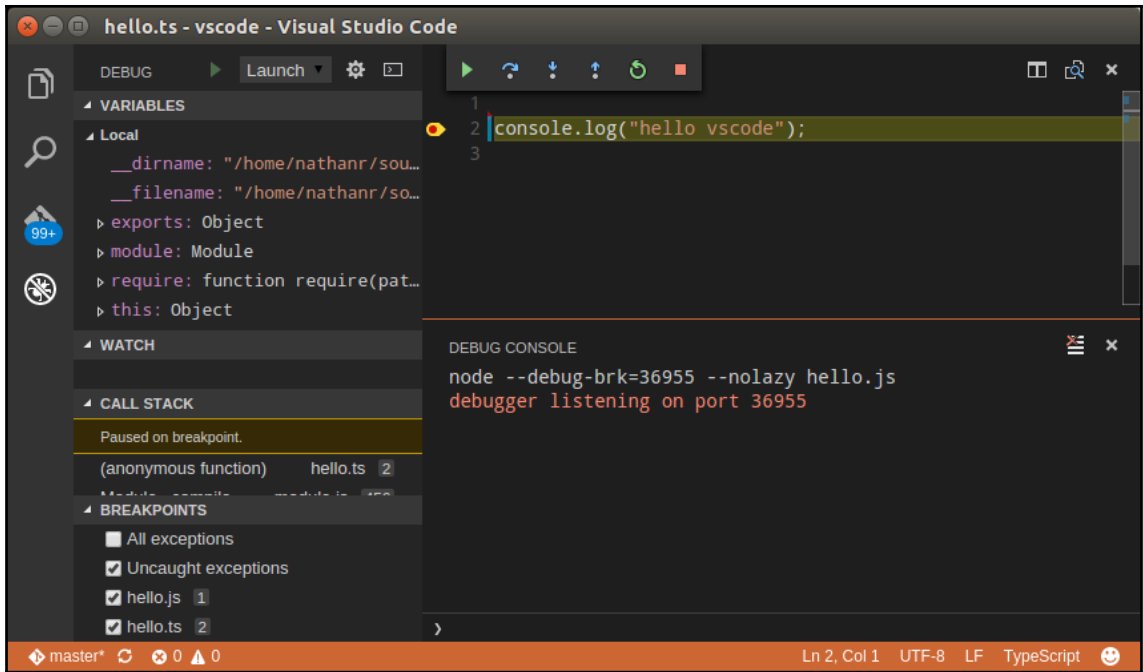
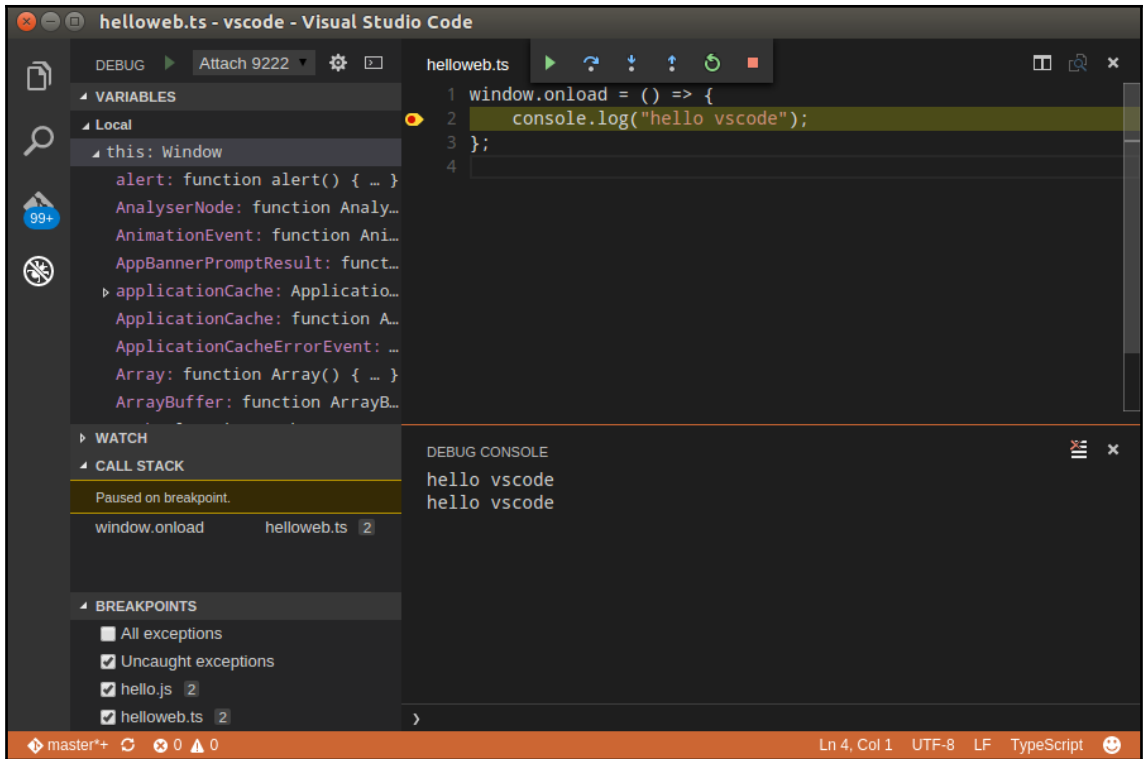
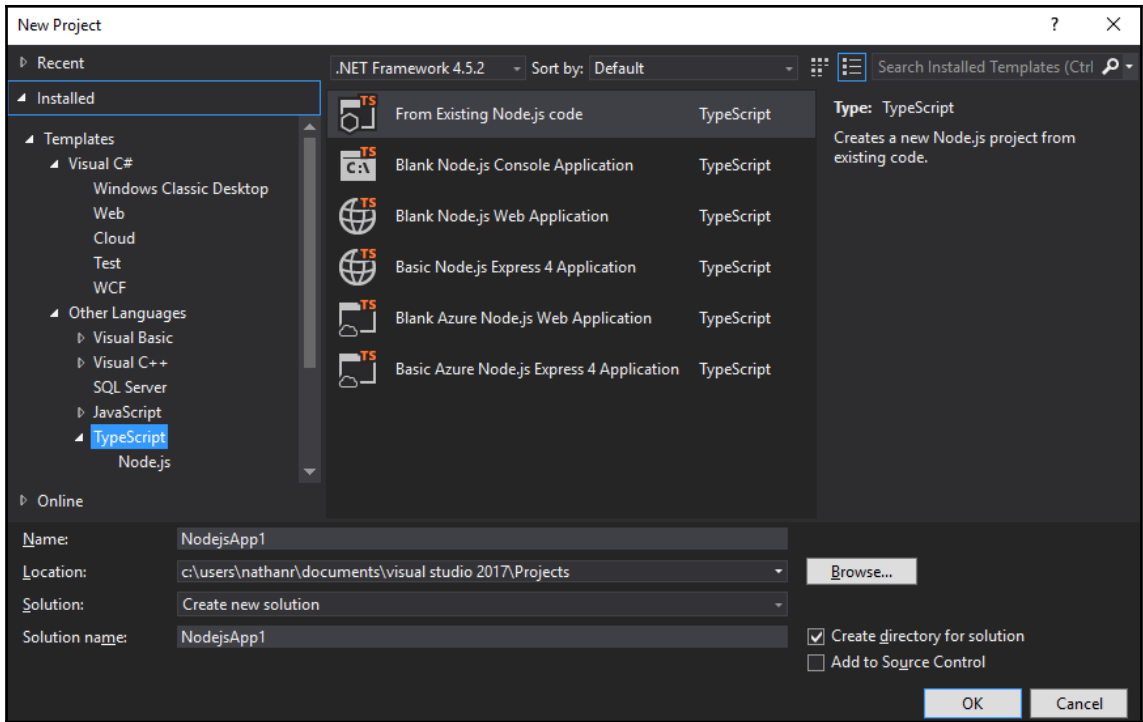


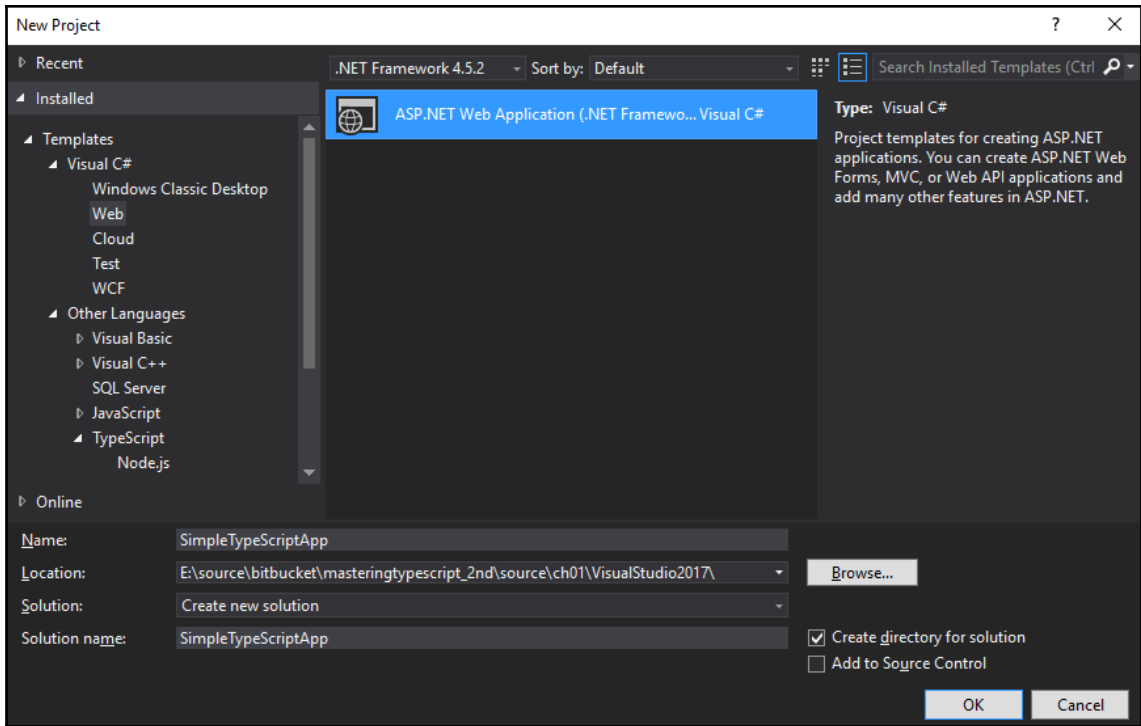
Chapter 1: TypeScript Tools and Framework Options

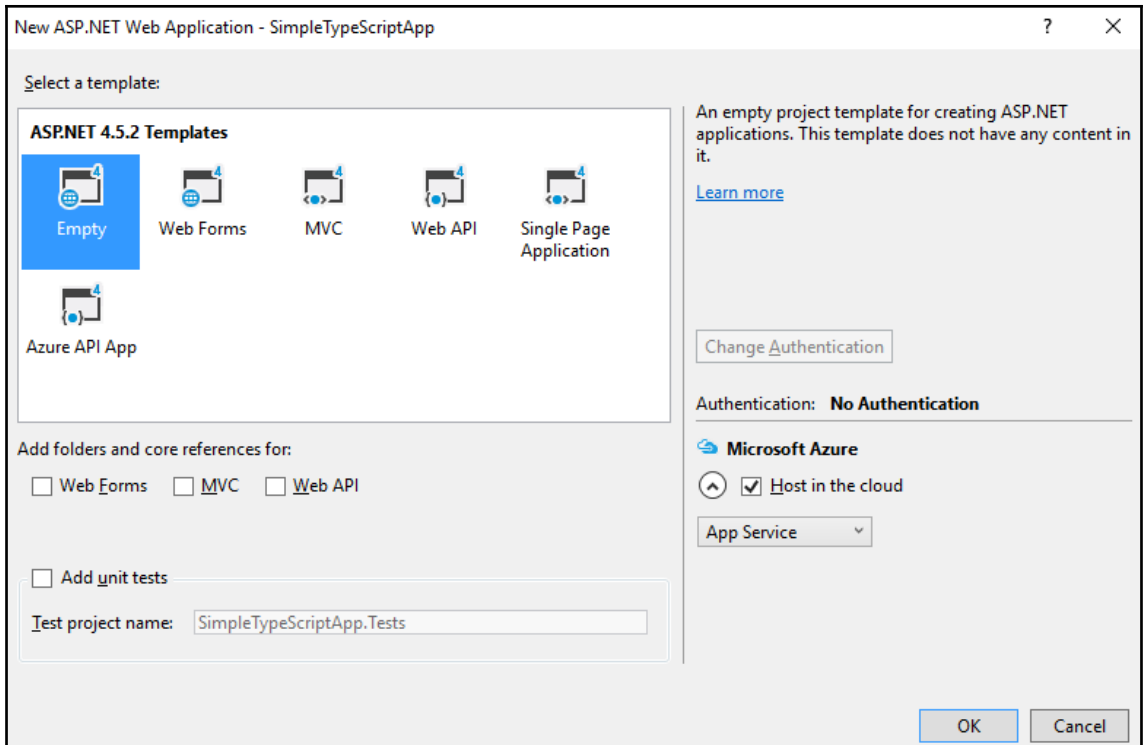


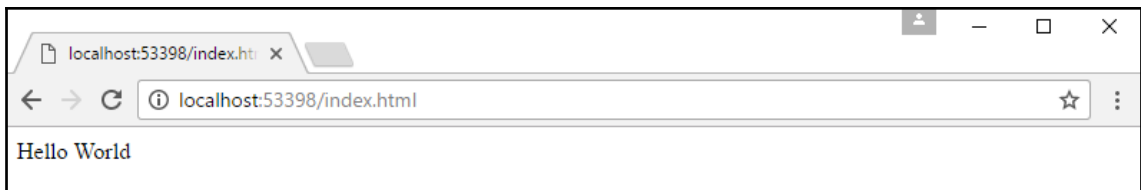
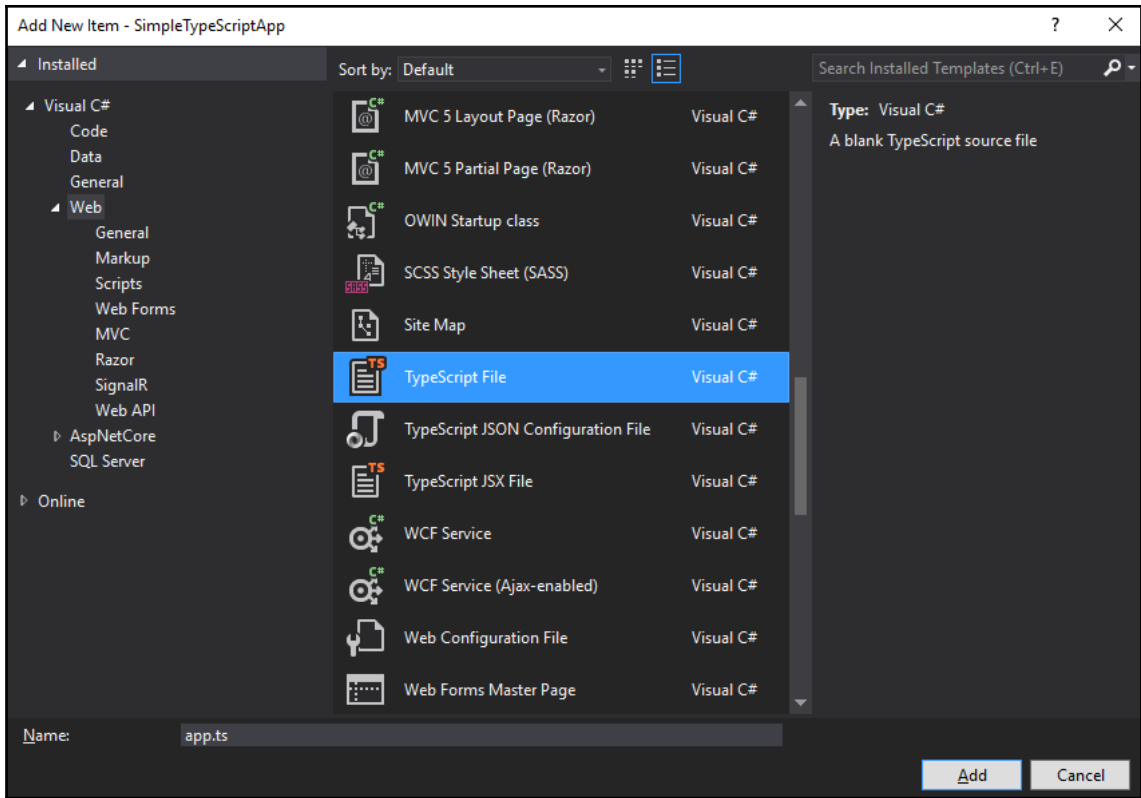










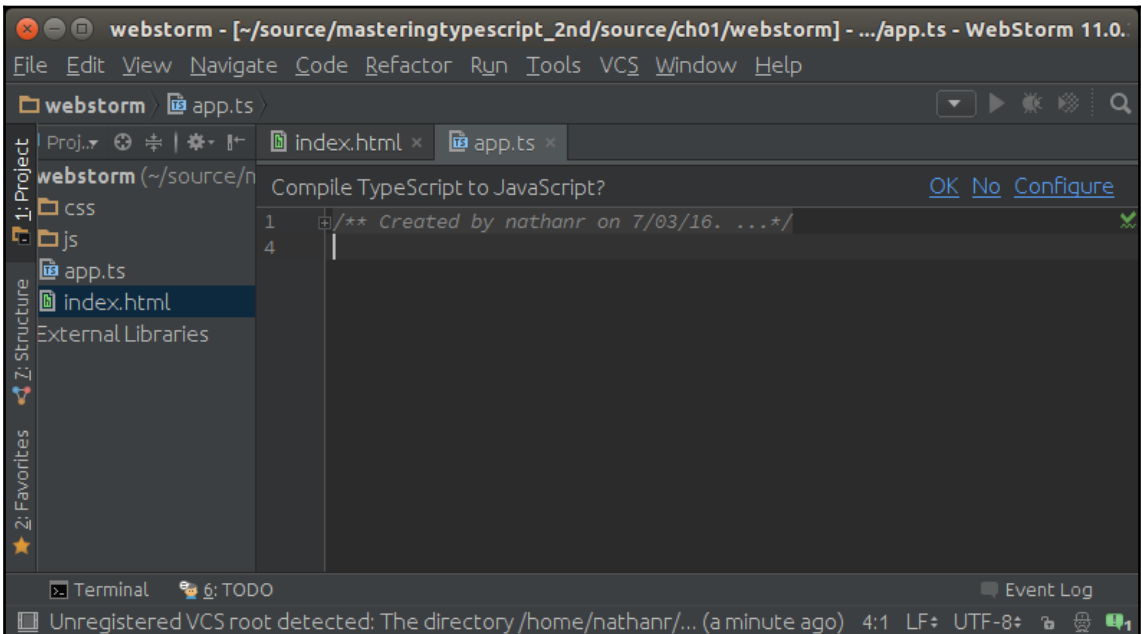
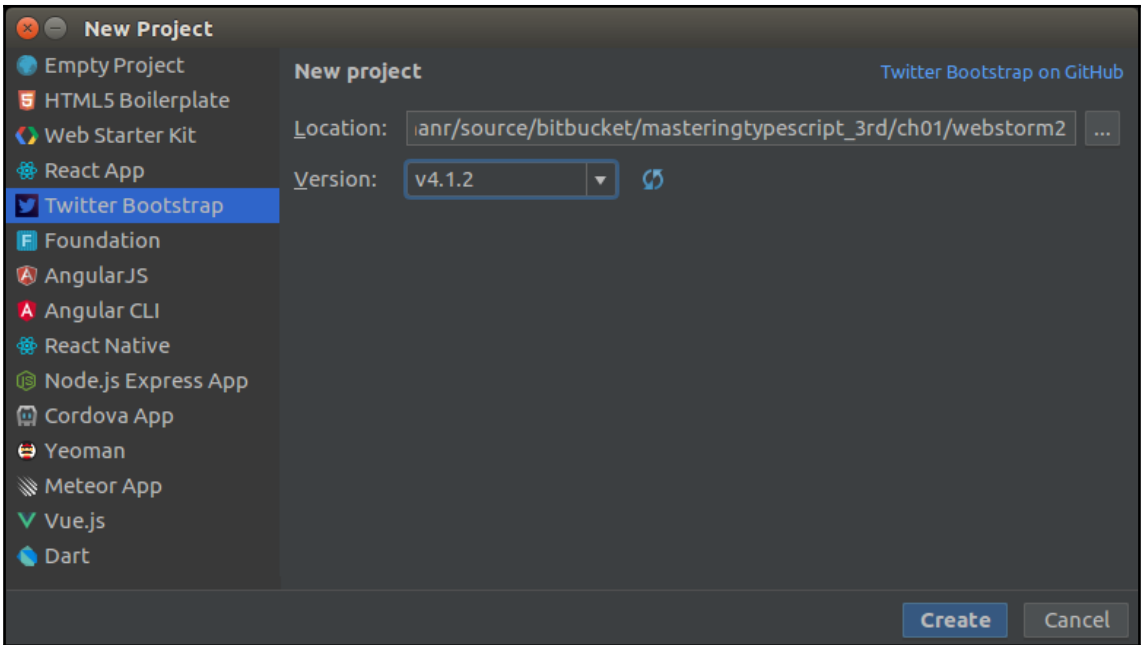


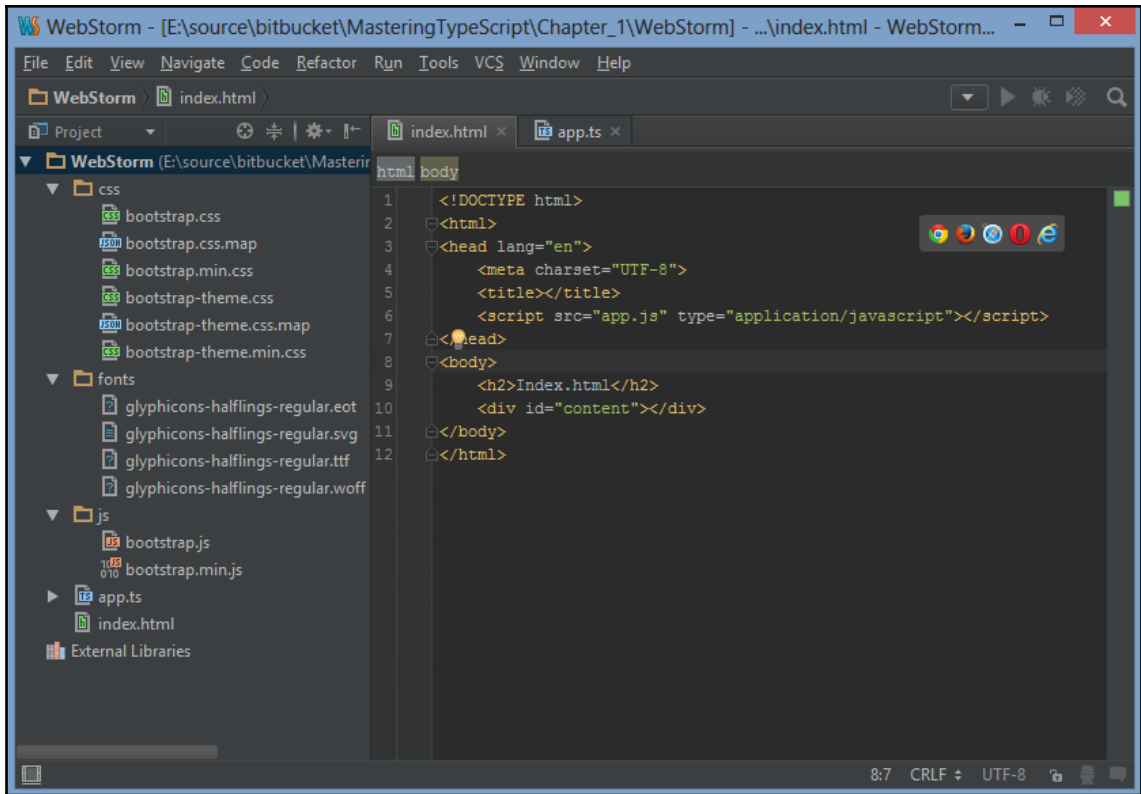
The screenshot shows the Visual Studio Code editor with a file named `app.ts` open. The code defines a class `MyClass` with a `render` method and a `window.onload` event listener. The `render` method takes `divId` and `text` as arguments and sets the `innerHTML` of the element with the given `divId` to the provided `text`. The `window.onload` event listener creates a new instance of `MyClass` and calls its `render` method with `"content"` and `"Hello World"` as arguments.

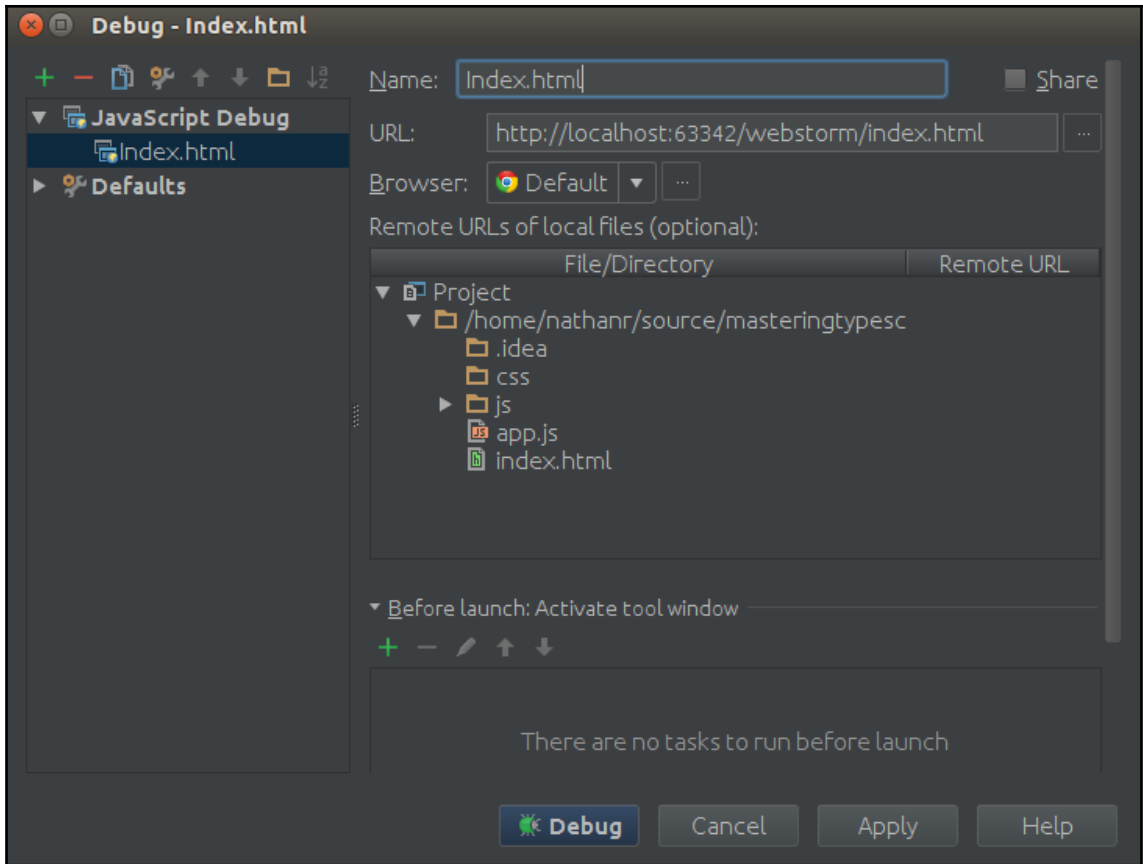
```
1 class MyClass {
2   public render(divId: string, text: string) {
3     var el: HTMLElement = document.getElementById(divId);
4     el.innerHTML = text;
5   }
6 }
7
8 window.onload = () => {
9   var myClass = new MyClass();
10  myClass.render("content", "Hello World");
11};
```

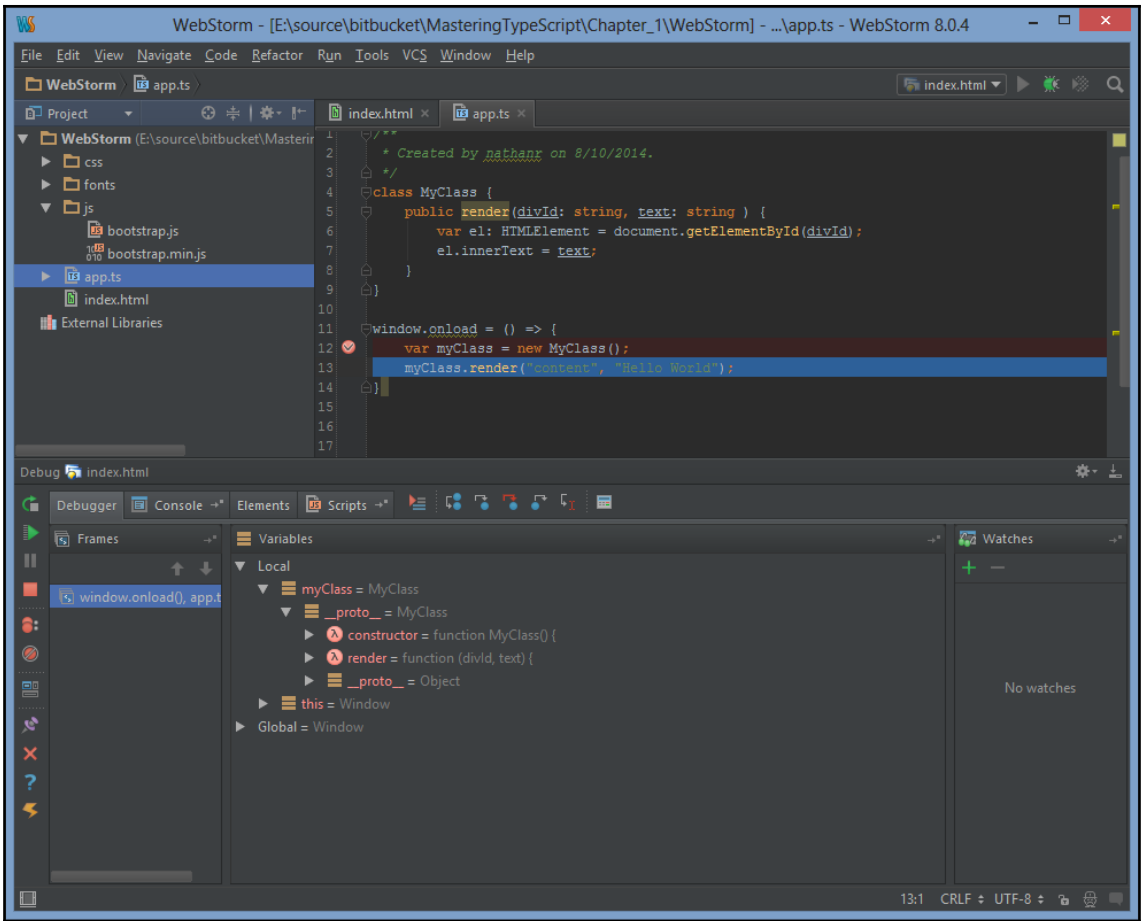
The screenshot shows the Visual Studio Code editor with the `app.ts` file open. The `Run and Debug` toolbar is visible, and the `Internet Explorer` browser is selected. A dropdown menu is open, showing the following options: `Internet Explorer`, `Firefox`, `Google Chrome`, `Internet Explorer` (checked), `Microsoft Edge`, `Browse With...`, and `More Emulators...`. The status bar at the bottom shows the current position: `Ready Ln 8 Col 24 Ch 24`.

```
1 class MyClass {
2   public render(divId: string, text: string) {
3     var el: HTMLElement = document.getElemen
4     el.innerHTML = text;
5   }
6 }
7
8 window.onload = () => {
9   var myClass = new MyClass();
10  myClass.render("content", "Hello World");
11};
```

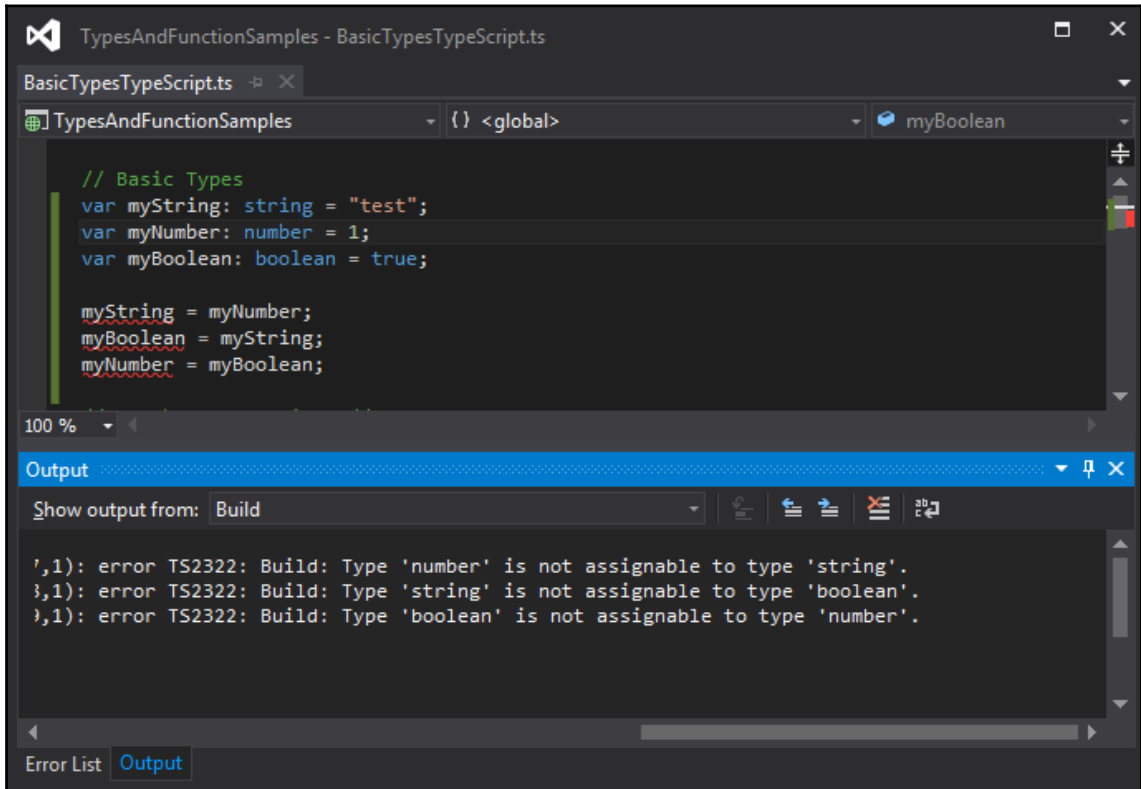









Chapter 2: Types, Variables, and Function Techniques



The screenshot shows a Visual Studio Code editor window titled "TypesAndFunctionSamples - BasicTypesTypeScript.ts". The editor displays the following TypeScript code:

```
// Basic Types
var myString: string = "test";
var myNumber: number = 1;
var myBoolean: boolean = true;

myString = myNumber;
myBoolean = myString;
myNumber = myBoolean;
```

Below the editor, the "Output" window is open, showing the following error messages:

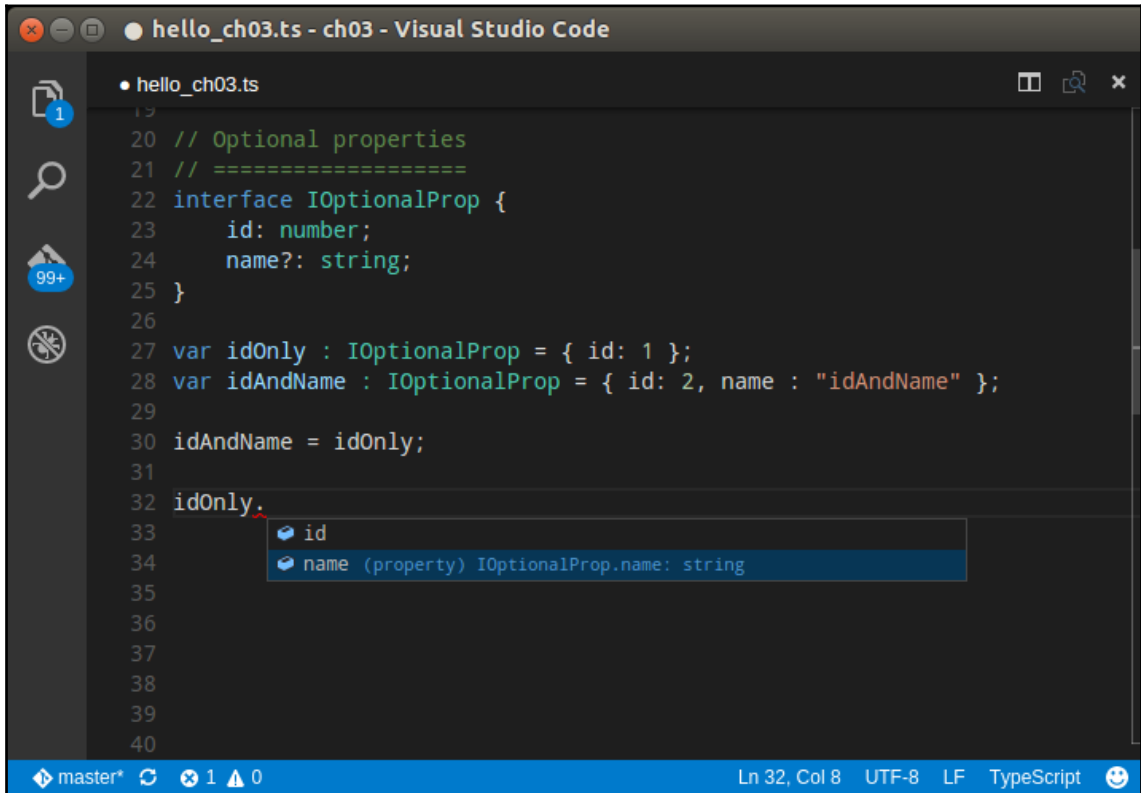
```
' ,1): error TS2322: Build: Type 'number' is not assignable to type 'string'.
},1): error TS2322: Build: Type 'string' is not assignable to type 'boolean'.
},1): error TS2322: Build: Type 'boolean' is not assignable to type 'number'.
```

The "Error List" tab at the bottom left is currently selected, showing the "Output" window.

```
nathanr@nero260: /tmp/ch02/source
File Edit View Search Terminal Help
nathanr@nero260:/tmp/ch02/source$ node samples_types_advanced
Number.MAX_SAFE_INTEGER : 9007199254740991
0 : 9007199254740991
1 : 9007199254740992
2 : 9007199254740992
3 : 9007199254740994
4 : 9007199254740996
5 : 9007199254740996
6 : 9007199254740996
7 : 9007199254740998
8 : 9007199254741000
9 : 9007199254741000
nathanr@nero260:/tmp/ch02/source$
```

```
nathanr@nero260: /tmp/ch02/source
File Edit View Search Terminal Help
nathanr@nero260:/tmp/ch02/source$ node samples_types_advanced
Number.MAX_SAFE_INTEGER : 9007199254740991
using bigint :
0 : 9007199254740991
1 : 9007199254740992
2 : 9007199254740993
3 : 9007199254740994
4 : 9007199254740995
5 : 9007199254740996
6 : 9007199254740997
7 : 9007199254740998
8 : 9007199254740999
9 : 9007199254741000
nathanr@nero260:/tmp/ch02/source$
```

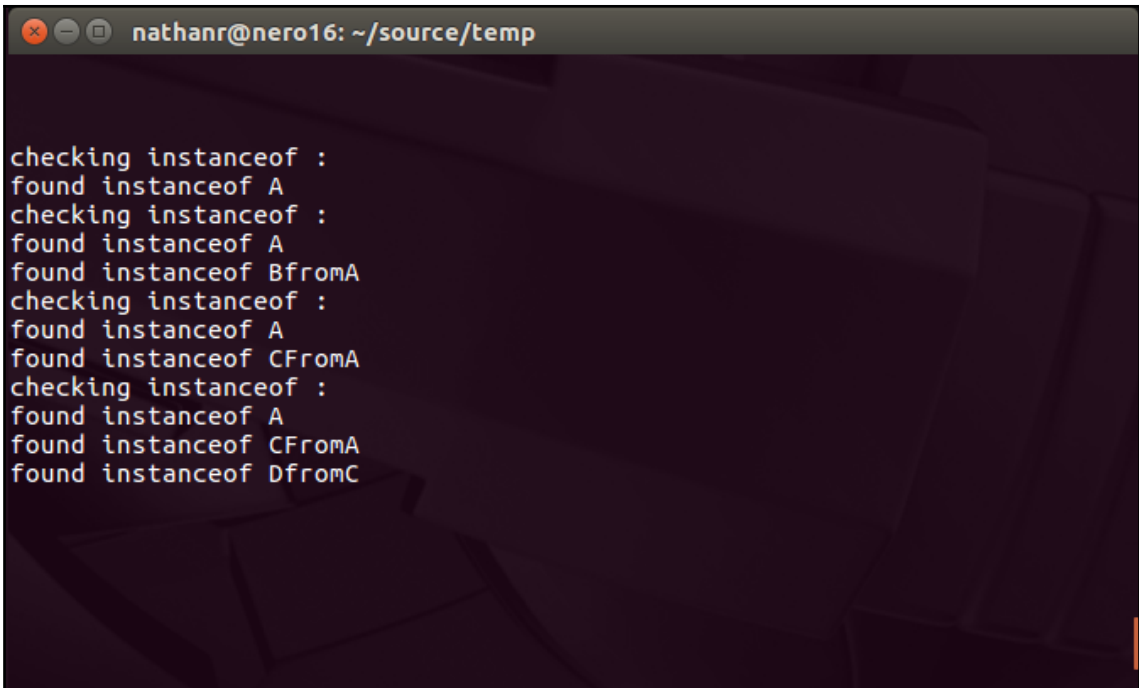
Chapter 3: Interfaces, Classes, and Inheritance



The screenshot shows the Visual Studio Code editor with a file named 'hello_ch03.ts'. The code defines an interface 'IOptionalProp' with two properties: 'id' of type 'number' and 'name?' of type 'string'. Below the interface, two variables are declared: 'idOnly' and 'idAndName', both of type 'IOptionalProp'. 'idOnly' is assigned an object with 'id: 1'. 'idAndName' is assigned an object with 'id: 2' and 'name: "idAndName"'. The code then shows 'idAndName' being assigned the value of 'idOnly'. At the end of the code, 'idOnly.' is typed, and a dropdown menu shows two suggestions: 'id' and 'name (property) IOptionalProp.name: string'. The status bar at the bottom indicates the current position is 'Ln 32, Col 8' and the file encoding is 'UTF-8 LF TypeScript'.

```
19
20 // Optional properties
21 // =====
22 interface IOptionalProp {
23     id: number;
24     name?: string;
25 }
26
27 var idOnly : IOptionalProp = { id: 1 };
28 var idAndName : IOptionalProp = { id: 2, name : "idAndName" };
29
30 idAndName = idOnly;
31
32 idOnly.
33     id
34     name (property) IOptionalProp.name: string
35
36
37
38
39
40
```

master* 1 0 Ln 32, Col 8 UTF-8 LF TypeScript

A terminal window with a dark background and light text. The title bar at the top shows a window icon, a close button, and the text 'nathanr@nero16: ~/source/temp'. The terminal content consists of several lines of text, each starting with 'checking instanceof :', followed by the result of the check. The results are: 'found instanceof A', 'found instanceof A', 'found instanceof BfromA', 'found instanceof A', 'found instanceof CFromA', 'found instanceof A', 'found instanceof CFromA', and 'found instanceof DfromC'.

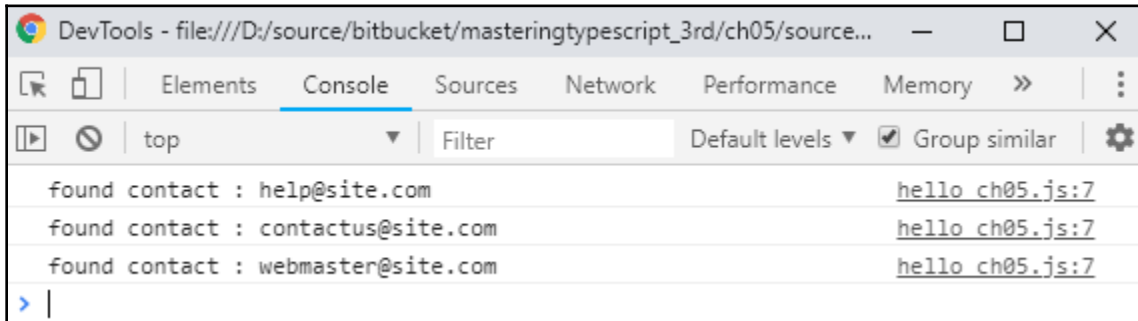
```
nathanr@nero16: ~/source/temp
checking instanceof :
found instanceof A
checking instanceof :
found instanceof A
found instanceof BfromA
checking instanceof :
found instanceof A
found instanceof CFromA
checking instanceof :
found instanceof A
found instanceof CFromA
found instanceof DfromC
```

```
nathanr@nero16: ~/source/temp

Person :
Date of Birth : Fri Jan 20 2017
Category      : Infant
Can sign     : false
Person :
Date of Birth : Wed Jan 20 2010
Category      : Child
Can sign     : false
Person :
Date of Birth : Mon Jan 20 1969
Category      : Adult
Can sign     : true

nathanr@nero16:~/source/temp$
```

Chapter 5: Declaration Files and Strict Compiler Options

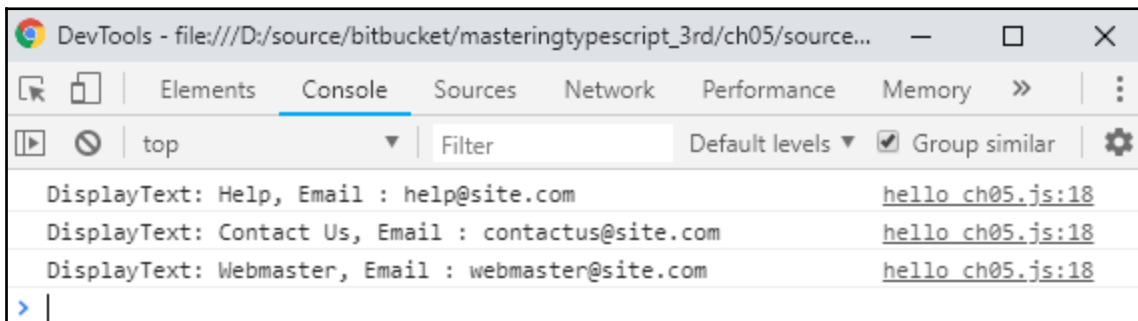


DevTools - file:///D:/source/bitbucket/masteringtypescript_3rd/ch05/source... — □ ×

Elements Console Sources Network Performance Memory >> | ⋮

top Filter Default levels ▾ Group similar ⚙

```
found contact : help@site.com           hello_ch05.js:7
found contact : contactus@site.com      hello_ch05.js:7
found contact : webmaster@site.com      hello_ch05.js:7
> |
```

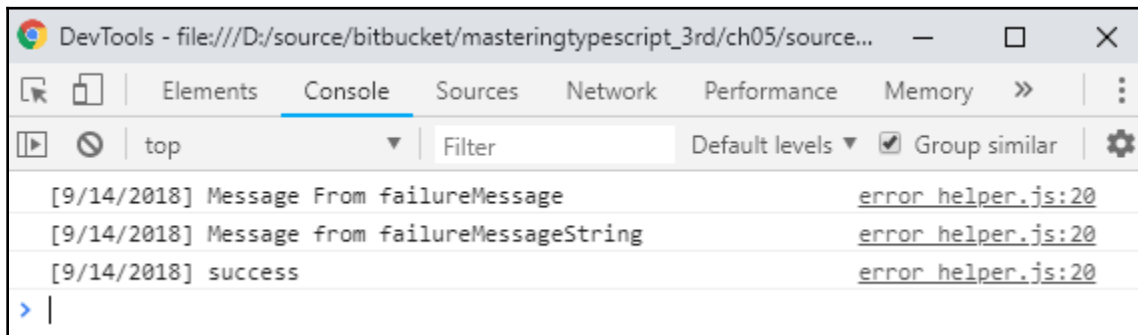


DevTools - file:///D:/source/bitbucket/masteringtypescript_3rd/ch05/source... — □ ×

Elements Console Sources Network Performance Memory >> | ⋮

top Filter Default levels ▾ Group similar ⚙

```
DisplayText: Help, Email : help@site.com   hello_ch05.js:18
DisplayText: Contact Us, Email : contactus@site.com hello_ch05.js:18
DisplayText: Webmaster, Email : webmaster@site.com hello_ch05.js:18
> |
```



DevTools - file:///D:/source/bitbucket/masteringtypescript_3rd/ch05/source... — □ ×

Elements Console Sources Network Performance Memory >> | ⋮

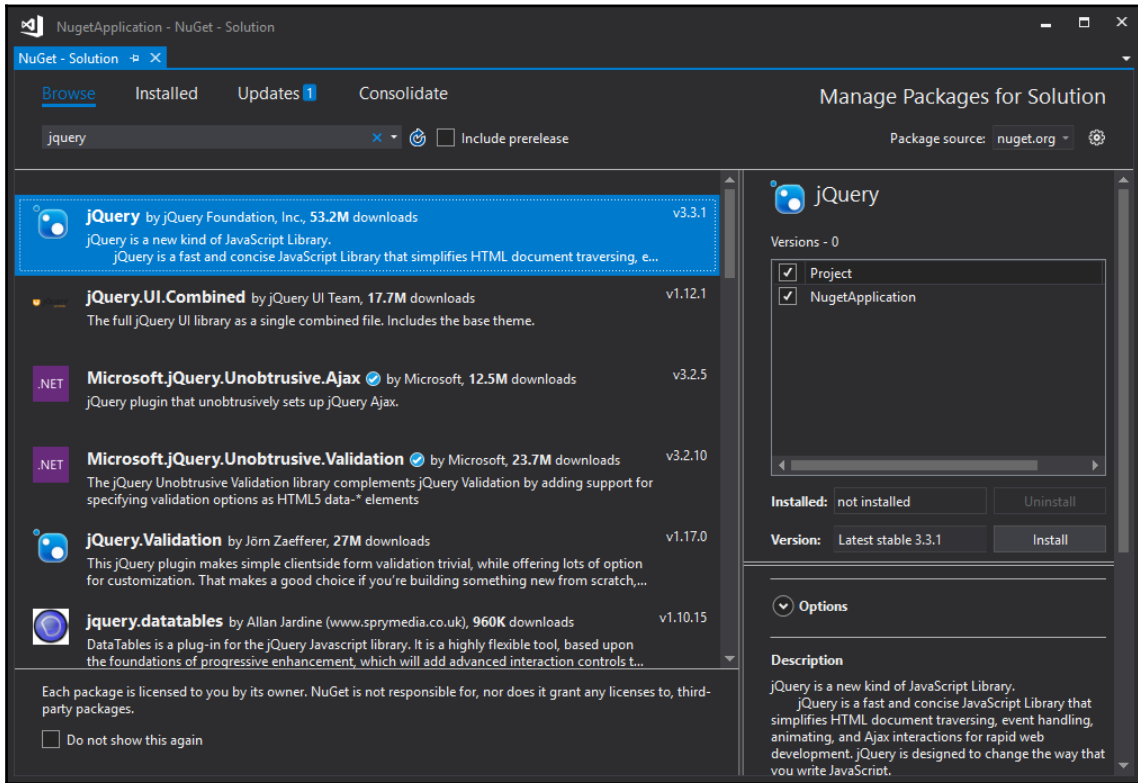
top Filter Default levels ▾ Group similar ⚙

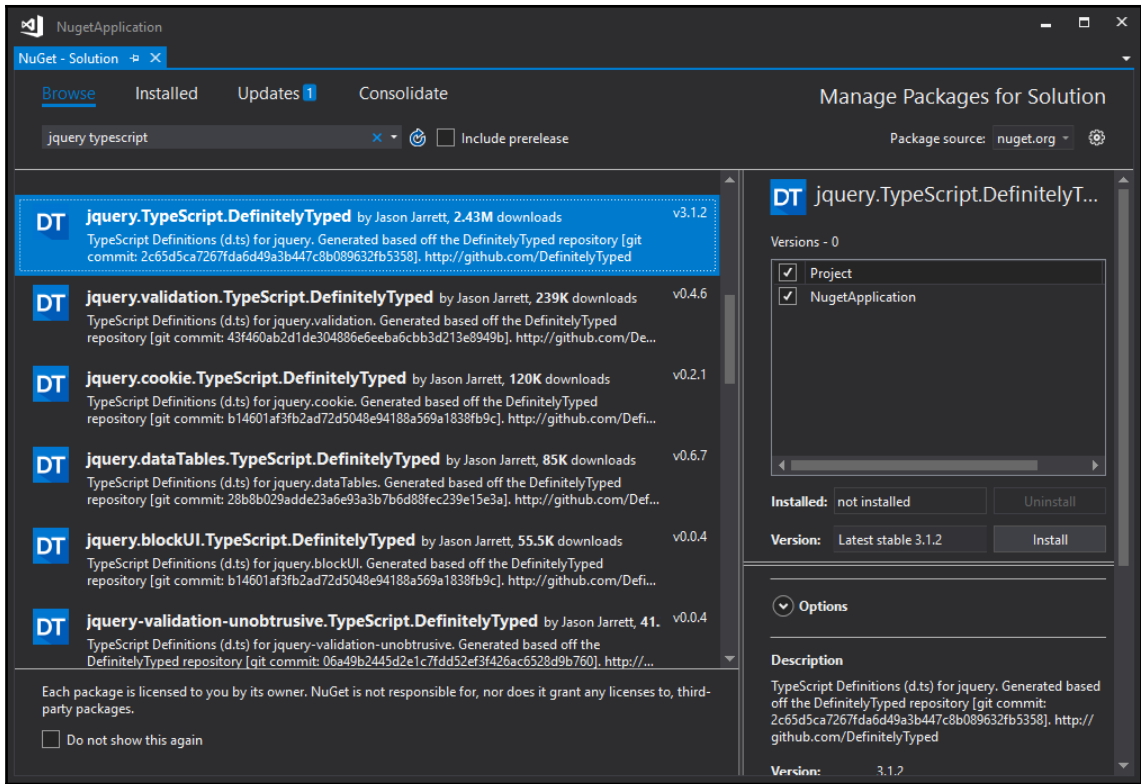
```
[9/14/2018] Message From failureMessage   error_helper.js:20
[9/14/2018] Message from failureMessageString error_helper.js:20
[9/14/2018] success                       error_helper.js:20
> |
```

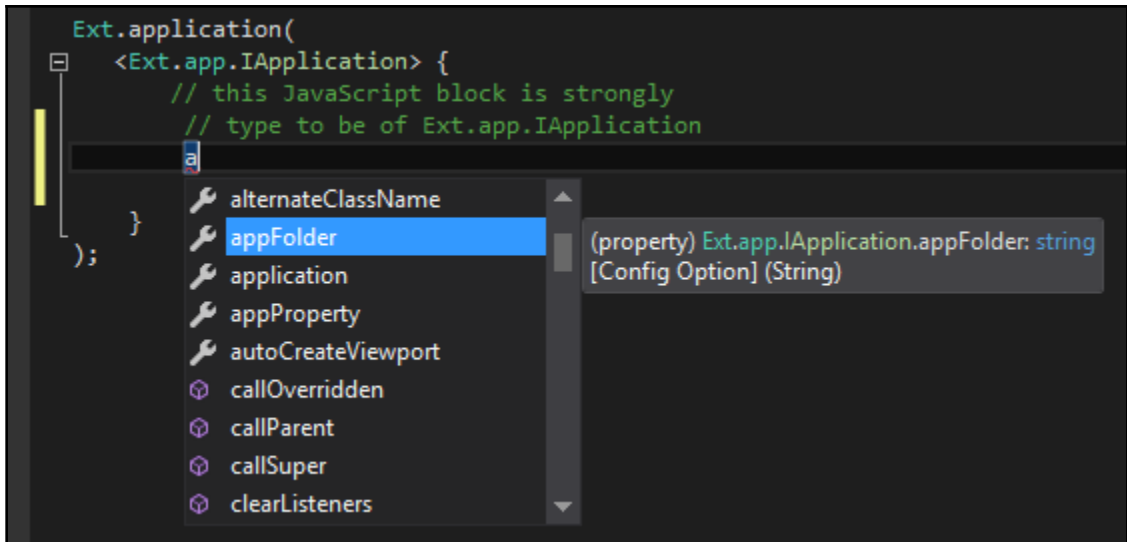
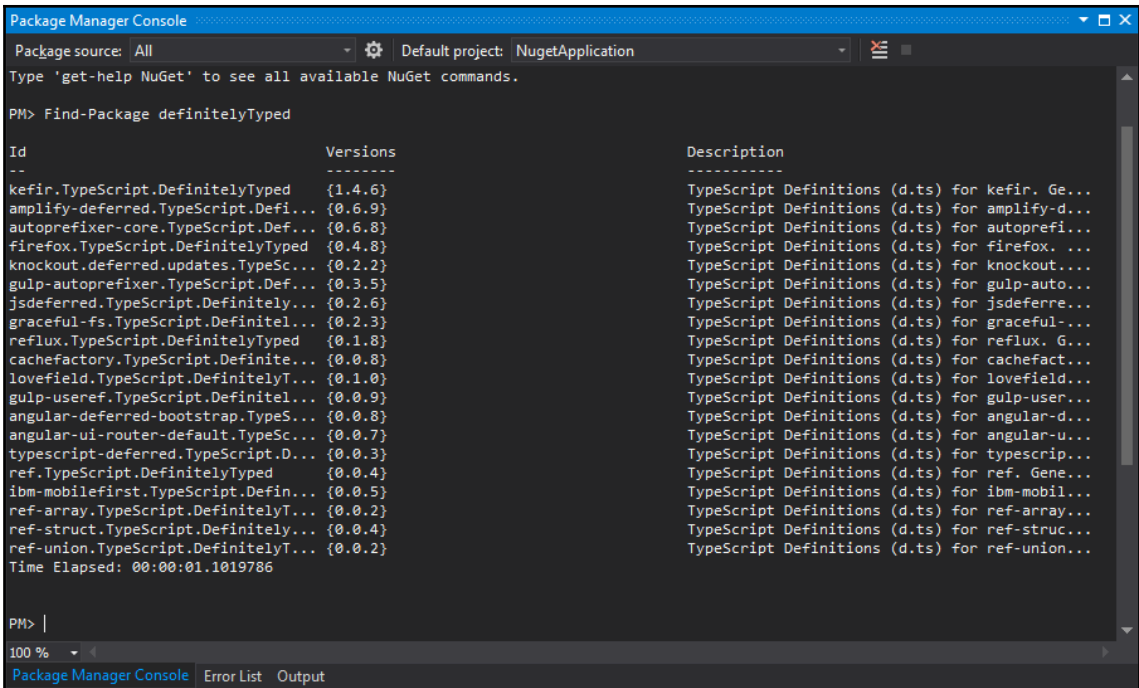
```
^ tsc
ErrorHelperTypeScript.ts(16,13): error TS2322: Type '{ responseText:
{ success: boolean; }; }' is not assignable to type 'IResponse'.
  Types of property 'responseText' are incompatible.
    Type '{ success: boolean; }' is not assignable to type 'IFailureM
essage'.
      Object literal may only specify known properties, and 'success'
does not exist in type 'IFailureMessage'.
```

```
^ tsc
ErrorHelperTypeScript.ts(11,36): error TS2345: Argument of type '{ re
sponseText: { "failure": string; "errorMessage": string; }; }' is not
assignable to parameter of type 'IResponse'.
  Types of property 'responseText' are incompatible.
    Type '{ "failure": string; "errorMessage": string; }' is not assi
gnable to type 'IFailureMessage'.
      Types of property 'failure' are incompatible.
        Type 'string' is not assignable to type 'boolean'.
ErrorHelperTypeScript.ts(12,27): error TS2345: Argument of type '{ re
sponseText: { "failure": string; "errorMessage": string; }; }' is not
assignable to parameter of type 'IResponse'.
```

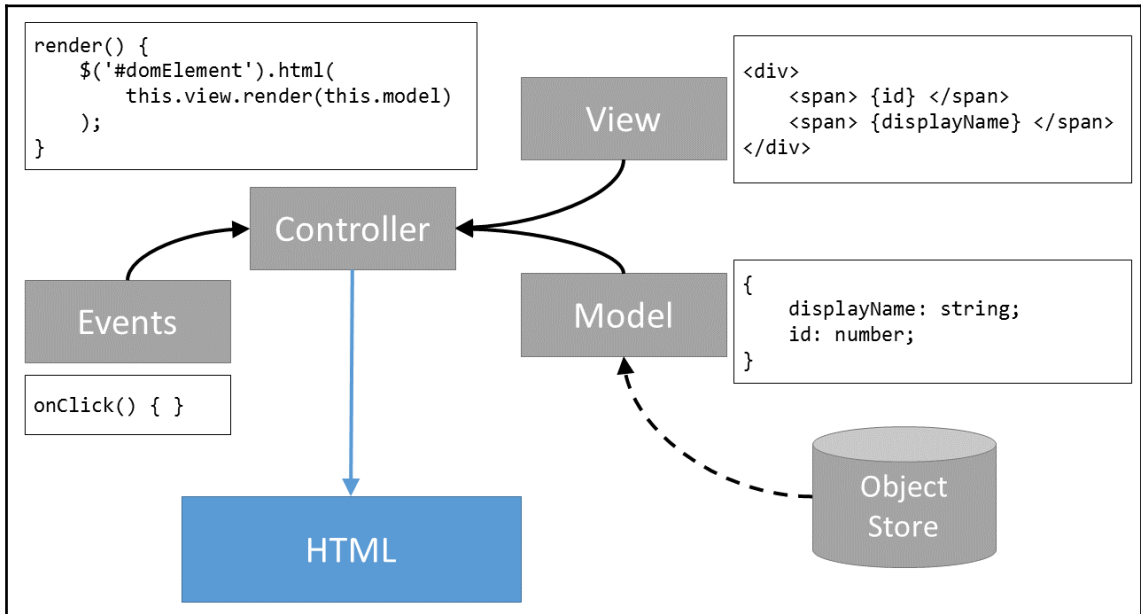
Chapter 6: Third-Party Libraries

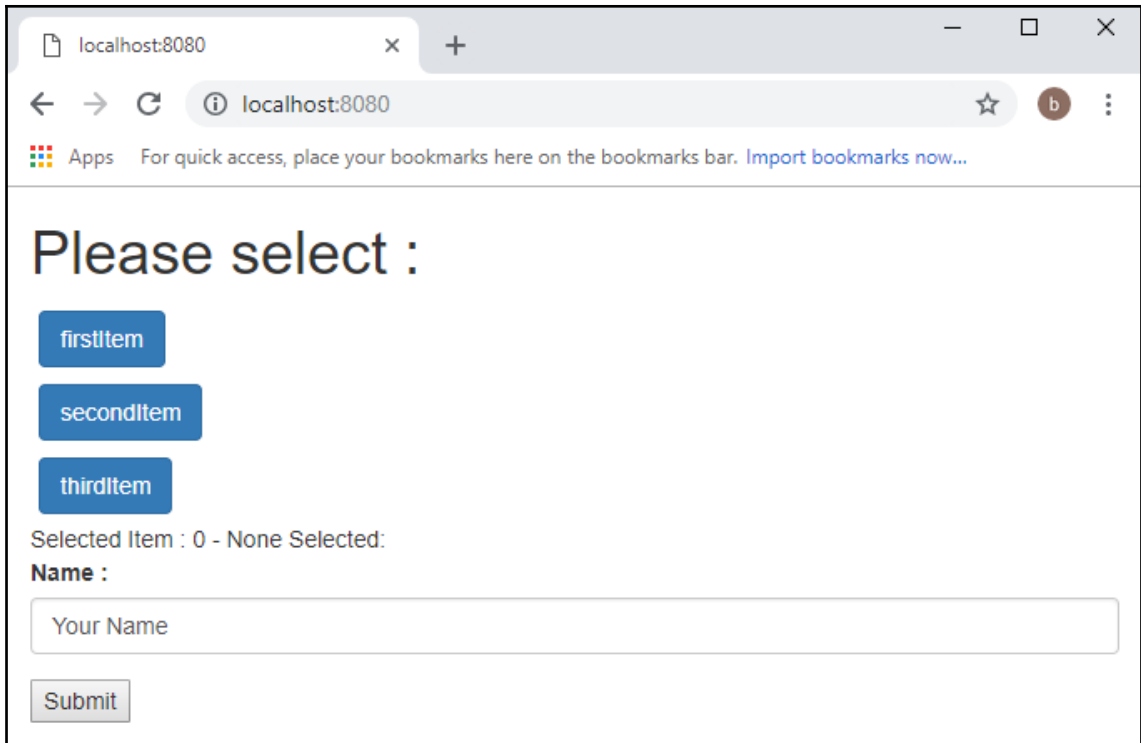


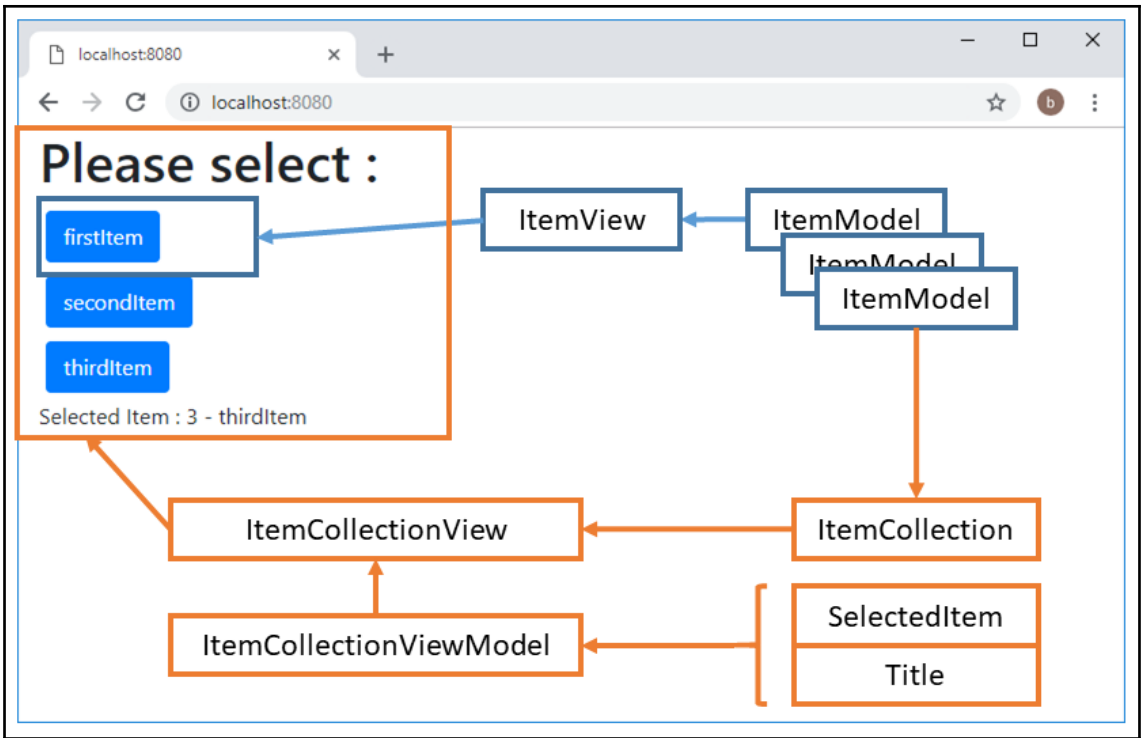


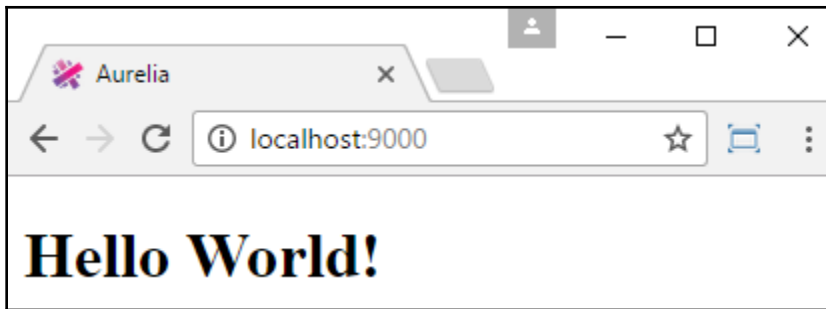
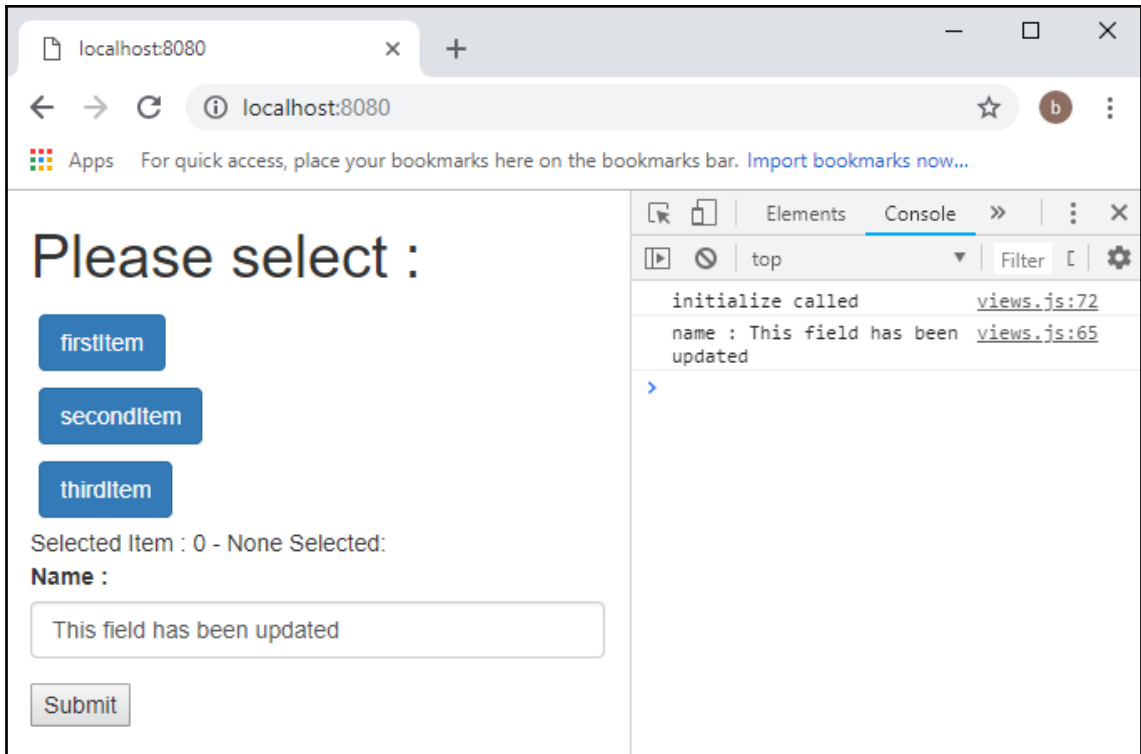


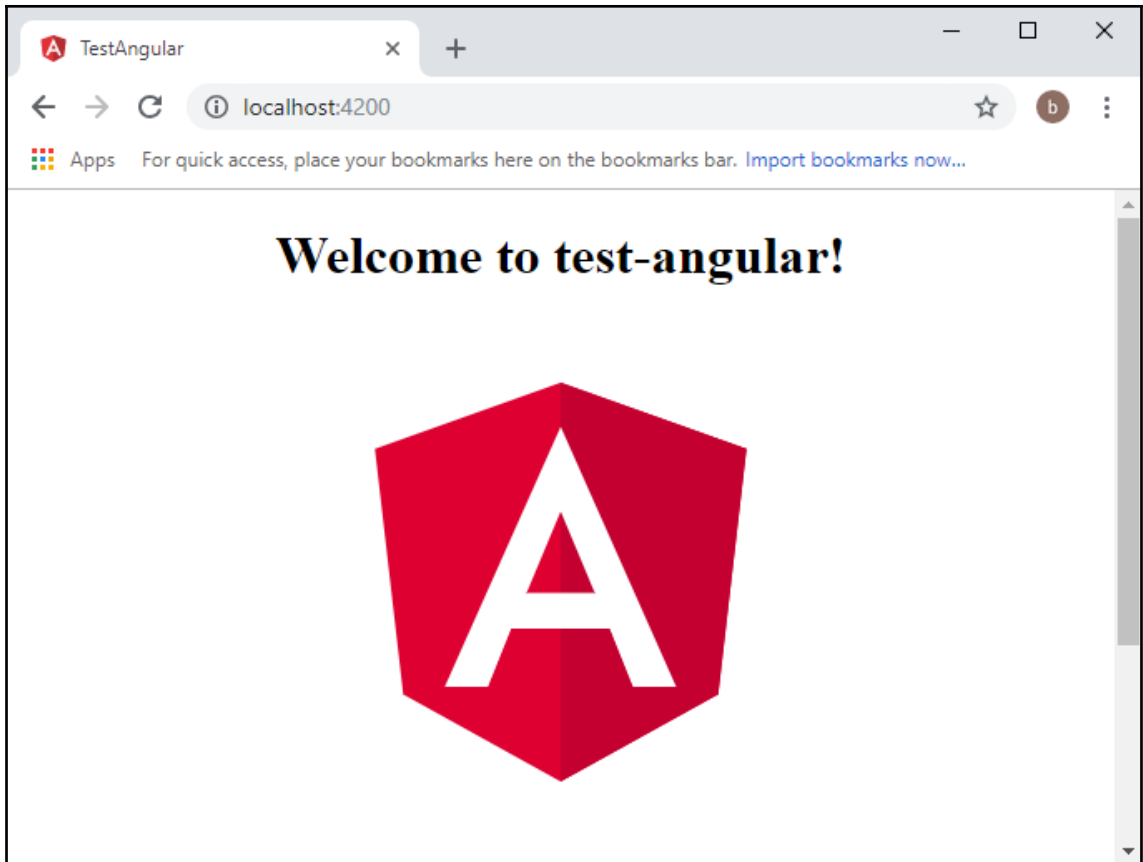
Chapter 7: TypeScript Compatible Frameworks











The screenshot shows a web browser window with the URL `https://webpack.jakoblind.no`. The page is titled "webpack config tool". On the left, there is a "Select your features" section with the following options:

- Main library: React, Vue
- Transpiler: Typescript
- Styling: CSS, Sass, Less, stylus
- Image: SVG, PNG
- Utilities: moment, lodash
- Optimization: Code split vendors

Below the features are a link "Get your project as a zip!" and a blue button "Free webpack course".

The main content area displays a code editor with the following code:

```
webpack.config.js
README.md
.babelrc
tsconfig.json
src/index.tsx
dist/index.html
package.json

const webpack = require('webpack');
const path = require('path');

const config = {
  entry: './src/index.tsx',
  output: {
    path: path.resolve(__dirname, 'dist'),
    filename: 'bundle.js'
  },
  module: {
    rules: [
      {
        test: /\.js$/,
        use: 'babel-loader',
        exclude: /node_modules/
      },
      {
        test: /\.ts$/,
        loader: 'ts-loader',
        exclude: /node_modules/
      }
    ]
  },
  resolve: {
```

The screenshot shows a web browser window with the title "React starter app" and the address bar "localhost:8080". The page content includes a heading "Please select:", three blue buttons labeled "firstItem", "secondItem", and "thirdItem", a text input field containing "This value has changed", and a "Submit" button. The browser's developer console is open, displaying a series of log messages for the "onChange" event of the input field. Each log entry shows the event name, the input name, and the current value of the input field. The values shown in the logs are: "T", "Th", "Thi", "This", "This v", "This va", "This val", "This valu", "This value", "This value h", "This value ha", "This value has", "This value has c", "This value has ch", "This value has cha", "This value has chan", "This value has chang", "This value has change", and "This value has changed".

React starter app

localhost:8080

Please select:

firstItem

secondItem

thirdItem

Selected Item :0 -None Selected

Name :

This value has changed

Submit

Elements Console Sources Network Performance

top Filter Default levels Group similar

```
onChange : inputName : T bundle.js:30
onChange : inputName : Th bundle.js:30
onChange : inputName : Thi bundle.js:30
onChange : inputName : This bundle.js:30
onChange : inputName : This bundle.js:30
onChange : inputName : This v bundle.js:30
onChange : inputName : This va bundle.js:30
onChange : inputName : This val bundle.js:30
onChange : inputName : This valu bundle.js:30
onChange : inputName : This value bundle.js:30
onChange : inputName : This value bundle.js:30
onChange : inputName : This value h bundle.js:30
onChange : inputName : This value ha bundle.js:30
onChange : inputName : This value has bundle.js:30
onChange : inputName : This value has bundle.js:30
onChange : inputName : This value has c bundle.js:30
onChange : inputName : This value has ch bundle.js:30
onChange : inputName : This value has cha bundle.js:30
onChange : inputName : This value has chan bundle.js:30
onChange : inputName : This value has chang bundle.js:30
onChange : inputName : This value has change bundle.js:30
onChange : inputName : This value has changed bundle.js:30
```

React starter app | localhost:8080

Please select:

firstItem
secondItem
thirdItem

Selected Item : 0 - None Selected

Name :

Your Name

Submit

Network Waterfall:

Name	Stat...	Type	Initiator	Size	Time	Waterfall
localhost	200	doc...	Other	(fro...	2 ms	
bootstrap.css	200	styl...	(index)	(fro...	16 ...	
underscore.js	200	script	(index)	(fro...	14 ...	
bundle.js	200	script	(index)	(fro...	15 ...	

4 requests | 0 B transferred | Finish: 27 ms | DOMContentLoaded: 66 ms | Load: 73 ms

localhost:8080 | localhost:8080

Please select :

firstItem
secondItem
thirdItem

Selected Item : 2 - secondItem

Name :

Your Name

Submit

Network Waterfall:

Name	Stat...	Type	Initiator	Size	Time	Waterfall
localhost	304	doc...	Other	246 B	5 ms	
underscore.js	200	script	(index)	(fro...	0 ms	
jbone.js	200	script	(index)	(fro...	0 ms	
backbone.js	200	script	(index)	(fro...	0 ms	
bootstrap.css	200	styl...	(index)	(fro...	1 ms	
models.js	200	script	(index)	(fro...	0 ms	
views.js	200	script	(index)	(fro...	0 ms	
app.js	200	script	(index)	(fro...	0 ms	

8 requests | 246 B transferred | Finish: 10 ms | DOMContentLoaded: 23 ms | Load: 36 ms

AngularTest localhost:4200

Please select :

firstItem

secondItem

thirdItem

Selected : 0 - None selected

RF Name :

RF Input

Submit Rf

Name	Stat...	Type	Initiator	Size	Time	Waterfall
websocket	101	web...	sockjs.js:...	0 B	Pen...	
localhost	200	doc...	Other	841 B	3 ms	
runtime.js	200	script	(index)	6.3 ...	4 ms	
polyfills.js	200	script	(index)	222...	5 ms	
styles.js	200	script	(index)	188...	7 ms	
vendor.js	200	script	(index)	3.4 ...	67 ...	
main.js	200	script	(index)	12....	13 ...	
info?t=153951658...	200	xhr	zone.js:2...	367 B	2 ms	

8 requests | 3.8 MB transferred | Finish: 322 ms | DOMContentLoaded: 314 ms | Load: 316 ms

Aurelia Navigation Skeleton localhost:8080

Please select :

firstItem

secondItem

thirdItem

Selected Item : 3 - thirdItem

Name :

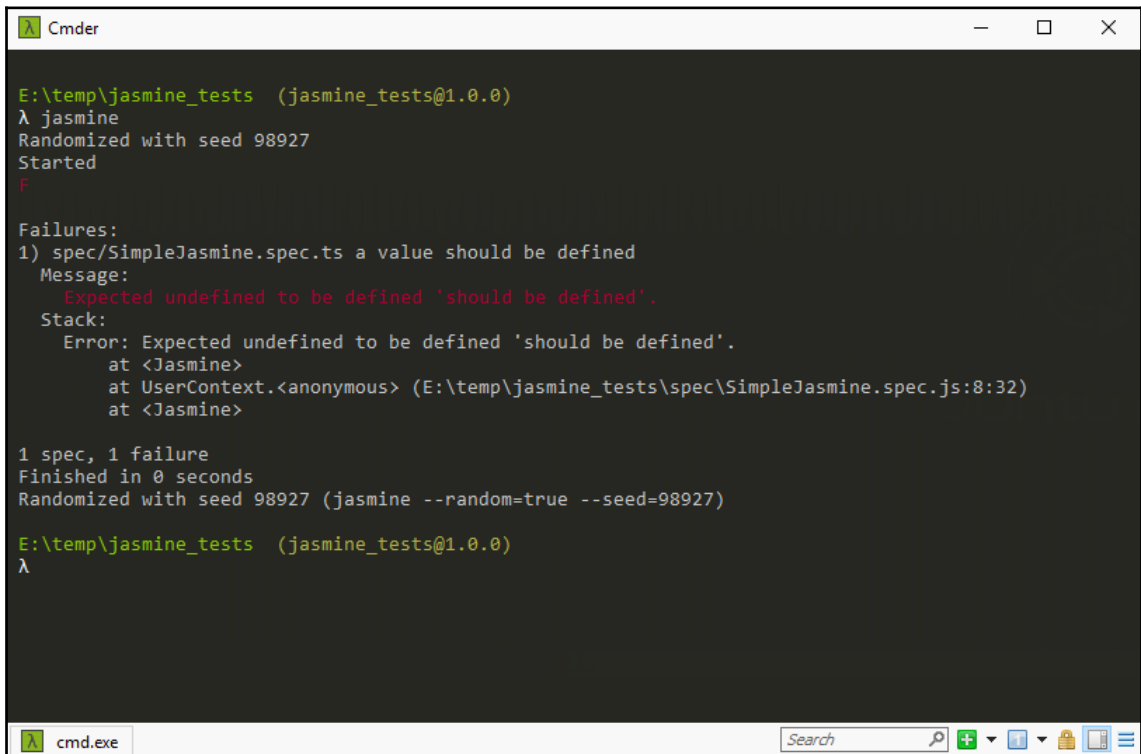
Your Name

Submit

Name	Stat...	Type	Initiator	Size	Time	Waterfall
websocket	101	web...	webpack...	0 B	Pen...	
localhost	200	doc...	Other	818 B	312...	
webpack-dev-serv...	200	script	(index)	140...	12 ...	
app.f3c644bcf6e6...	200	script	(index)	2.9 ...	52 ...	
vendor.f3c644bcf...	200	script	(index)	493...	28 ...	
info?t=153952053...	200	xhr	webpack...	367 B	2 ms	

6 requests | 3.5 MB transferred | Finish: 371 ms | DOMContentLoaded: 701 ms | Load: 716 ms

Chapter 8: Test-Driven Development



```
E:\temp\jasmine_tests (jasmine_tests@1.0.0)
λ jasmine
Randomized with seed 98927
Started
F

Failures:
1) spec/SimpleJasmine.spec.ts a value should be defined
  Message:
    Expected undefined to be defined 'should be defined'.
  Stack:
    Error: Expected undefined to be defined 'should be defined'.
      at <Jasmine>
      at UserContext.<anonymous> (E:\temp\jasmine_tests\spec\SimpleJasmine.spec.js:8:32)
      at <Jasmine>

1 spec, 1 failure
Finished in 0 seconds
Randomized with seed 98927 (jasmine --random=true --seed=98927)

E:\temp\jasmine_tests (jasmine_tests@1.0.0)
λ
```

```
Cmdr
E:\temp\jasmine_tests (jasmine_tests@1.0.0)
λ jasmine
Randomized with seed 39871
Started
.

1 spec, 0 failures
Finished in 0.015 seconds
Randomized with seed 39871 (jasmine --random=true --seed=39871)

E:\temp\jasmine_tests (jasmine_tests@1.0.0)
λ
```

cmd.exe Search

```
Cmdr
E:\temp\jasmine_tests (jasmine_tests@1.0.0)
λ jasmine
Randomized with seed 04583
Started
TAP version 13
.ok 1 - spec/SimpleJasmine.spec.ts : expect false not to be truthy
.ok 2 - spec/SimpleJasmine.spec.ts : a value should be defined
.ok 3 - spec/SimpleJasmine.spec.ts : expect value toBe(2)
.ok 4 - spec/SimpleJasmine.spec.ts : expect string toContain value
.ok 5 - spec/SimpleJasmine.spec.ts : expect true to be truthy
.ok 6 - spec/SimpleJasmine.spec.ts : expect value not to be null
.ok 7 - spec/SimpleJasmine.spec.ts : expect objects to be equal

7 specs, 0 failures
Finished in 0.046 seconds
Randomized with seed 04583 (jasmine --random=true --seed=04583)
1..7
# 7 specs, 0 failures, 0 skipped, 0 disabled in 0.046s.
# NOTE: disabled specs are usually a result of xdescribe.

E:\temp\jasmine_tests (jasmine_tests@1.0.0)
λ
```

cmd.exe Search

```
Cmdr
E:\temp\jasmine_tests (jasmine_tests@1.0.0)
λ jasmine
Randomized with seed 92232
Started
TAP version 13
.ok 1 - This is a forced suite : This is a forced test
ok 2 - This is a forced suite : This is not a forced test
ok 3 - beforeEach and afterEach tests : should find then clear the myString variable
ok 4 - spec/SimpleJasmine.spec.ts : a value should be defined
ok 5 - spec/SimpleJasmine.spec.ts : expect value toBe(2)
ok 6 - spec/SimpleJasmine.spec.ts : expect string toContain value
ok 7 - spec/SimpleJasmine.spec.ts : expect true to be truthy
ok 8 - spec/SimpleJasmine.spec.ts : expect false not to be truthy
ok 9 - spec/SimpleJasmine.spec.ts : expect value not to be null
ok 10 - spec/SimpleJasmine.spec.ts : expect objects to be equal

Ran 1 of 10 specs
1 spec, 0 failures
Finished in 0.011 seconds
Incomplete: fit() or fdescribe() was found
Randomized with seed 92232 (jasmine --random=true --seed=92232)
1..10
# 10 specs, 0 failures, 0 skipped, 0 disabled in 0.011s.
# NOTE: disabled specs are usually a result of xdescribe.

E:\temp\jasmine_tests (jasmine_tests@1.0.0)
λ |
```

cmd.exe Search

```
Cmder
*ok 2 - skipped test examples : # SKIP disabled by xit or similar
*ok 3 - skipped test examples : skipped test with no reason # SKIP disabled by xit or similar
.ok 4 - spec/SimpleJasmine.spec.ts : expect string toContain value
.ok 5 - spec/SimpleJasmine.spec.ts : expect true to be truthy
.ok 6 - spec/SimpleJasmine.spec.ts : expect false not to be truthy
.ok 7 - spec/SimpleJasmine.spec.ts : expect value not to be null
.ok 8 - spec/SimpleJasmine.spec.ts : expect objects to be equal
.ok 9 - spec/SimpleJasmine.spec.ts : a value should be defined
.ok 10 - spec/SimpleJasmine.spec.ts : expect value toBe(2)

Pending:

1) skipped test examples
   this test should be implemented correctly

2) skipped test examples skipped test with no reason
   Temporarily disabled with xit

10 specs, 0 failures, 2 pending specs
Finished in 0.017 seconds
Randomized with seed 96463 (jasmine --random=true --seed=96463)
1..10
# 10 specs, 0 failures, 2 skipped, 0 disabled in 0.017s.
# NOTE: disabled specs are usually a result of xdescribe.

E:\temp\jasmine_tests (jasmine_tests@1.0.0)
λ |
```

cmd.exe Search

```
Cmder

E:\temp\jasmine_tests (jasmine_tests@1.0.0)
λ jasmine
Randomized with seed 77927
Started
TAP version 13
.ok 1 - data driven tests : !!string!! should contain 'string'
.ok 2 - data driven tests : second_string should contain 'string'
.ok 3 - data driven tests : first string should contain 'string'

3 specs, 0 failures
Finished in 0.018 seconds
Randomized with seed 77927 (jasmine --random=true --seed=77927)
1..3
# 3 specs, 0 failures, 0 skipped, 0 disabled in 0.018s.
# NOTE: disabled specs are usually a result of xdescribe.

E:\temp\jasmine_tests (jasmine_tests@1.0.0)
λ
```

cmd.exe Search [Taskbar icons: +, T, lock, calendar, menu]

```
Cmdr
λ jasmine
Randomized with seed 63595
Started
TAP version 13
1. calling executeSlowFunction
3. checking returnedValue
Fnot ok 1 - asynchronous tests : failing test
# Failure: Expected undefined to equal 'success'.
# === STACK TRACE ===
# Error: Expected undefined to equal 'success'.
#   at <Jasmine>
#   at UserContext.<anonymous> (E:\temp\jasmine_tests\spec\SimpleJasmine.spec.js:197:31)
#   at <Jasmine>
# === END STACK TRACE ===

Failures:
1) asynchronous tests failing test
   Message:
     Expected undefined to equal 'success'.
   Stack:
     Error: Expected undefined to equal 'success'.
       at <Jasmine>
       at UserContext.<anonymous> (E:\temp\jasmine_tests\spec\SimpleJasmine.spec.js:197:31)
       at <Jasmine>

1 spec, 1 failure
Finished in 0.015 seconds
Randomized with seed 63595 (jasmine --random=true --seed=63595)
```

cmd.exe Search

```
Cmder

E:\temp\jasmine_tests (jasmine_tests@1.0.0)
λ jasmine
Randomized with seed 49225
Started
TAP version 13
1. calling executeSlowFunction
2. executeSlowFunction returned
3. checking returnedValue
.ok 1 - async tests with done : should return success after 1 second

1 spec, 0 failures
Finished in 1.028 seconds
Randomized with seed 49225 (jasmine --random=true --seed=49225)
1..1
# 1 spec, 0 failures, 0 skipped, 0 disabled in 1.028s.
# NOTE: disabled specs are usually a result of xdescribe.

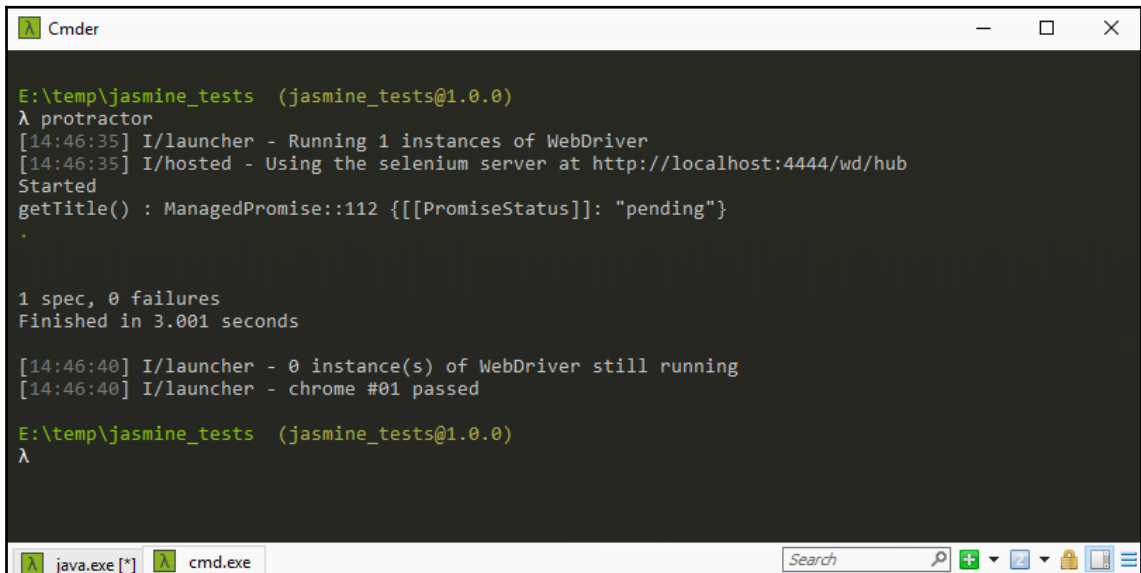
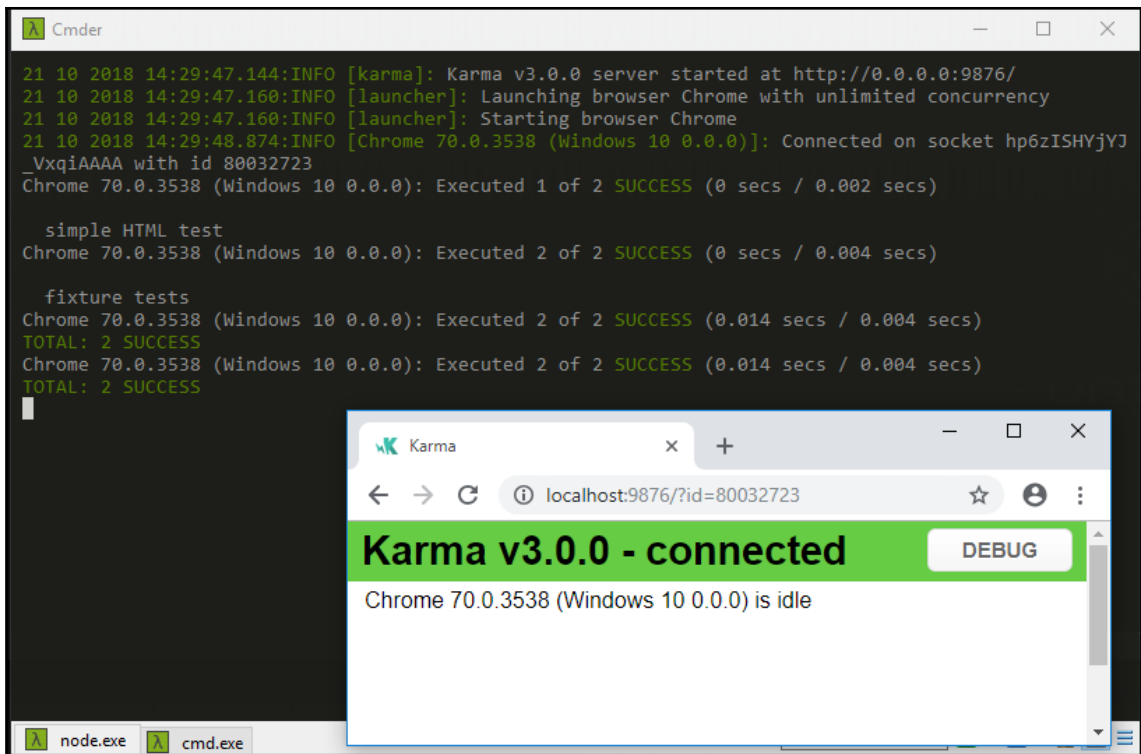
E:\temp\jasmine_tests (jasmine_tests@1.0.0)
λ |
```

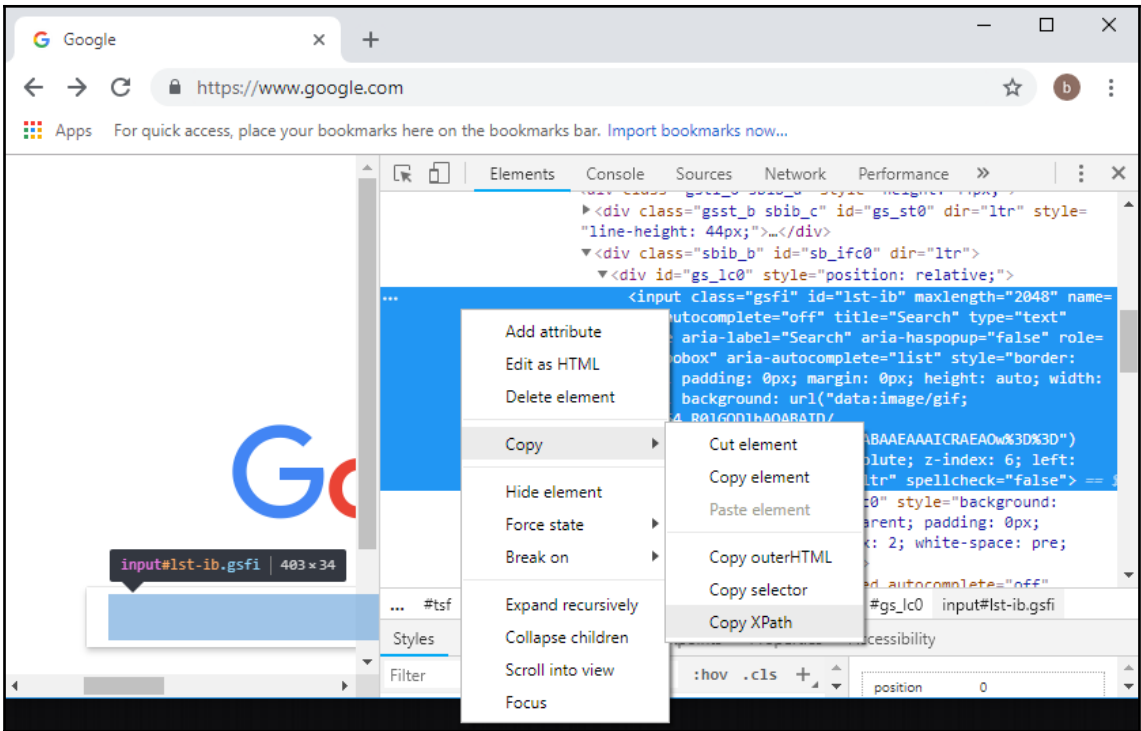
```
SpecRunner.html x +
File | file:///E:/temp/jasmine_tests/SpecRunner.html ☆ b
Apps For quick access, place your bookmarks here on the bookmarks bar. Import bookmarks now...

Jasmine 3.2.1 Options
1 spec, 0 failures, randomized with seed 84232 finished in 0.005s
simple HTML test
should pass
```



```
TEST'EM 'SCRIPTS!  
Open the URL below in a browser to connect.  
http://localhost:7357/  
  
Mozilla/5.0 (  Opera 38.0  Chrome 50.0  Firefox 41.0  
18/18 ✓ 18/18 ✓ 18/18 ✓ 18/18 ✓  
  
✓ 18 tests complete.  
[Press ENTER to run tests; q to quit; p to pause]
```





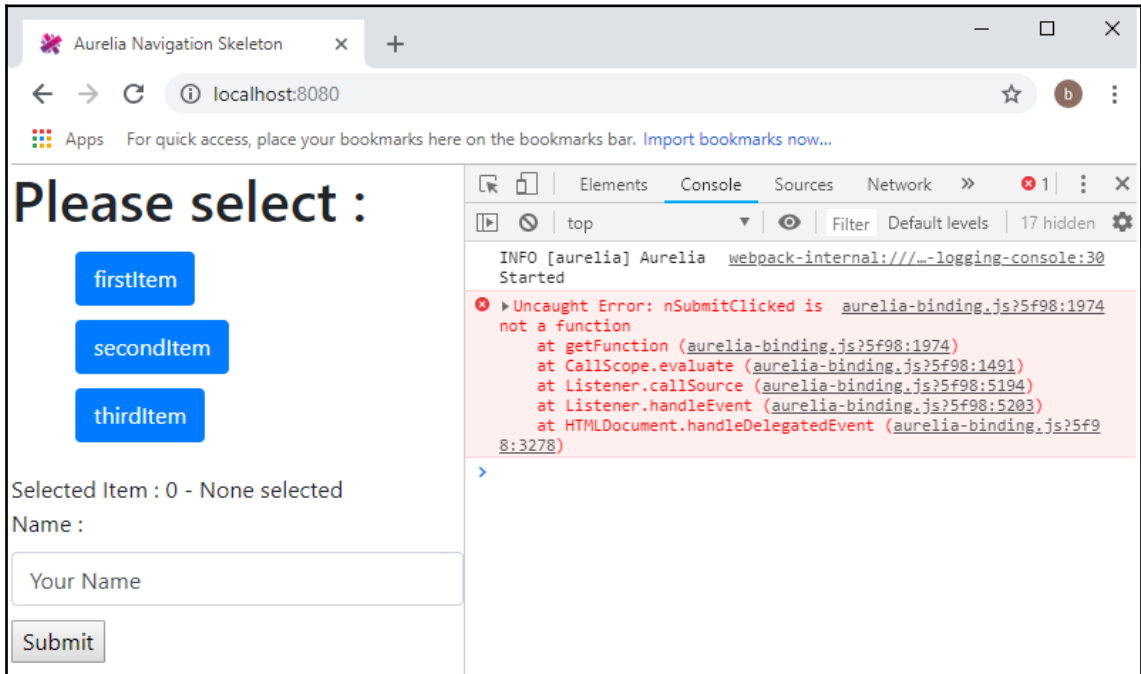
```
Cmdr
E:\temp\jasmine_tests (jasmine_tests@1.0.0)
λ protractor
[14:53:23] I/launcher - Running 1 instances of WebDriver
[14:53:23] I/hosted - Using the selenium server at http://localhost:4444/wd/hub
Started
##teamcity[progressStart 'Running Jasmine Tests']
##teamcity[testSuiteStarted name='google tests' timestamp='2018-10-21T06:53:26.031']
##teamcity[testStarted name='should navigate to home page' captureStandardOutput='true' timestamp='2018-10-21T06:53:26.031']
getTitle() : ManagedPromise::112 {[[PromiseStatus]]: "pending"}
.##teamcity[testFinished name='should navigate to home page' timestamp='2018-10-21T06:53:27.876']
##teamcity[testStarted name='should search for the term TypeScript' captureStandardOutput='true' timestamp='2018-10-21T06:53:27.876']
.##teamcity[testFinished name='should search for the term TypeScript' timestamp='2018-10-21T06:53:35.194']
##teamcity[testSuiteFinished name='google tests' timestamp='2018-10-21T06:53:35.195']

2 specs, 0 failures
Finished in 9.165 seconds

##teamcity[progressFinish 'Running Jasmine Tests']
[14:53:35] I/launcher - 0 instance(s) of WebDriver still running
[14:53:35] I/launcher - chrome #01 passed

E:\temp\jasmine_tests (jasmine_tests@1.0.0)
λ |
```

Chapter 9: Testing Typescript Compatible Frameworks



```
Cmdr
E:\temp\react-sample-test (react-sample@1.0.0)
λ npm test

> react-sample@1.0.0 test E:\temp\react-sample-test
> jest

FAIL dist/test.js
  ● Test suite failed to run

    Your test suite must contain at least one test.

    at node_modules/jest/node_modules/jest-cli/build/TestScheduler.js:256:22

Test Suites: 1 failed, 1 total
Tests: 0 total
Snapshots: 0 total
Time: 1.107s
Ran all test suites.
npm ERR! Test failed.  See above for more details.

E:\temp\react-sample-test (react-sample@1.0.0)
λ |
```

```
Cmdr
E:\temp\react-sample-test (react-sample@1.0.0)
λ npm test

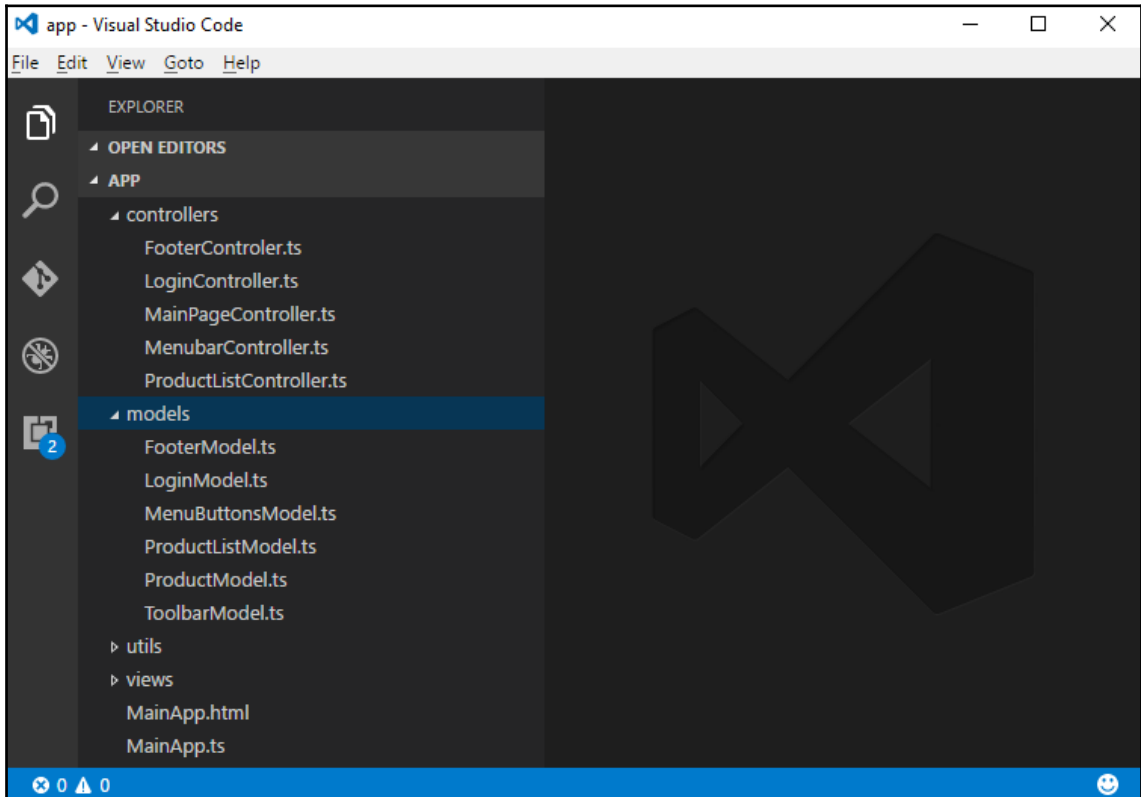
> react-sample@1.0.0 test E:\temp\react-sample-test
> jest

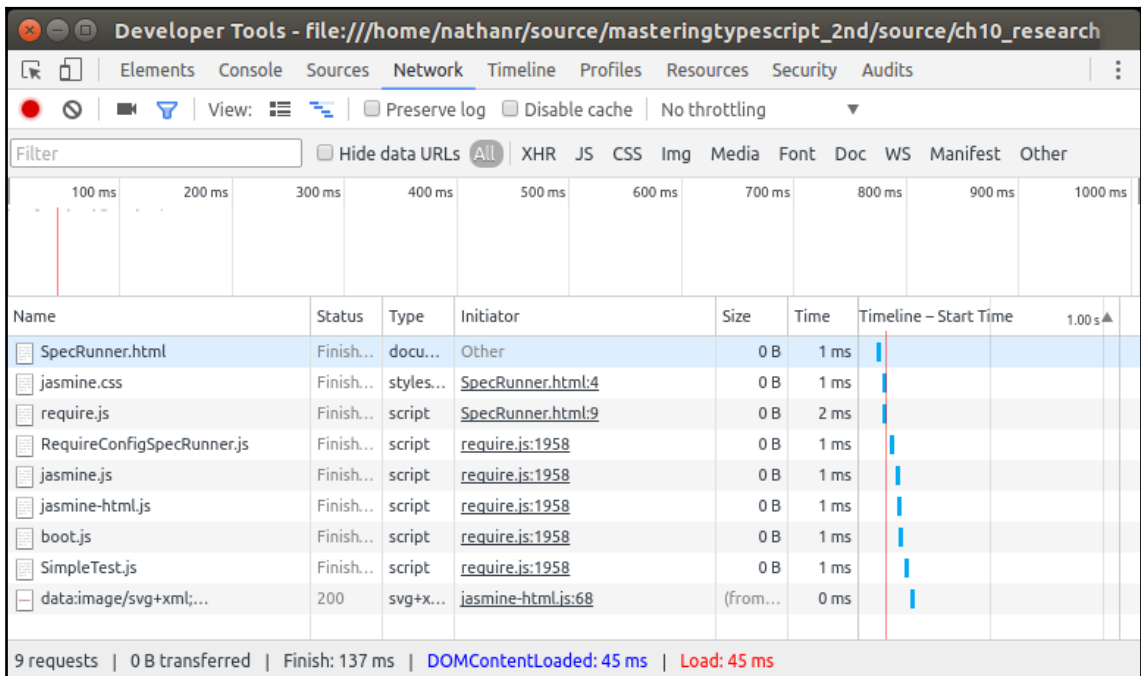
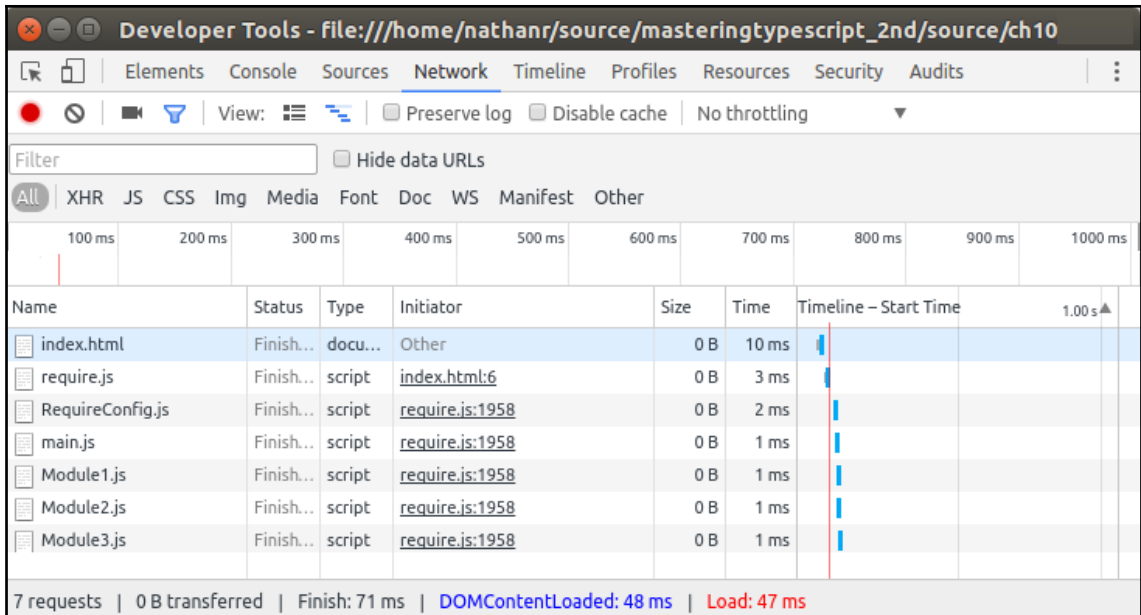
PASS dist/test.js
  /test/react.app.tests.tsx : ArrayView tests
  ✓ should render Title property (16ms)

Test Suites: 1 passed, 1 total
Tests: 1 passed, 1 total
Snapshots: 0 total
Time: 1.162s, estimated 2s
Ran all test suites.

E:\temp\react-sample-test (react-sample@1.0.0)
λ
```

Chapter 10: Modularization





Network - http://localhost:57013/tscode/tests/SpecRunner.html

Method	File	Domain	Type	Size	0 ms	160 ms
304 GET	SpecRunner.html	localhost:57013	html	0.38 kB	4 ms	
304 GET	jasmine.css	localhost:57013	css	19.17 kB	5 ms	
304 GET	require.js	localhost:57013	js	81.13 kB	3 ms	
304 GET	TestConfig.js	localhost:57013	js	1.39 kB	4 ms	
404 GET	jquery-2.1.1.1.js	localhost:57013	html	4.90 kB	8 ms	

All HTML CSS JS XHR Fonts Images Media Flash Other 5 requests, 106.99 kB, 0.16 s

Developer Tools - http://localhost:8080/

Elements Console Sources Network Timeline Profiles Resources Security Audits

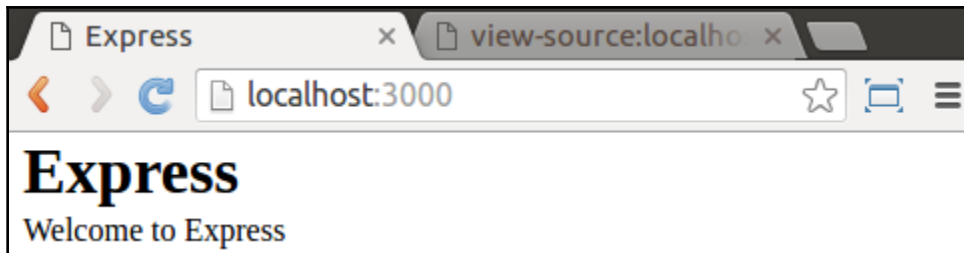
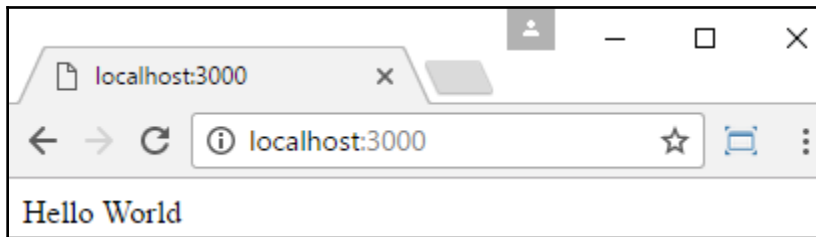
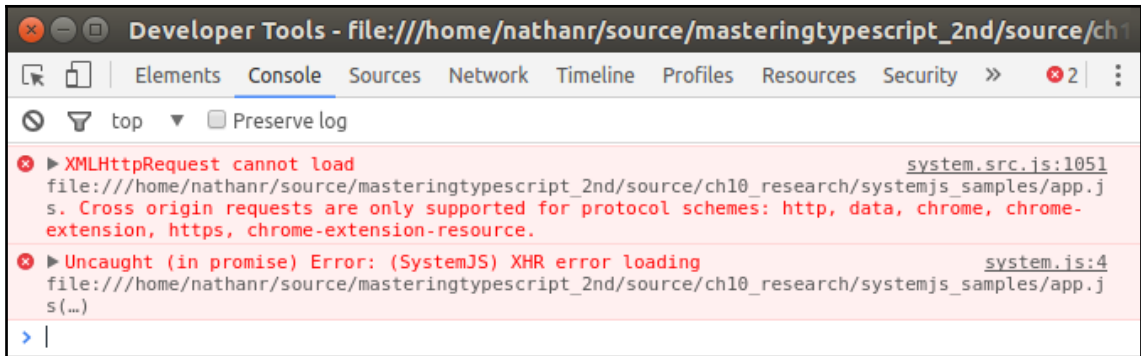
View: Preserve log Disable cache No throttling

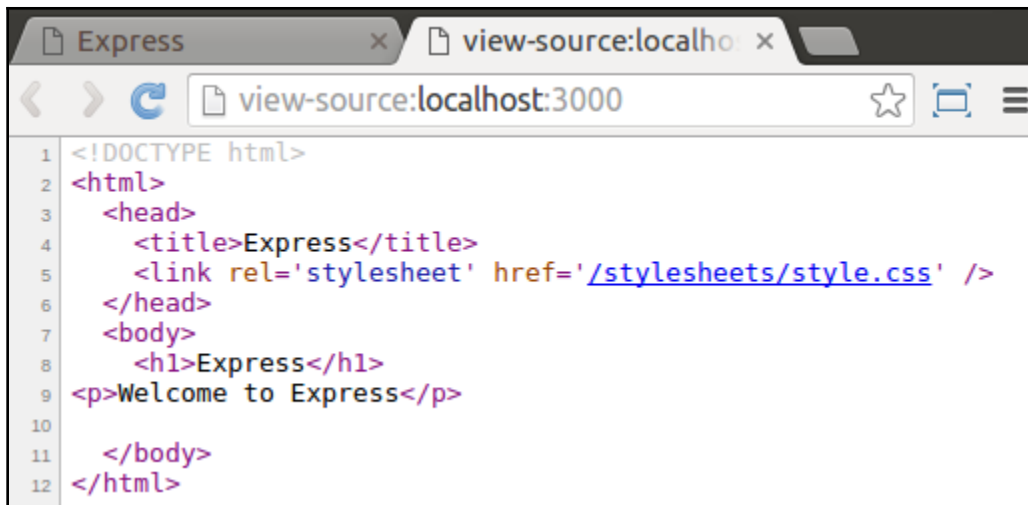
Filter Hide data URLs

All XHR JS CSS Img Media Font Doc WS Manifest Other

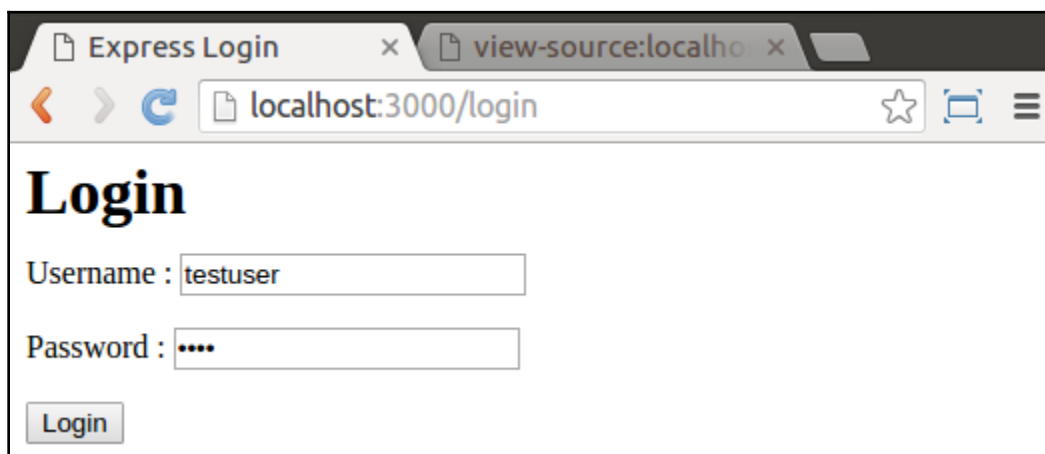
Name	Status	Type	Initiator	Size	Time	Timeline - Start Time	1.00 s
localhost	200	docu...	Other	559 B	6 ms		
system.js	304	script	(index):6	239 B	3 ms		
SystemConfig.js	304	script	(index):7	237 B	3 ms		
app.js	304	xhr	system.src.js:1051	237 B	4 ms		
Module1.js	200	xhr	system.src.js:1051	(from...	1 ms		
Module2.js	200	xhr	system.src.js:1051	(from...	1 ms		
Module3.js	200	xhr	system.src.js:1051	(from...	1 ms		

7 requests | 1.2 KB transferred | Finish: 149 ms | DOMContentLoaded: 60 ms | Load: 60 ms





```
1 <!DOCTYPE html>
2 <html>
3   <head>
4     <title>Express</title>
5     <link rel='stylesheet' href='/stylesheets/style.css' />
6   </head>
7   <body>
8     <h1>Express</h1>
9   <p>Welcome to Express</p>
10
11   </body>
12 </html>
```



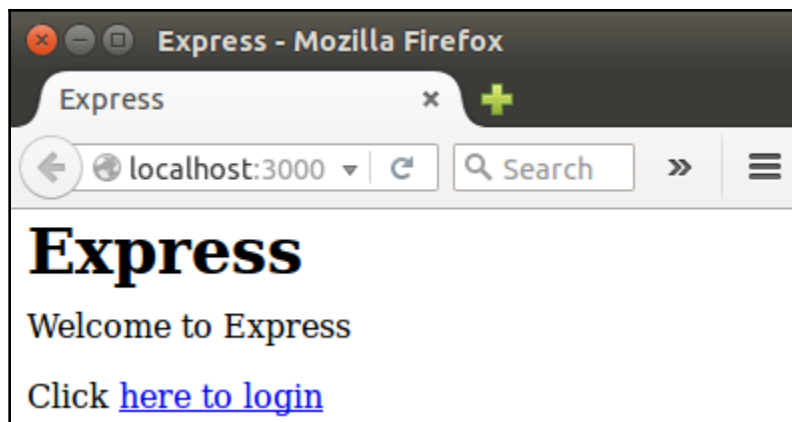
Express Login

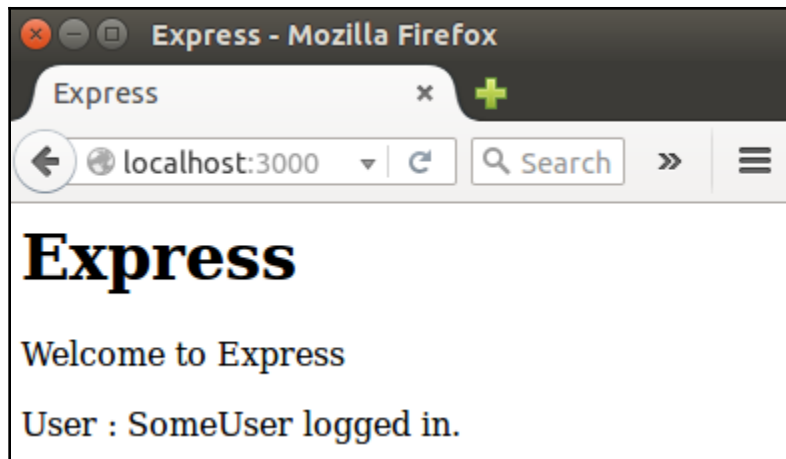
localhost:3000/login

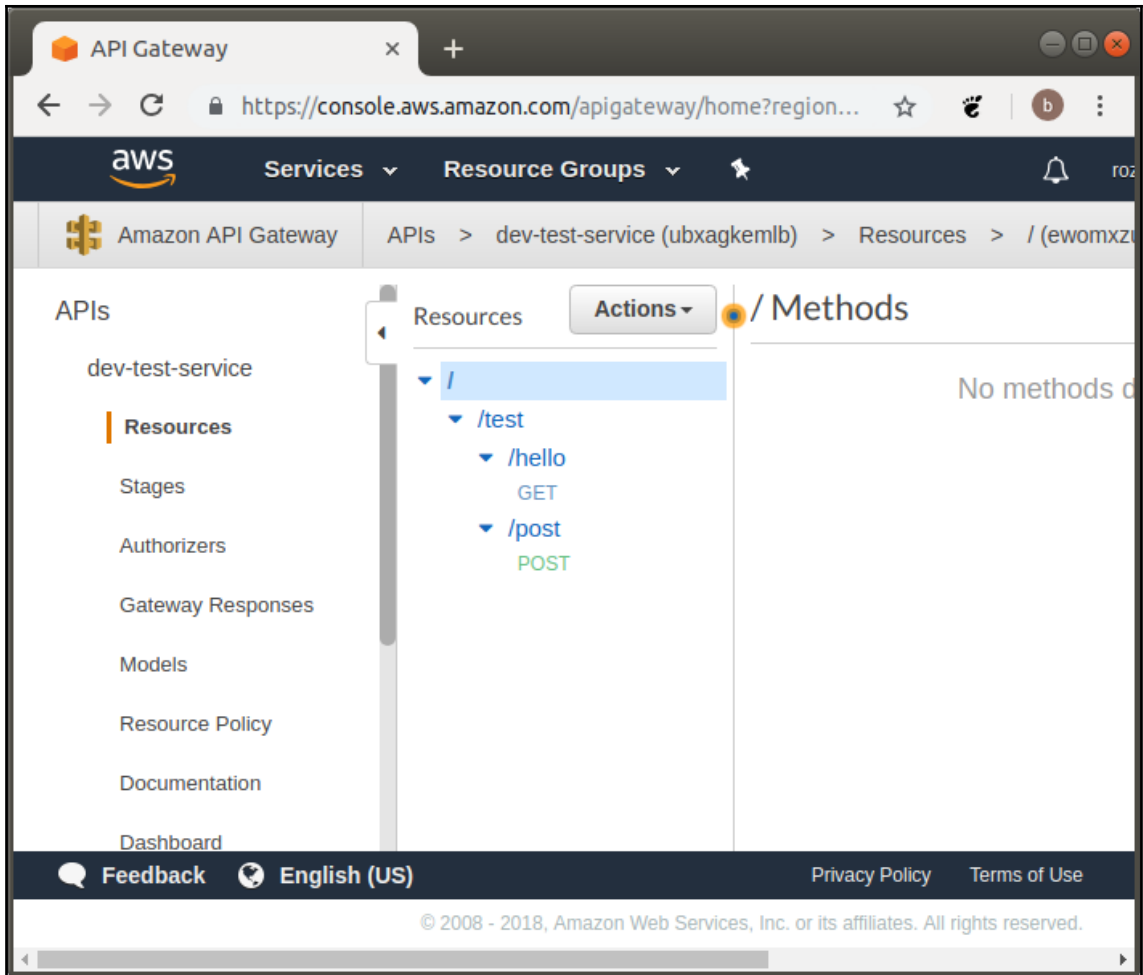
Login

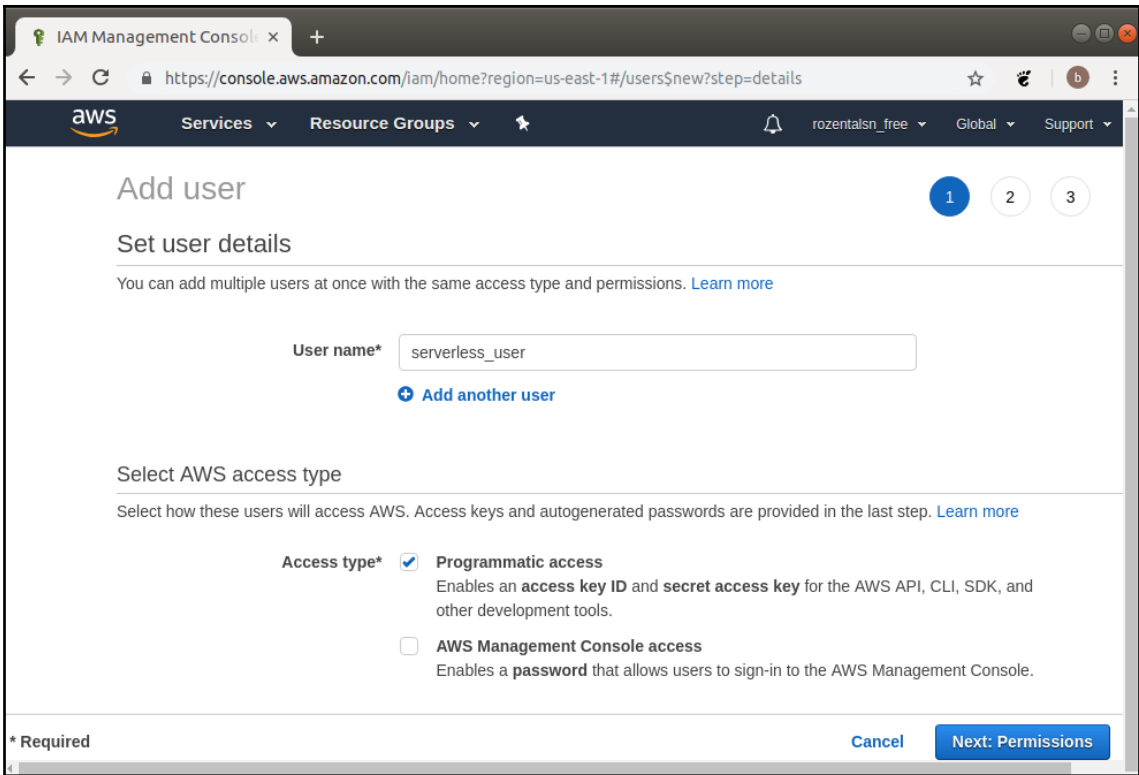
Username :

Password :









IAM Management Console

Services Resource Groups

rozentalsn_free Global Support

Add user

1 2 3

Set permissions

Add user to group Copy permissions from existing user Attach existing policies directly

Create policy

Filter policies Search Showing

	Policy name	Type	Used as	Description
<input checked="" type="checkbox"/>	AdministratorAccess	Job function	Permissions policy (1)	Provides full access to AWS service
<input type="checkbox"/>	AlexaForBusinessD...	AWS managed	None	Provide device setup access to Ale
<input type="checkbox"/>	AlexaForBusinessF...	AWS managed	None	Grants full access to AlexaForBusi
<input type="checkbox"/>	AlexaForBusinessG...	AWS managed	None	Provide gateway execution access
<input type="checkbox"/>	AlexaForBusinessR...	AWS managed	None	Provide read only access to Alexal

Cancel Previous Next: Tags

IAM Management Console


https://console.aws.amazon.com/iam/home?region=us-east-1#/users\$new?step=final&accessKey&userNa...

aws Services Resource Groups

rozentalsn_free Global Support


Add user


1 2 3

 **Success**

You successfully created the users shown below. You can view and download user security credentials. You can also email users instructions for signing in to the AWS Management Console. This is the last time these credentials will be available to download. If you can create new credentials at any time.

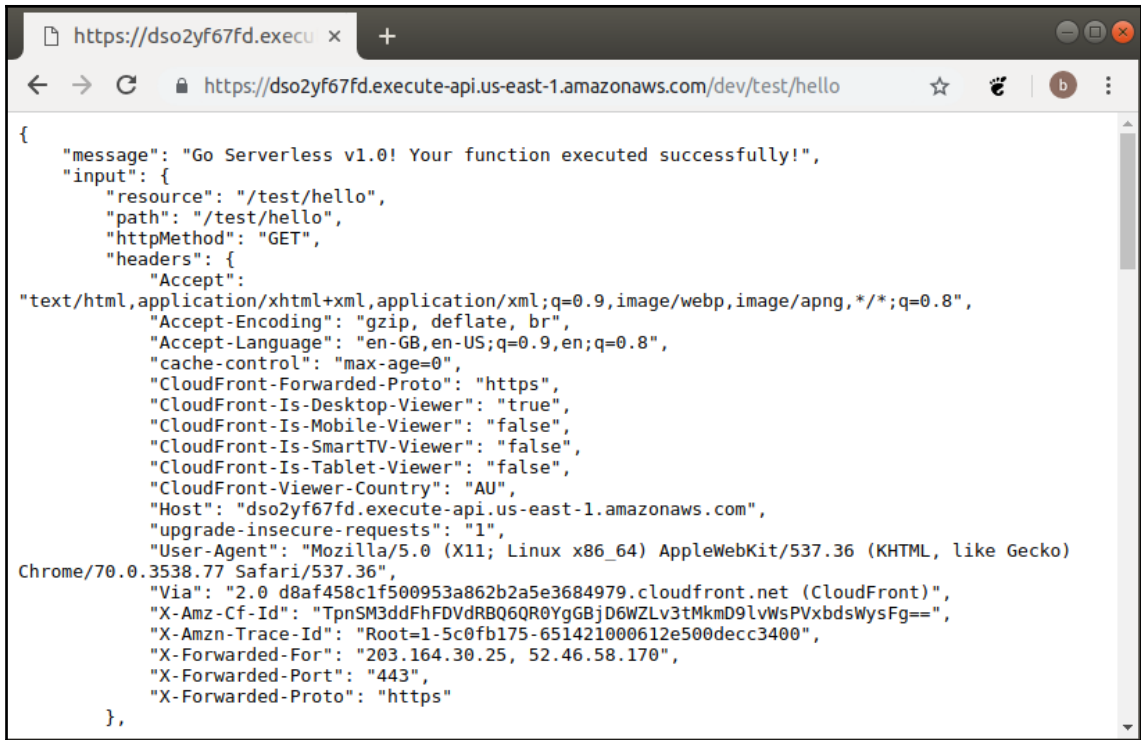
Users with AWS Management Console access can sign-in at: <https://955774069926.signin.aws.amazon.com/console>

 Download .csv

	User	Access key ID	Secret access key
▶ 	serverless_user	AKIAJSMKUF2XKLYAQASA	***** Show

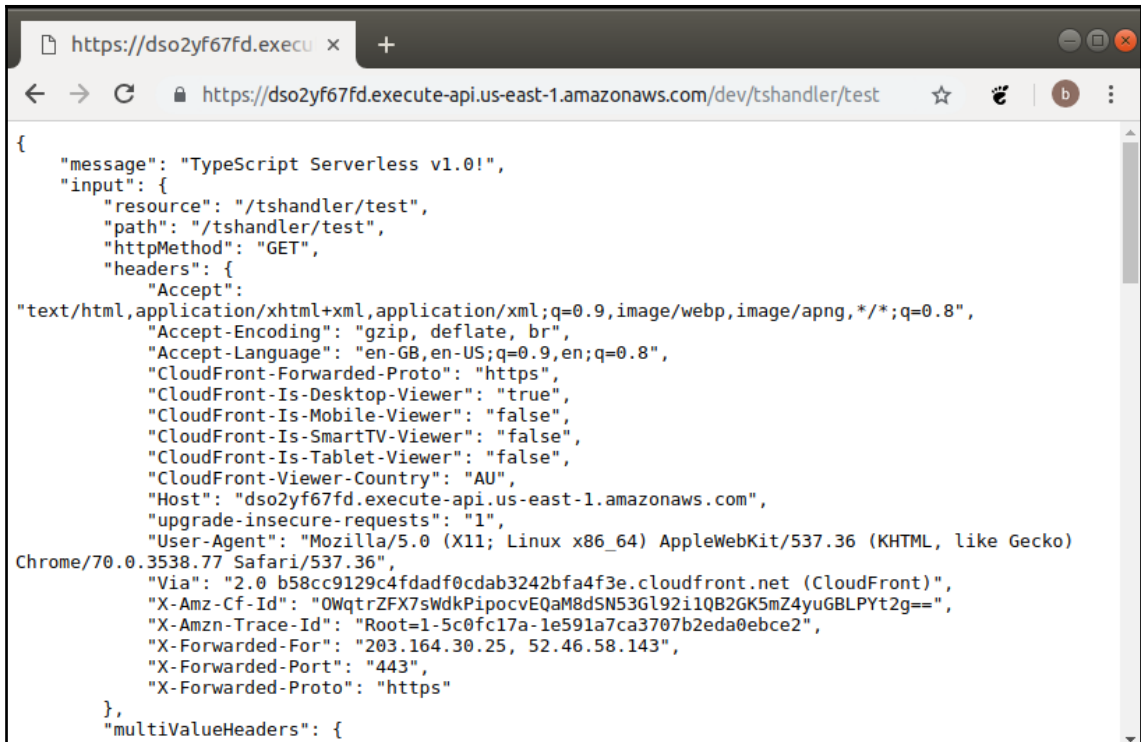
Close

```
nathanr@nero260: /tmp/serverless-sample
File Edit View Search Terminal Help
nathanr@nero260:/tmp/serverless-sample$ serverless deploy
Serverless: Packaging service...
Serverless: Excluding development dependencies...
Serverless: Uploading CloudFormation file to S3...
Serverless: Uploading artifacts...
Serverless: Uploading service .zip file to S3 (401 B)...
Serverless: Validating template...
Serverless: Updating Stack...
Serverless: Checking Stack update progress...
.....
Serverless: Stack update finished...
Service Information
service: serverless-sample
stage: dev
region: us-east-1
stack: serverless-sample-dev
api keys:
  None
endpoints:
  GET - https://dso2yf67fd.execute-api.us-east-1.amazonaws.com/dev/test/hello
functions:
  hello: serverless-sample-dev-hello
layers:
  None
nathanr@nero260:/tmp/serverless-sample$
```



The image shows a web browser window with the address bar displaying `https://dso2yf67fd.execute-api.us-east-1.amazonaws.com/dev/test/hello`. The page content is a JSON response from an AWS Lambda function, indicating a successful execution. The response includes a message and detailed input headers.

```
{
  "message": "Go Serverless v1.0! Your function executed successfully!",
  "input": {
    "resource": "/test/hello",
    "path": "/test/hello",
    "httpMethod": "GET",
    "headers": {
      "Accept":
"text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/apng,*/*;q=0.8",
      "Accept-Encoding": "gzip, deflate, br",
      "Accept-Language": "en-GB,en-US;q=0.9,en;q=0.8",
      "cache-control": "max-age=0",
      "CloudFront-Forwarded-Proto": "https",
      "CloudFront-Is-Desktop-Viewer": "true",
      "CloudFront-Is-Mobile-Viewer": "false",
      "CloudFront-Is-SmartTV-Viewer": "false",
      "CloudFront-Is-Tablet-Viewer": "false",
      "CloudFront-Viewer-Country": "AU",
      "Host": "dso2yf67fd.execute-api.us-east-1.amazonaws.com",
      "upgrade-insecure-requests": "1",
      "User-Agent": "Mozilla/5.0 (X11; Linux x86_64) AppleWebKit/537.36 (KHTML, like Gecko)
Chrome/70.0.3538.77 Safari/537.36",
      "Via": "2.0 d8af458c1f500953a862b2a5e3684979.cloudfront.net (CloudFront)",
      "X-Amz-Cf-Id": "TpnSM3ddFhFDVdRBQ6QR0YgGBjD6wZLv3tMkmD9lvWsPVxbsWysFg==",
      "X-Amzn-Trace-Id": "Root=1-5c0fb175-651421000612e500decc3400",
      "X-Forwarded-For": "203.164.30.25, 52.46.58.170",
      "X-Forwarded-Port": "443",
      "X-Forwarded-Proto": "https"
    }
  },
}
```

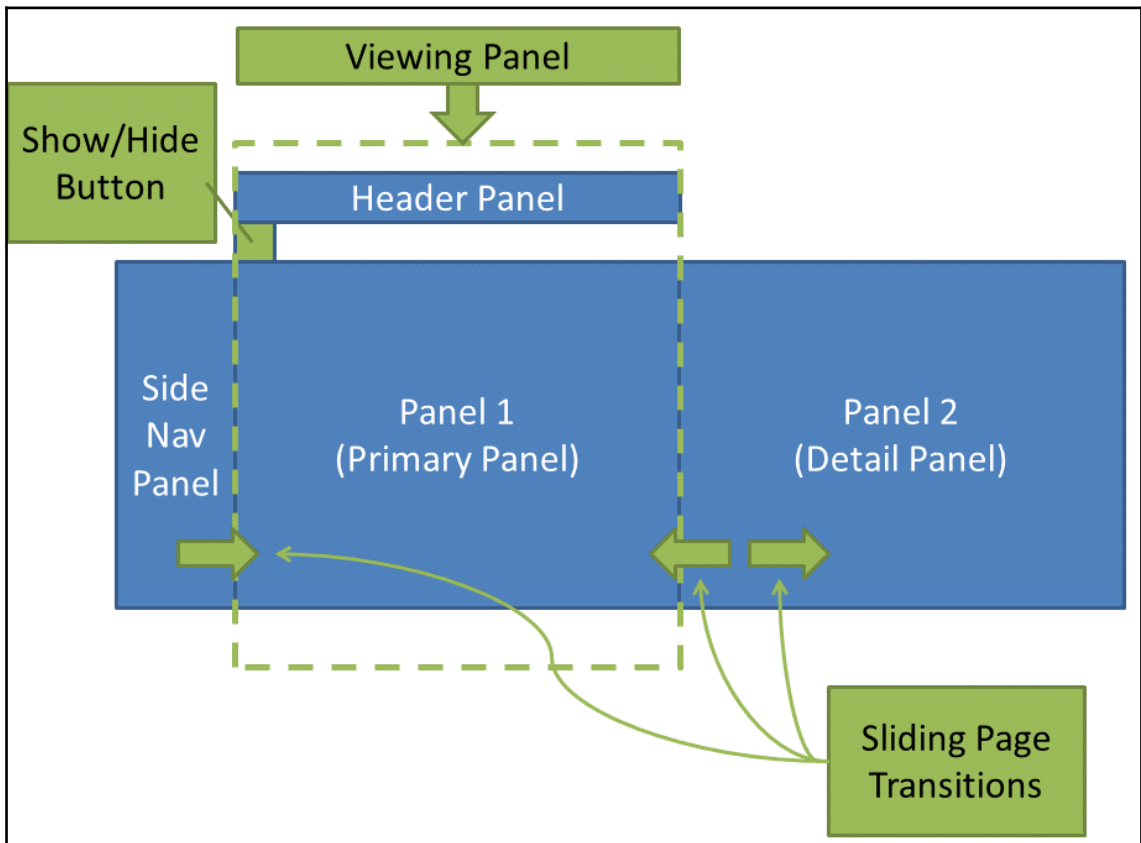


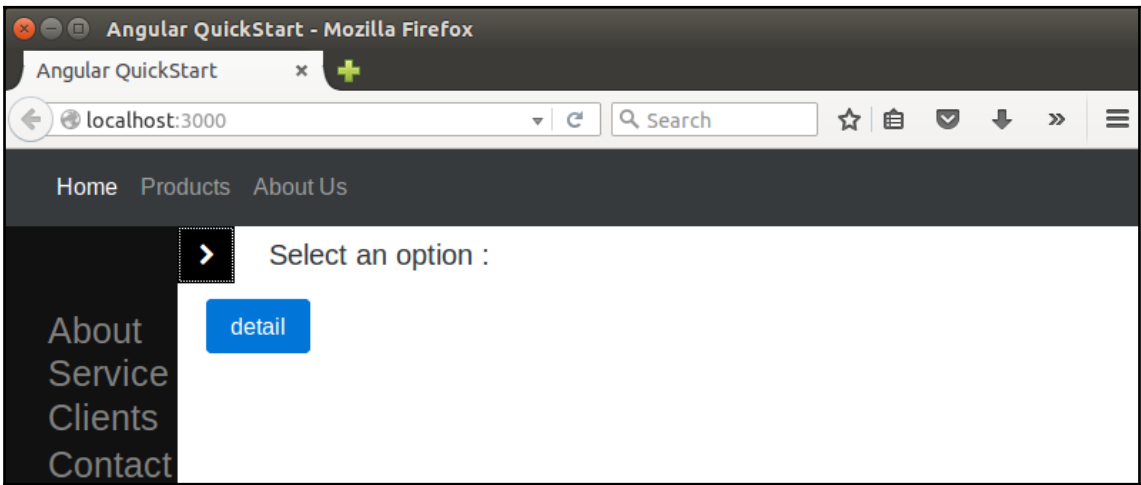
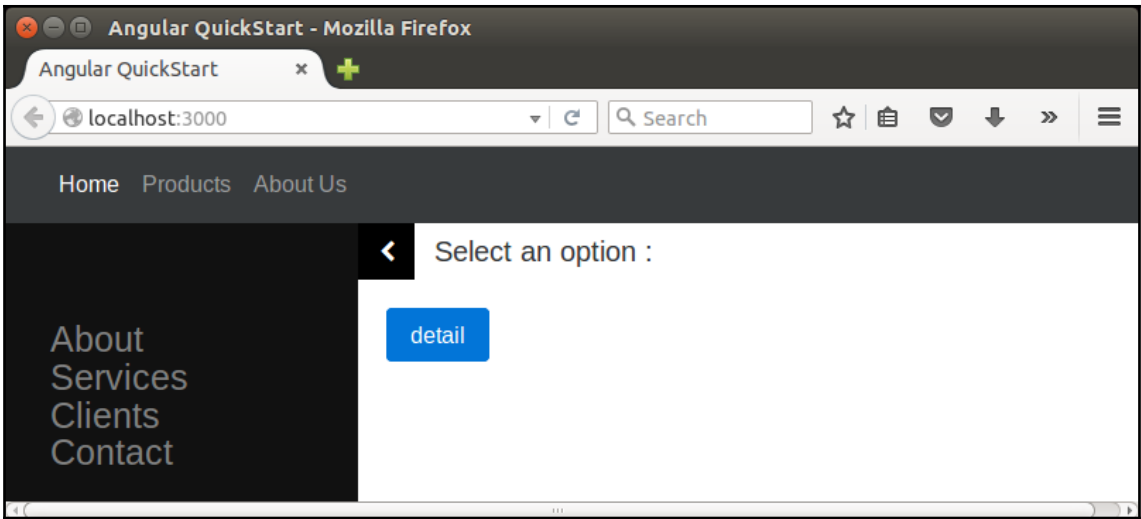
The image shows a web browser window with the address bar displaying `https://dso2yf67fd.execute-api.us-east-1.amazonaws.com/dev/tshandler/test`. The main content area displays a JSON object representing an API response. The JSON includes a message, input details (resource, path, httpMethod, headers), and a list of multi-value headers.

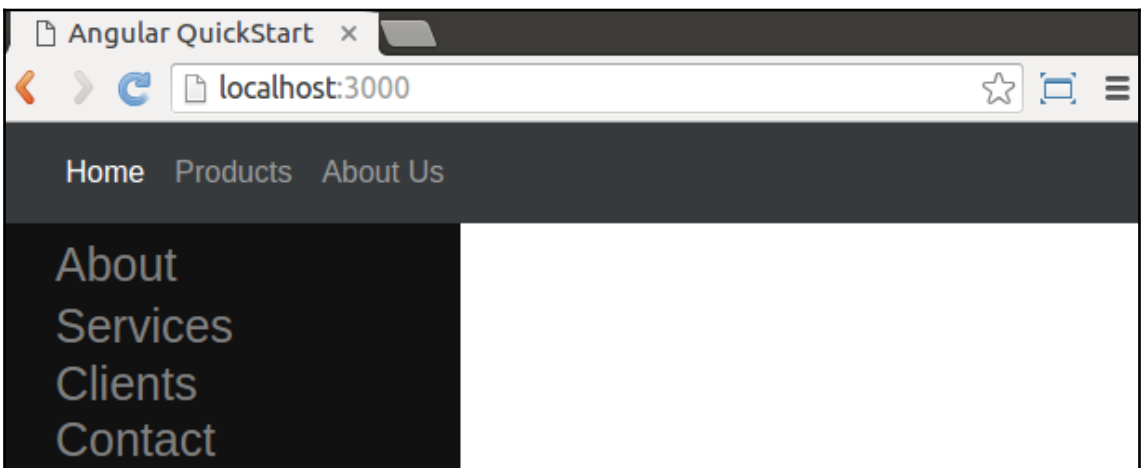
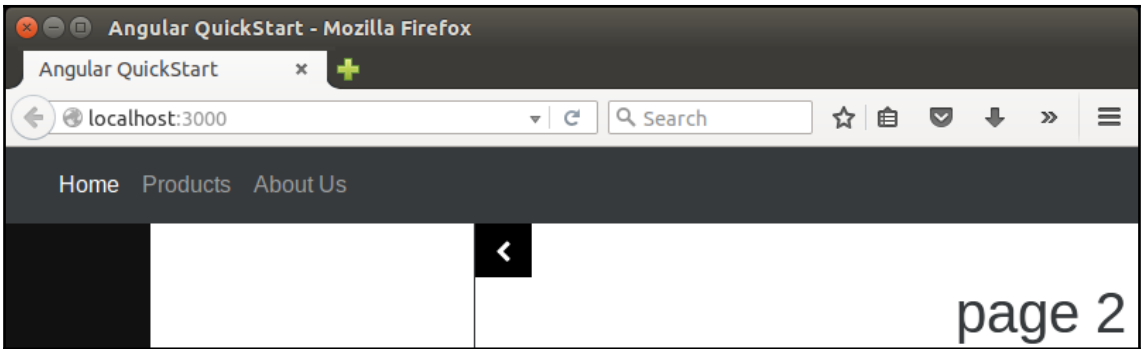
```
{
  "message": "TypeScript Serverless v1.0!",
  "input": {
    "resource": "/tshandler/test",
    "path": "/tshandler/test",
    "httpMethod": "GET",
    "headers": {
      "Accept":
"text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/apng,*/*;q=0.8",
      "Accept-Encoding": "gzip, deflate, br",
      "Accept-Language": "en-GB,en-US;q=0.9,en;q=0.8",
      "CloudFront-Forwarded-Proto": "https",
      "CloudFront-Is-Desktop-Viewer": "true",
      "CloudFront-Is-Mobile-Viewer": "false",
      "CloudFront-Is-SmartTV-Viewer": "false",
      "CloudFront-Is-Tablet-Viewer": "false",
      "CloudFront-Viewer-Country": "AU",
      "Host": "dso2yf67fd.execute-api.us-east-1.amazonaws.com",
      "upgrade-insecure-requests": "1",
      "User-Agent": "Mozilla/5.0 (X11; Linux x86_64) AppleWebKit/537.36 (KHTML, like Gecko)
Chrome/70.0.3538.77 Safari/537.36",
      "Via": "2.0 b58cc9129c4fdadf0cdab3242bfa4f3e.cloudfront.net (CloudFront)",
      "X-Amz-Cf-Id": "0WqtrZFX7sWdkPipocvEQaM8dSN53G192i1QB2GK5mZ4yuGBLPYt2g==",
      "X-Amzn-Trace-Id": "Root=1-5c0fc17a-1e591a7ca3707b2eda0ebce2",
      "X-Forwarded-For": "203.164.30.25, 52.46.58.143",
      "X-Forwarded-Port": "443",
      "X-Forwarded-Proto": "https"
    }
  },
  "multiValueHeaders": {
```

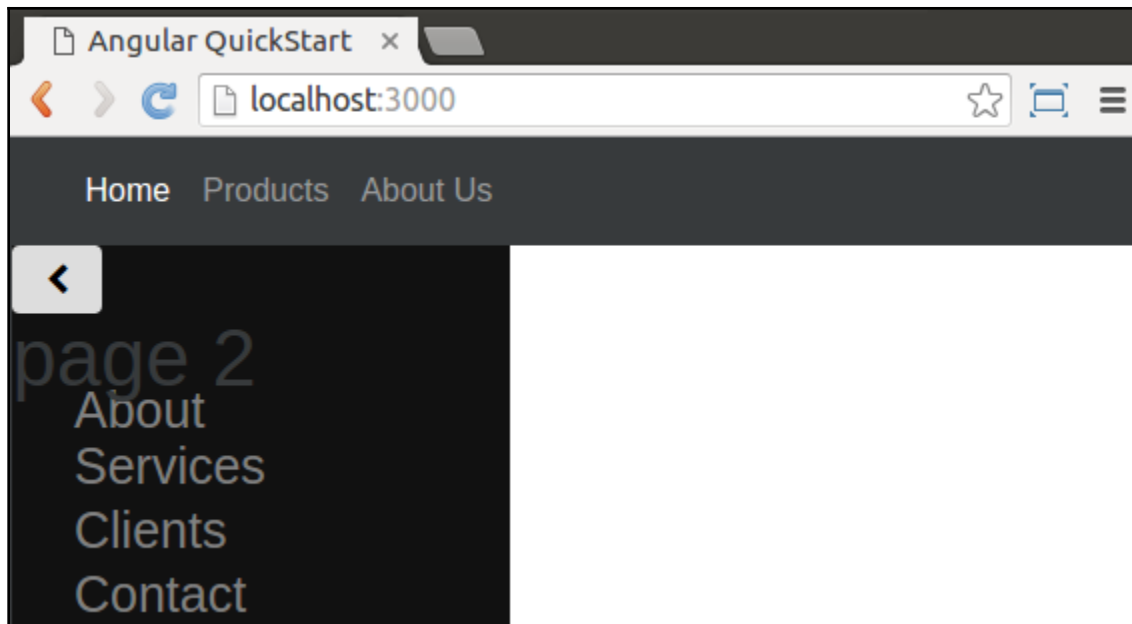
```
nathan@nero260: /tmp/serverless-sample
File Edit View Search Terminal Help
nathan@nero260:/tmp/serverless-sample$ serverless logs -f tslambda -t
START RequestId: 172d3e3d-fe06-11e8-a583-317f60e5e1e7 Version: $LATEST
2018-12-12 20:04:34.737 (+08:00) 172d3e3d-fe06-11e8-a583-317f60e5e1e7 event : {
  "resource": "/tshandler/test",
  "path": "/tshandler/test",
  "httpMethod": "GET",
  "headers": {
    "Accept": "text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/ap
ng,*/*;q=0.8",
    "Accept-Encoding": "gzip, deflate, br",
    "Accept-Language": "en-GB,en-US;q=0.9,en;q=0.8",
    "cache-control": "max-age=0",
    "CloudFront-Forwarded-Proto": "https",
    "CloudFront-Is-Desktop-Viewer": "true",
    "CloudFront-Is-Mobile-Viewer": "false",
    "CloudFront-Is-SmartTV-Viewer": "false",
    "CloudFront-Is-Tablet-Viewer": "false",
    "CloudFront-Viewer-Country": "AU",
    "Host": "dso2yf67fd.execute-api.us-east-1.amazonaws.com",
    "upgrade-insecure-requests": "1",
    "User-Agent": "Mozilla/5.0 (X11; Linux x86_64) AppleWebKit/537.36 (KHTML, like Gecko
) Chrome/70.0.3538.77 Safari/537.36",
    "Via": "2.0 41a05bbd6a4b41079be7716f6db52c5f.cloudfront.net (CloudFront)",
    "X-Amz-Cf-Id": "kuuUSTWFbLT-75Ip0FcZNB1cYzuUWH2mpUs1ov3nOTSp0Ep8My3ySQ==",
    "X-Amzn-Trace-Id": "Root=1-5c10f952-173ec9b001d74e58f971a0b8",
    "X-Forwarded-For": "203.164.30.25, 52.46.58.81",
    "X-Forwarded-Port": "443",
```

Chapter 11: Object-Oriented Programming



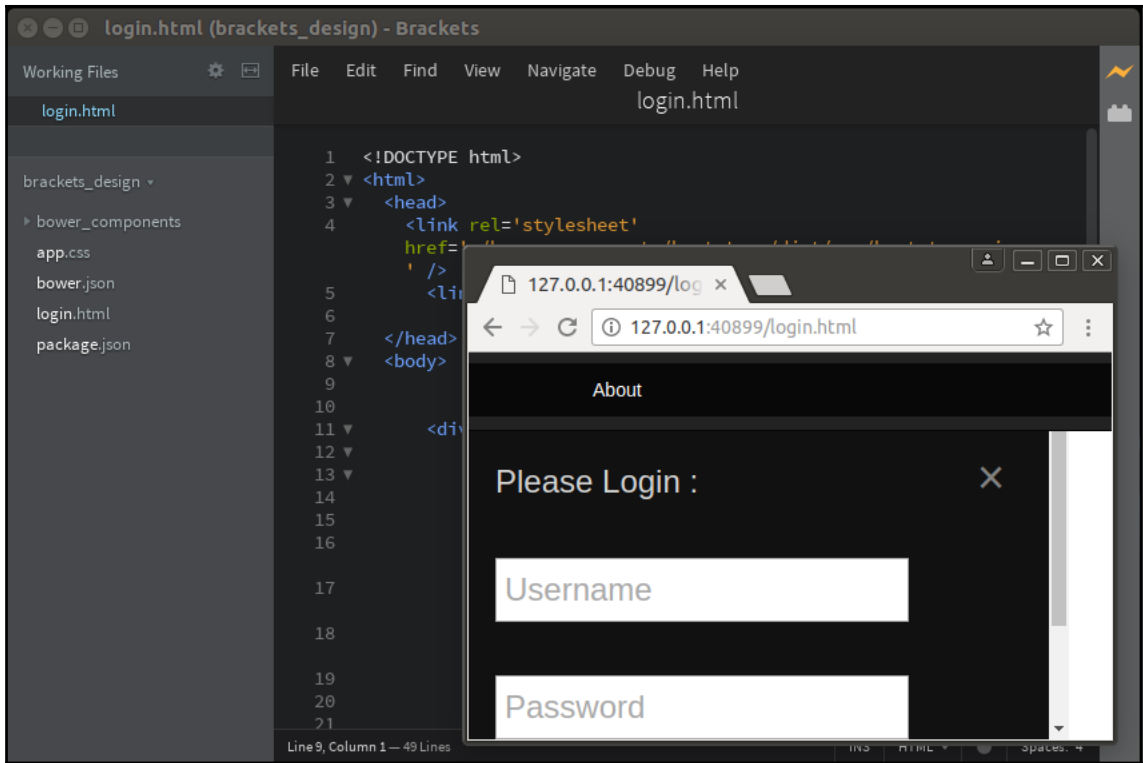


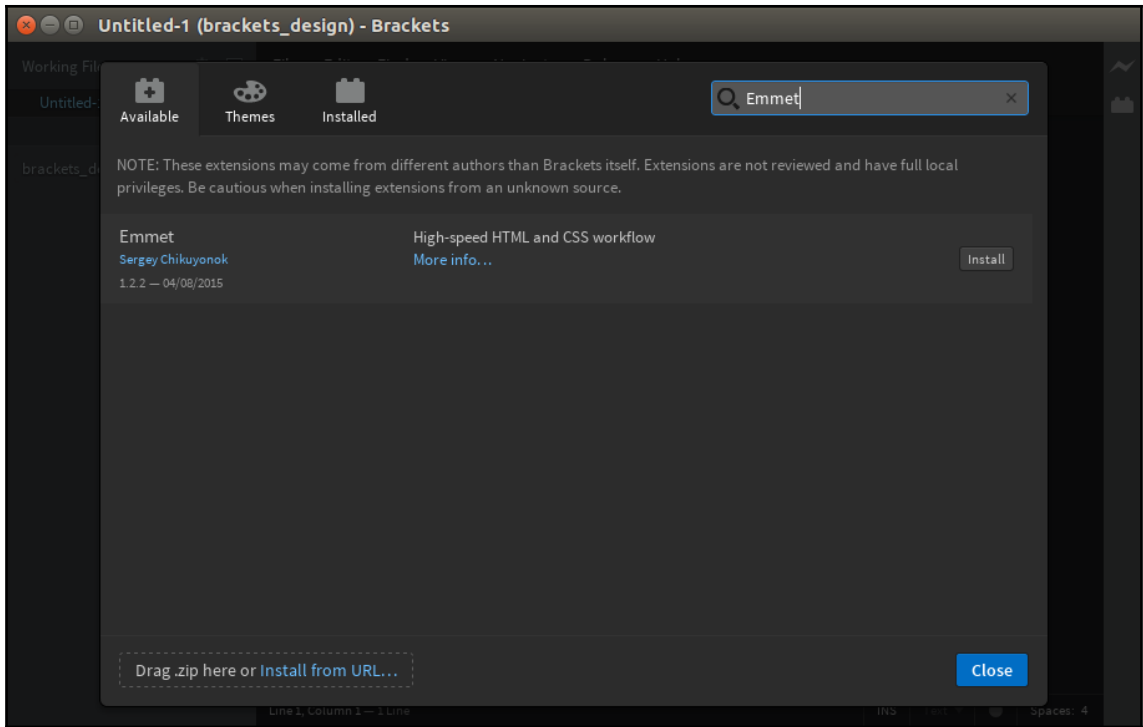




Chapter 13: Building Applications

```
nathanr@nero260: /tmp/server_logging
File Edit View Search Terminal Help
UTC : 2019-01-12T04:03:04.759Z : local : 2019-01-12 12:03:04.759 : Express server listening on PORT: 9000
UTC : 2019-01-12T04:03:05.259Z : local : 2019-01-12 12:03:05.259 : timeout reached
UTC : 2019-01-12T04:03:05.761Z : local : 2019-01-12 12:03:05.761 : timeout reached
UTC : 2019-01-12T04:03:06.262Z : local : 2019-01-12 12:03:06.262 : timeout reached
UTC : 2019-01-12T04:03:06.764Z : local : 2019-01-12 12:03:06.764 : timeout reached
UTC : 2019-01-12T04:03:07.265Z : local : 2019-01-12 12:03:07.265 : timeout reached
UTC : 2019-01-12T04:03:07.767Z : local : 2019-01-12 12:03:07.767 : timeout reached
UTC : 2019-01-12T04:03:08.267Z : local : 2019-01-12 12:03:08.267 : timeout reached
UTC : 2019-01-12T04:03:08.768Z : local : 2019-01-12 12:03:08.768 : timeout reached
UTC : 2019-01-12T04:03:09.270Z : local : 2019-01-12 12:03:09.270 : timeout reached
UTC : 2019-01-12T04:03:09.771Z : local : 2019-01-12 12:03:09.771 : timeout reached
UTC : 2019-01-12T04:03:10.272Z : local : 2019-01-12 12:03:10.272 : timeout reached
UTC : 2019-01-12T04:03:10.773Z : local : 2019-01-12 12:03:10.773 : timeout reached
UTC : 2019-01-12T04:03:11.275Z : local : 2019-01-12 12:03:11.275 : timeout reached
UTC : 2019-01-12T04:03:11.776Z : local : 2019-01-12 12:03:11.776 : timeout reached
UTC : 2019-01-12T04:03:12.277Z : local : 2019-01-12 12:03:12.277 : timeout reached
UTC : 2019-01-12T04:03:12.778Z : local : 2019-01-12 12:03:12.778 : timeout reached
UTC : 2019-01-12T04:03:13.279Z : local : 2019-01-12 12:03:13.279 : timeout reached
UTC : 2019-01-12T04:03:13.780Z : local : 2019-01-12 12:03:13.780 : timeout reached
UTC : 2019-01-12T04:03:14.281Z : local : 2019-01-12 12:03:14.281 : timeout reached
UTC : 2019-01-12T04:03:14.782Z : local : 2019-01-12 12:03:14.782 : timeout reached
UTC : 2019-01-12T04:03:15.283Z : local : 2019-01-12 12:03:15.283 : timeout reached
UTC : 2019-01-12T04:03:15.785Z : local : 2019-01-12 12:03:15.785 : timeout reached
UTC : 2019-01-12T04:03:16.286Z : local : 2019-01-12 12:03:16.286 : timeout reached
```





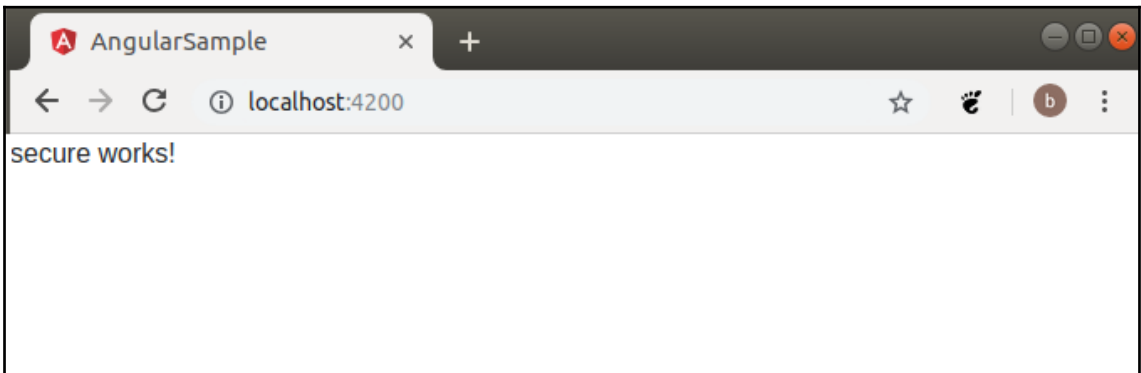
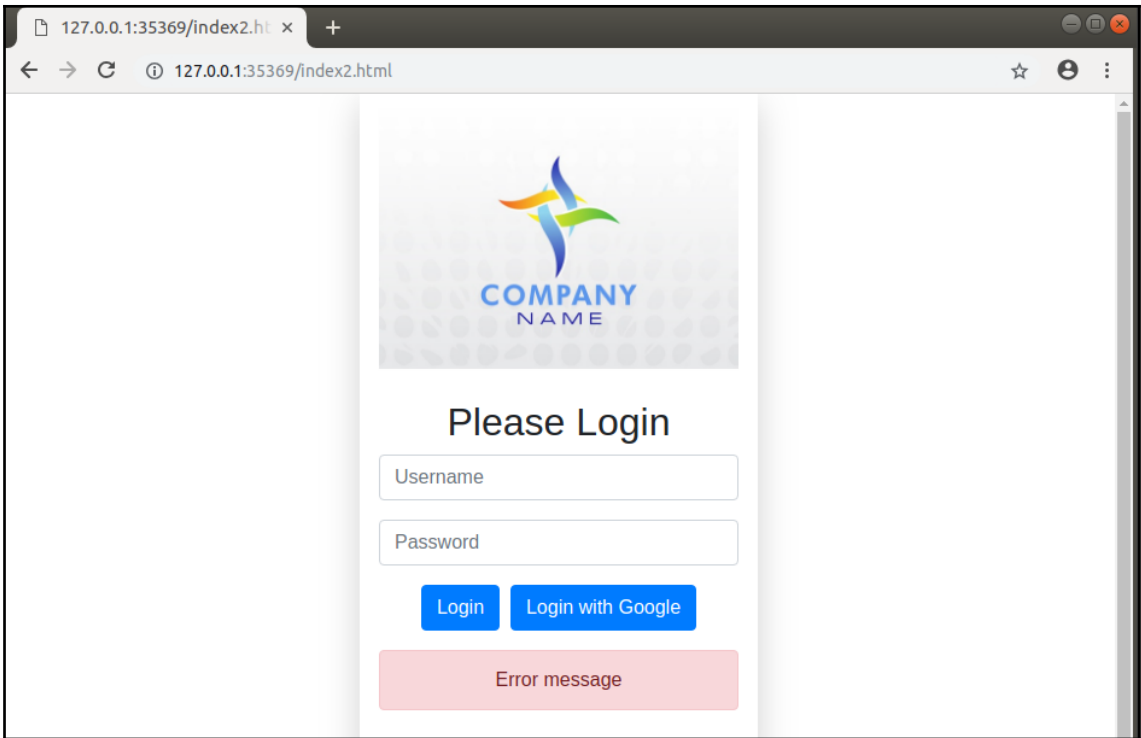
The image shows a screenshot of the Brackets IDE interface. The title bar reads "index.html (brackets_design) - Brackets". The menu bar includes "File", "Edit", "Find", "View", "Navigate", "Debug", "Help", and "Emmet". The "Working Files" sidebar on the left shows a project structure with "brackets_design" containing "bower_components", "bower.json", and "index.html". The main editor displays the following HTML code:

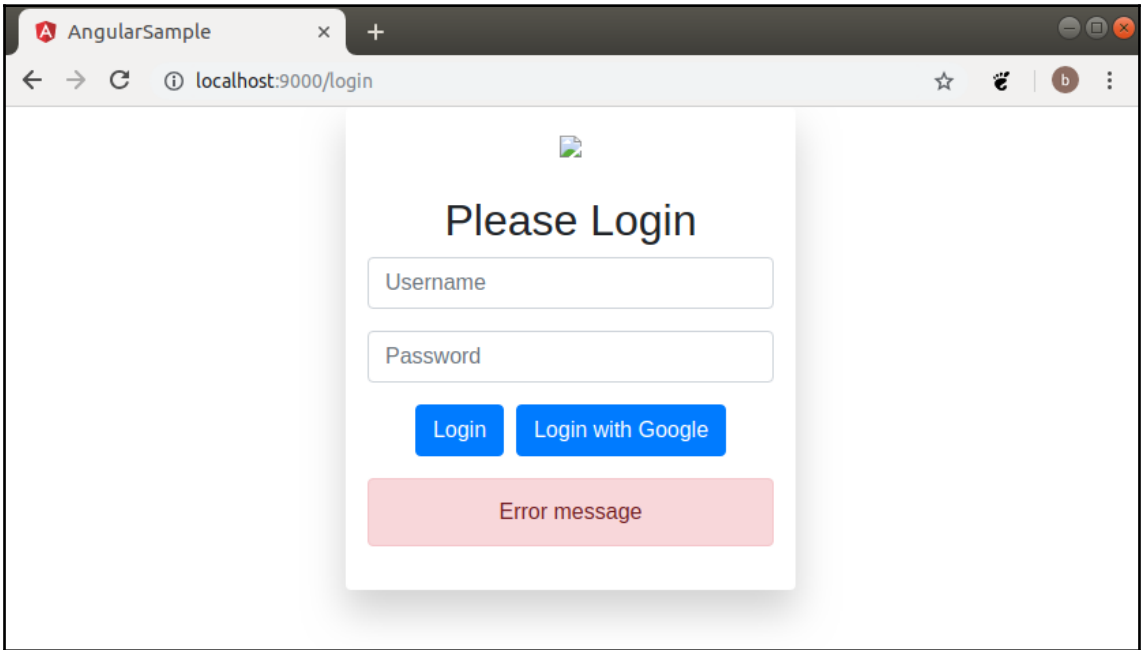
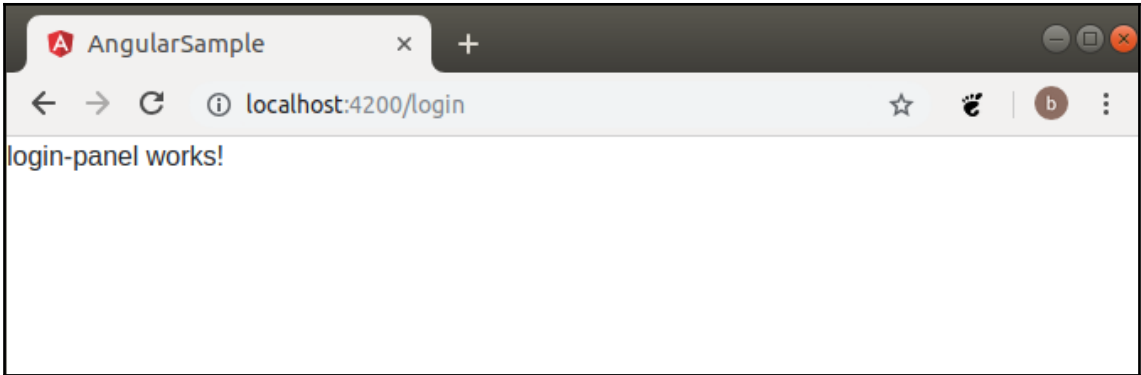
```
1 <html>
2 <head><link rel="stylesheet"
3 href="./bower_components/bootstrap/dist/css/"></head>
4 <body>
5   <h3></h3>
6   <div id="content">
7     </div>
8 </body>
9 </html>
```

A dropdown menu is open from the href attribute on line 3, listing the following CSS files:

- ./bower_components/bootstrap/dist/css/bootstrap-theme.css
- ./bower_components/bootstrap/dist/css/bootstrap-theme.css.map
- ./bower_components/bootstrap/dist/css/bootstrap-theme.min.css
- ./bower_components/bootstrap/dist/css/bootstrap-theme.min.css.map
- ./bower_components/bootstrap/dist/css/bootstrap.css
- ./bower_components/bootstrap/dist/css/bootstrap.css.map
- ./bower_components/bootstrap/dist/css/bootstrap.min.css
- ./bower_components/bootstrap/dist/css/bootstrap.min.css.map

The status bar at the bottom indicates "Line 2, Column 74 — 9 Lines", "INS", "HTML", and "Spaces: 4".





DevTools - localhost:9000/

Elements Console Sources Network Performance Memory Application Security Audits

Application

- Manifest
- Service Workers
- Clear storage

Storage

- Local Storage
 - http://localhost:9000
- Session Storage
- IndexedDB
- Web SQL
- Cookies

Cache

- Cache Storage
- Application Cache

Frames

- top

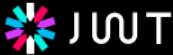

Key	Value
token	[object Object]

1 [object Object]

Line 1, Column 1

JSON Web Tokens - jwt.io x +

← → ↻ https://jwt.io ☆ 🐾 b ⋮

 [Debugger](#) [Libraries](#) [Introduction](#) [Ask](#) [Get a T-shirt!](#) Crafted by  Auth0

Encoded

```
eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJ1c2VybmFtZSI6ImF1dG8iLCJpYXN0LmlhIjoiMTU0OTk5LjE1LjE1In0.A
```

Decoded

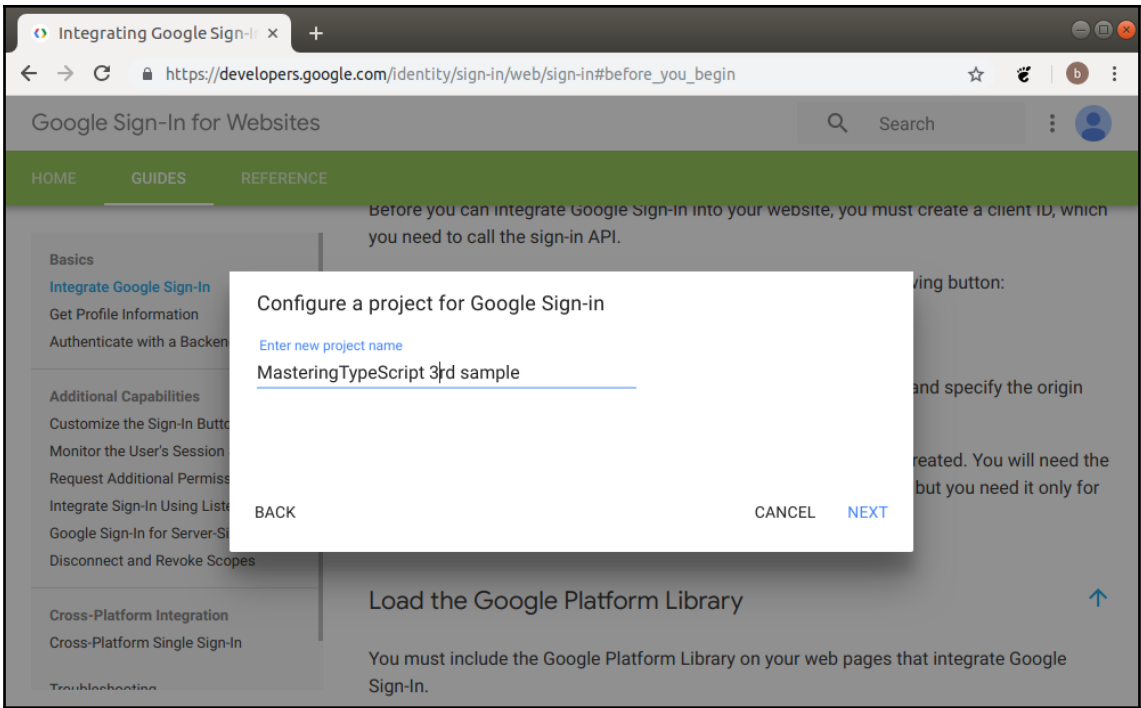
HEADER:

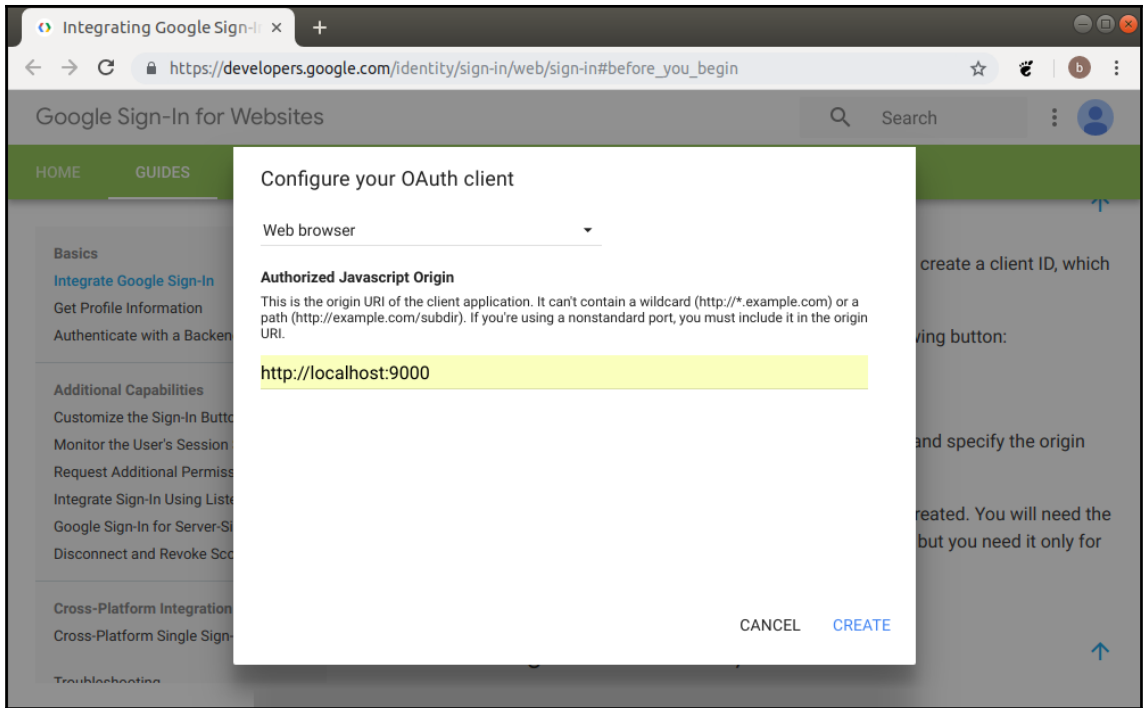
```
{  "alg": "HS256",  "typ": "JWT"}
```

PAYLOAD:

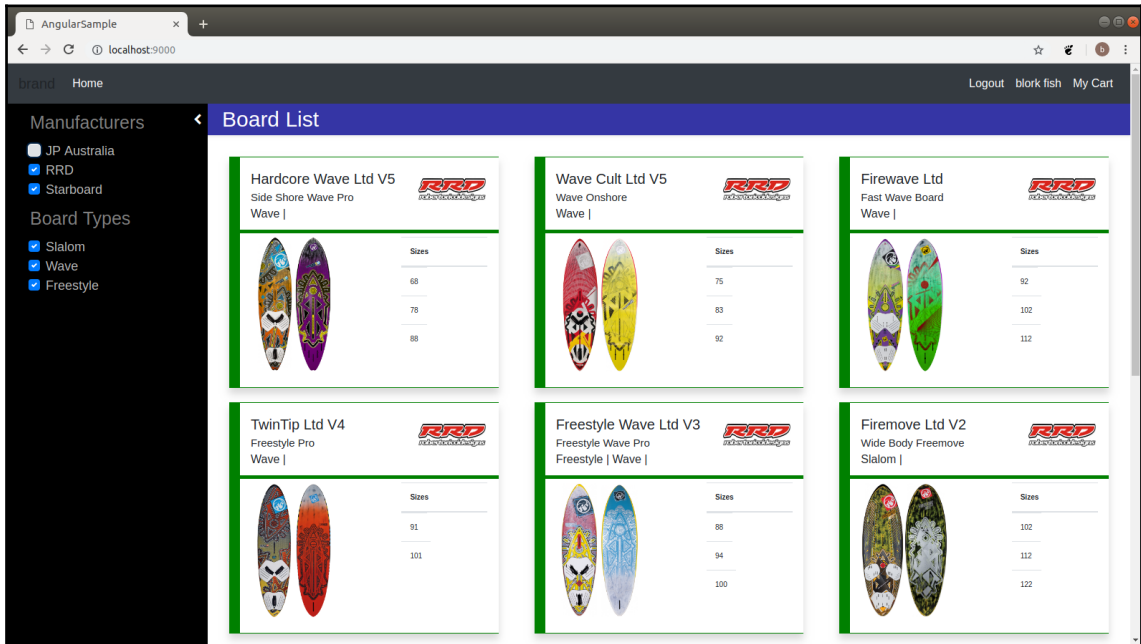
```
{  "username": "auser",  "iat": 1547709865}
```

VERIFY SIGNATURE





Chapter 14: Let's Get Our Hands Dirty





AngularSample x +
localhost:3000
☆

brand Home
Logout bork fish My Cart

Hardcore Wave Ltd V5

Side Shore Wave Pro

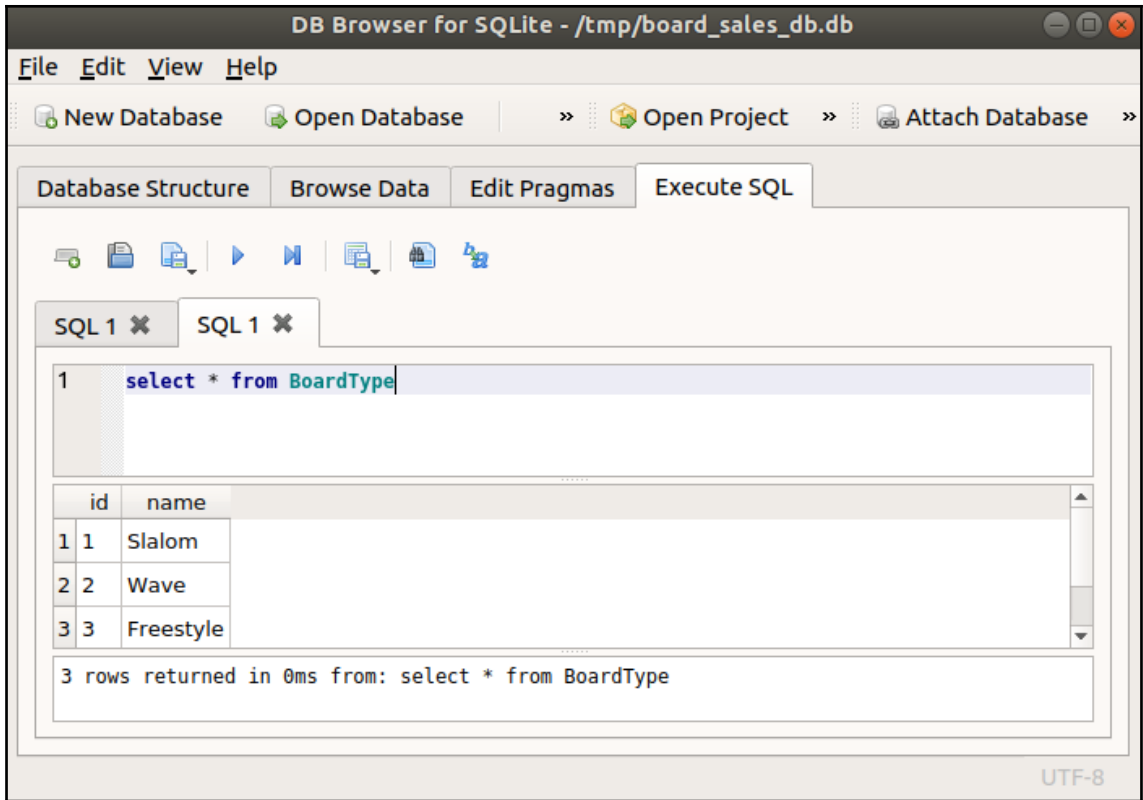


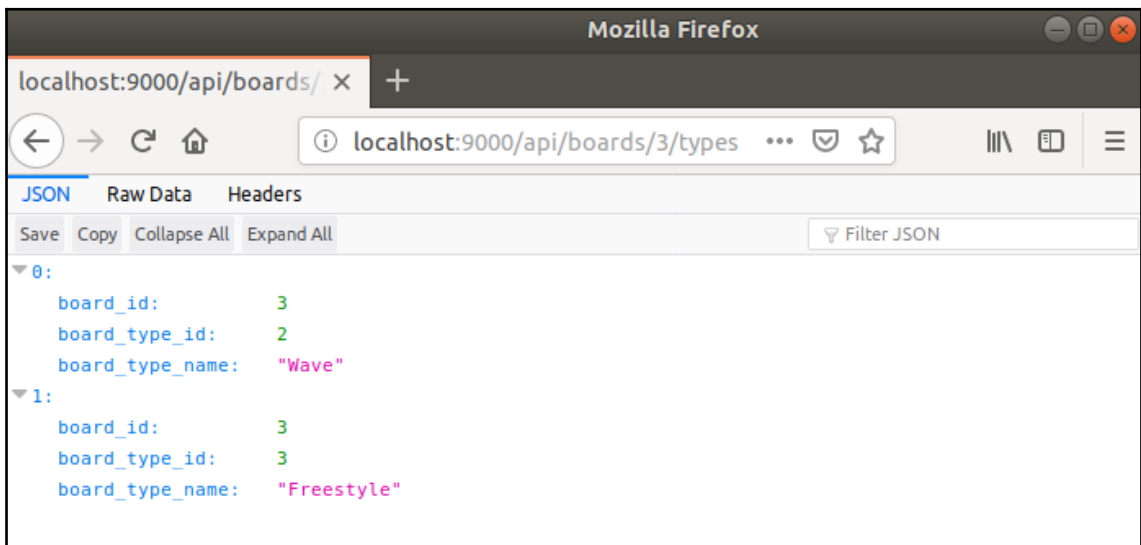
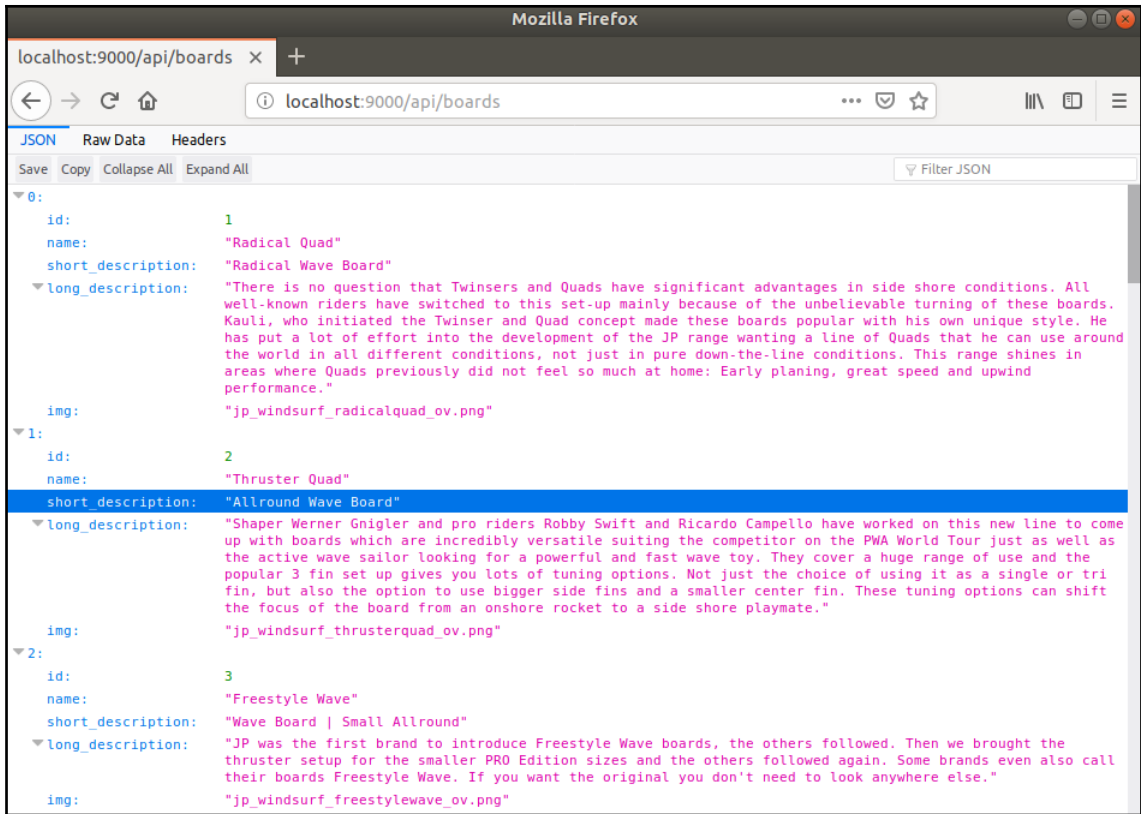


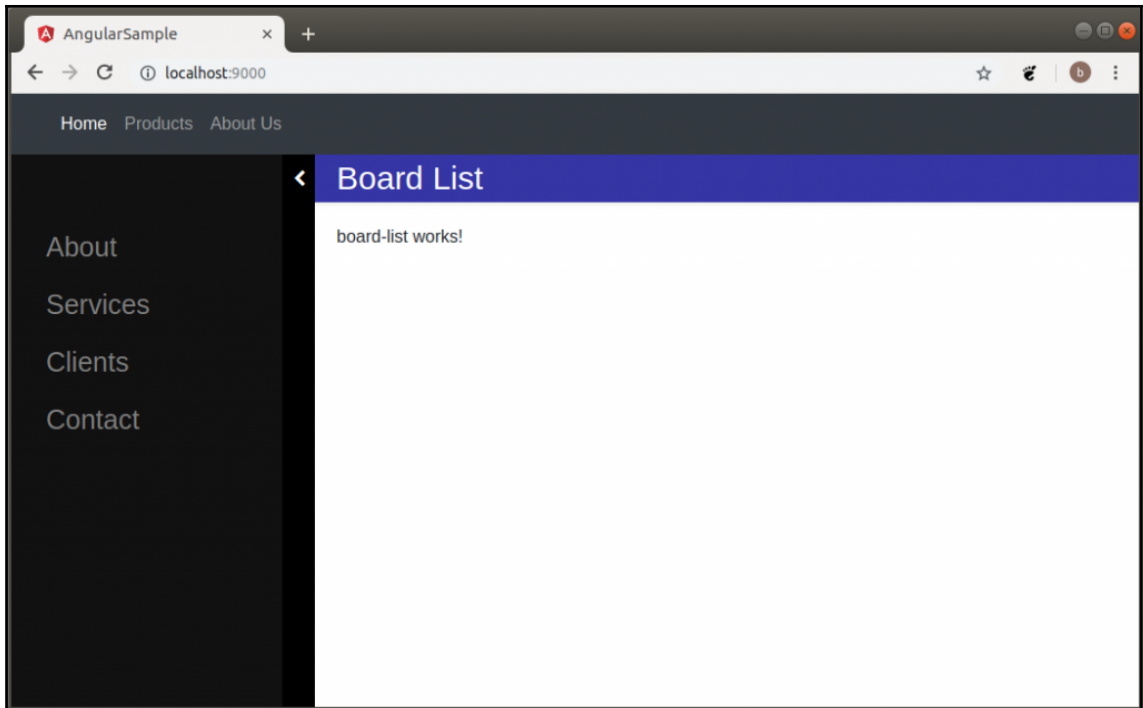
After 4 years of riding waves all over the world with the Hardcore wave shapes V4 we have been able to test lots of different new shapes or prototype boards, used with different riding styles. Today we have been able to finalize 4 new magic shapes. The HardcoreWave V5 are the most versatile Hardcore boards ever built since their introduction in our collection. 4 Shapes with 10lt of difference in between 98 all the way down to 68 all equipped with 4 Fins slot box system for maximum drive through the top and bottom turns.

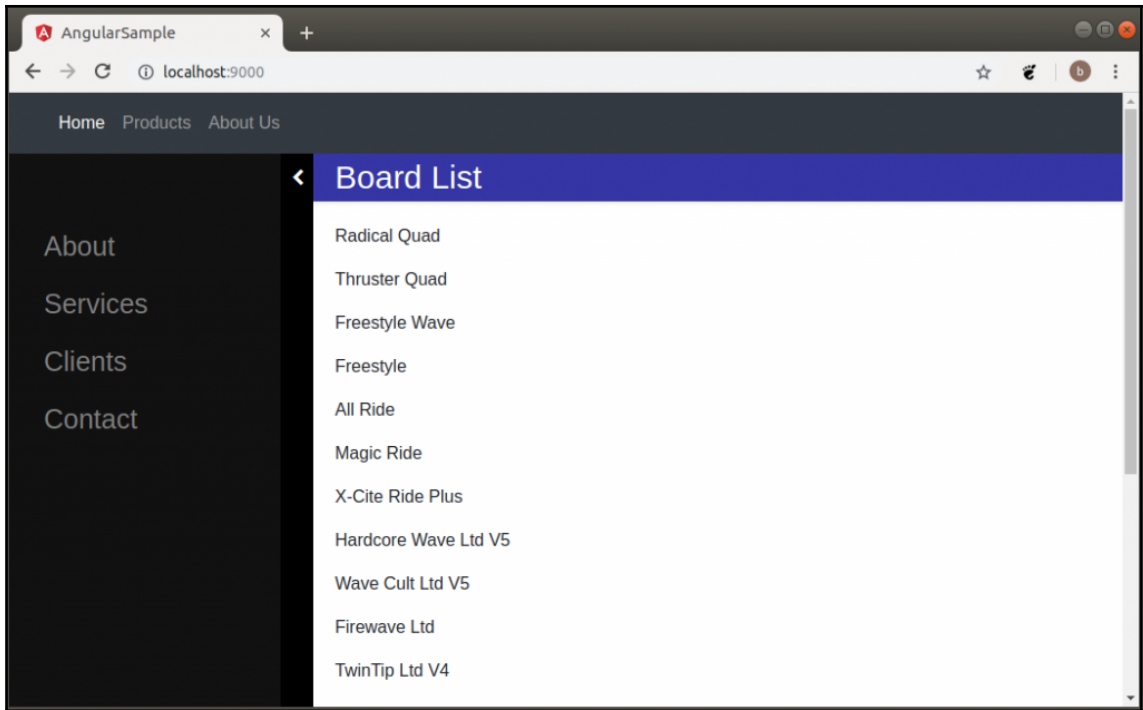
Available Sizes

Volume	Width	Length	Sail Min	Sail Max
68	53.5	227	3.2	4.7
78	55.5	227	3.7	5.3
88	58.5	228	4.2	5.6










AngularSample x +
localhost:9000
Home Products About Us


Board List

Radical Quad
Radical Wave Board





Sizes

Thruster Quad
Allround Wave Board




Sizes

Freestyle Wave
Wave Board | Small Allround





Sizes

Freestyle
Freestyle Board






Sizes

All Ride
Medium Allround FreeRider

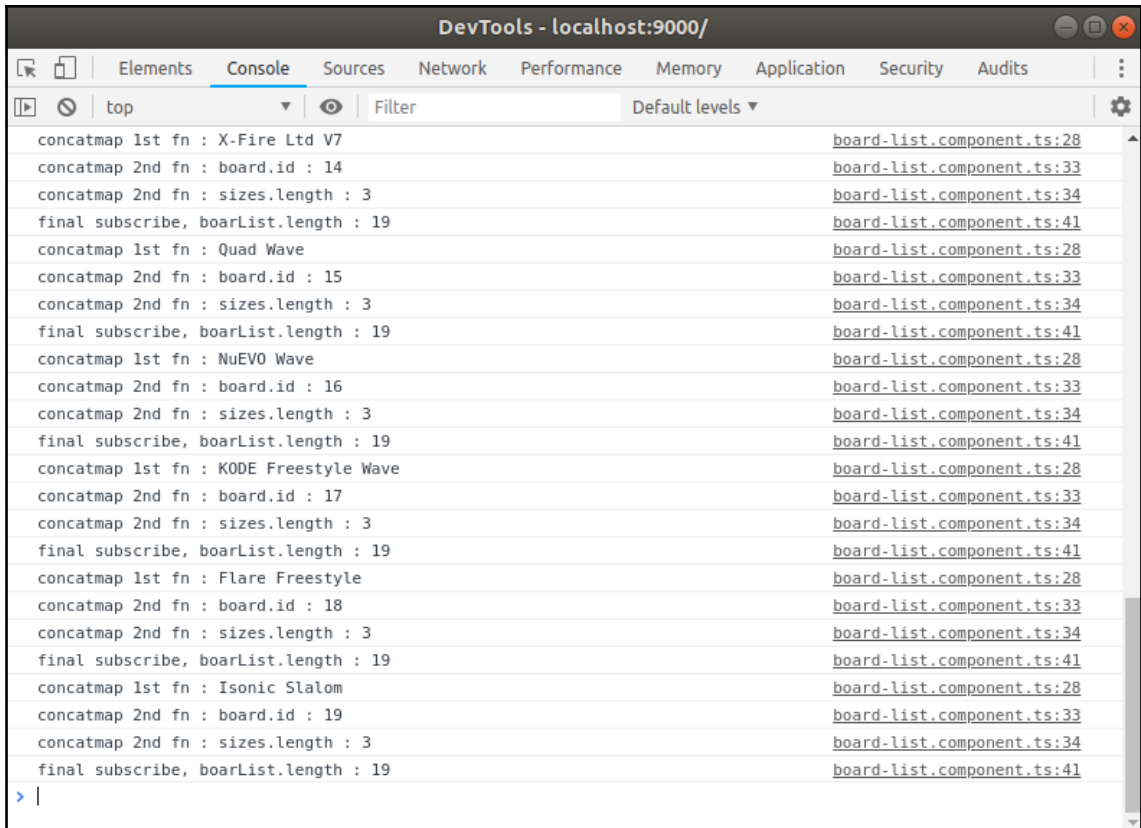


Sizes

Magic Ride
Manoeuvre Oriented FreeRider




Sizes



AngularSample x +
 localhost:9000
 Home Products About Us

Board List


Radical Quad
 Radical Wave Board



Sizes

- 68
- 74
- 82



Thruster Quad
 Allround Wave Board



Sizes

- 73
- 83
- 93


Freestyle Wave
 Wave Board | Small Allround

Sizes

- 77
- 85
- 93



Freestyle
 Freestyle Board



Sizes

- 90
- 100
- 106



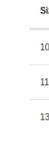
All Ride
 Medium Allround FreeRider

Sizes

- 96
- 106
- 116

Magic Ride
 Manoever Oriented FreeRider

Sizes

- 104
- 118
- 132



```
DevTools - localhost:9000/
Elements Console Sources Network Performance Memory Application Security Audits
top Filter Default levels
Rightscreen : setBoard received : {
  "id": 4,
  "name": "Freestyle",
  "short_description": "Freestyle Board",
  "long_description": "Steven van Broeckhoven and shaper Werner Gnigler have developed the three sizes, 90,100 and 106. Two of the sizes were already flawless for today's powerful double moves and trick combos. These moves require fast and direct boards with explosive pop 'even a 2nd and 3rd time' and the 90 and 100 were up to that! Steven and Youp Schmit are more than happy with their feeling and performance. So we left them unchanged. Nevertheless, Steven had the intention to adapt the light air freestyle board not only to fulfill the highest standards of modern freestyle in lighter winds but also to make it feel as radical as its smaller brothers.",
  "img": "jp_windsurf_freestyle_ov.png",
  "mfid": 1,
  "mfname": "JP Australia",
  "mflogo": "jp_australia_logo.png",
  "sizes": [
    {
      "board_id": 4,
      "volume": 90,
      "length": 230,
      "width": 60,
      "sail_min": 4.2,
      "sail_max": 5.8
    },
    {
      "board_id": 4,
      "volume": 100,
      "length": 228,
      "width": 64,
      "sail_min": 4.8,
      "sail_max": 6.2
    },
    {
      "board_id": 4,
      "volume": 106,
      "length": 227,
      "width": 65.5,
      "sail_min": 5,
      "sail_max": 6.5
    }
  ],
  "types": [
    {
      "board_id": 4,
      "board_type_id": 3,
      "board_type_name": "Freestyle"
    }
  ]
}
> |
```

AngularSample x + localhost:3000

brand Home Logout bork fish My Cart

Hardcore Wave Ltd V5

Side Shore Wave Pro

After 4 years of riding waves all over the world with the Hardcore wave shapes V4 we have been able to test lots of different new shapes or prototype boards, used with different riding styles. Today we have been able to finalize 4 new magic shapes. The HardcoreWave V5 are the most vesatile Hardcore boards ever build it since their introduction in our collection. 4 Shapes with 10lt of difference in between 98 all the way down to 68 all equipped with 4 Fins slot box system for maxium drive trough the top and bottom turns.

Avaliable Sizes

Volume	Width	Length	Sail Min	Sail Max
68	53.5	227	3.2	4.7
78	55.5	227	3.7	5.3
88	58.5	228	4.2	5.6

AngularSample x + localhost:3000

Home Products About Us

Manufacturers

- JP Australia
- RRD
- Starboard



Board Types

- Slalom
- Wave
- Freestyle

Board List

Hardcore Wave Ltd V5

Side Shore Wave Pro Wave |






Sizes

- 68
- 78
- 88

Wave Cult Ltd V5

Wave Onshore Wave |






Sizes

- 75
- 83
- 92

Firewave Ltd

Fast Wave Board Wave |






Sizes

- 92
- 102
- 112

TwinTip Ltd V4

Freestyle Pro Wave |






Sizes

- 91
- 101

Freestyle Wave Ltd V3

Freestyle Wave Pro Freestyle | Wave |

Sizes

- 88
- 94
- 100

AngularSample localhost:9000

Home Products About Us


Manufacturers

- JP Australia
- RRD
- Starboard


Board Types

- Slalom
- Wave
- Freestyle


Board List

Firemove Ltd V2 


Wide Body Freemove
Slalom |



Sizes
102
112
122

X-Fire Ltd V7 

Slalom / Race
Slalom |



Sizes
105
114
122