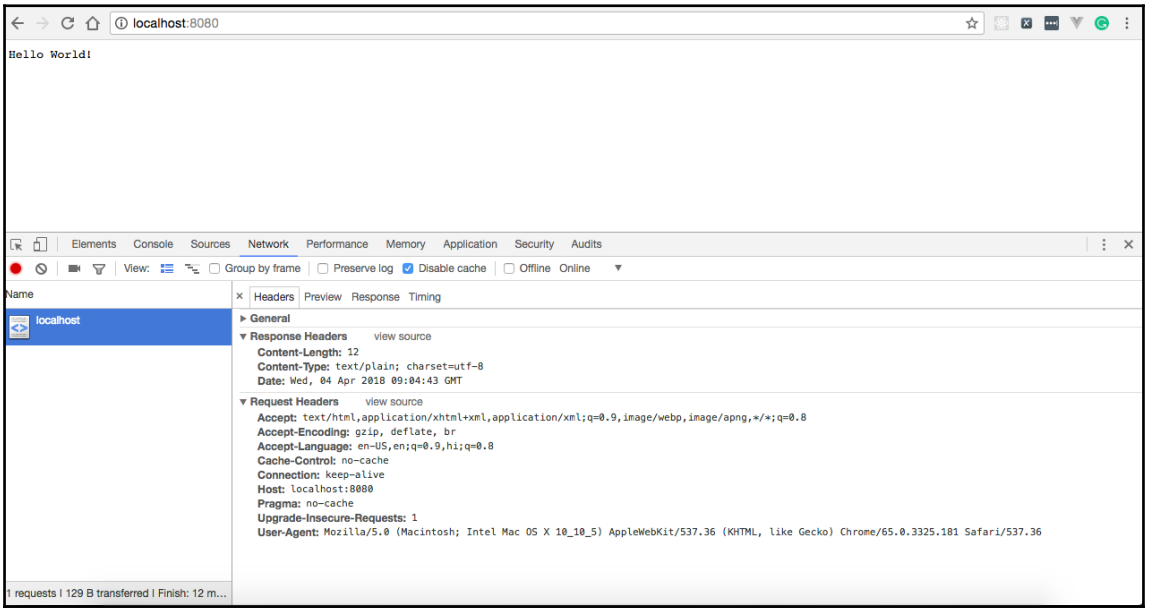
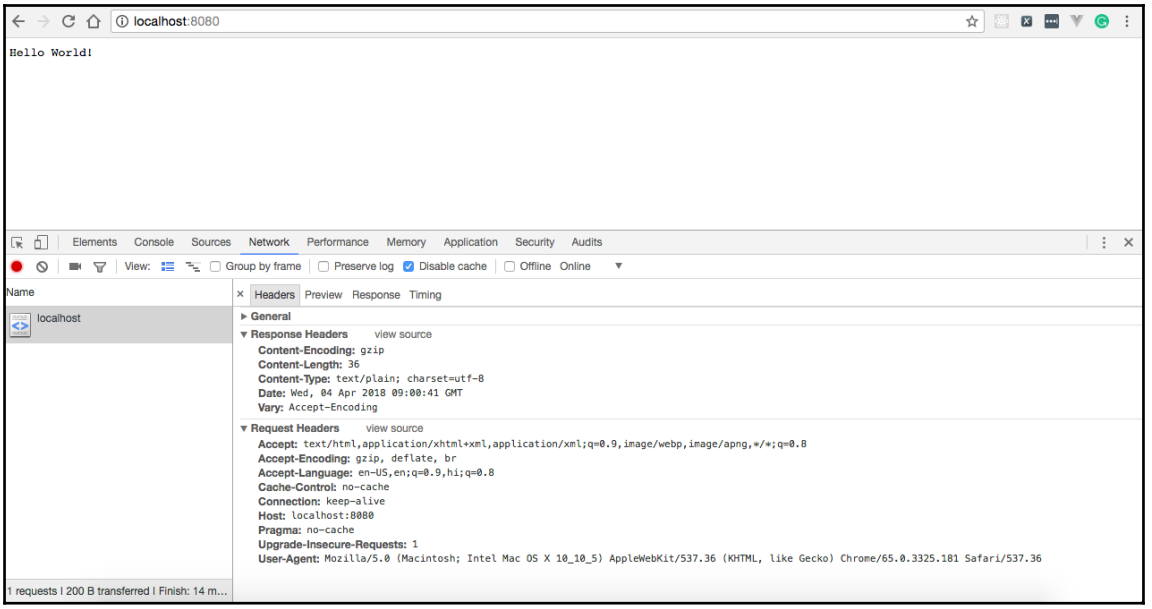
Chapter 1: Creating Your First Server in Go

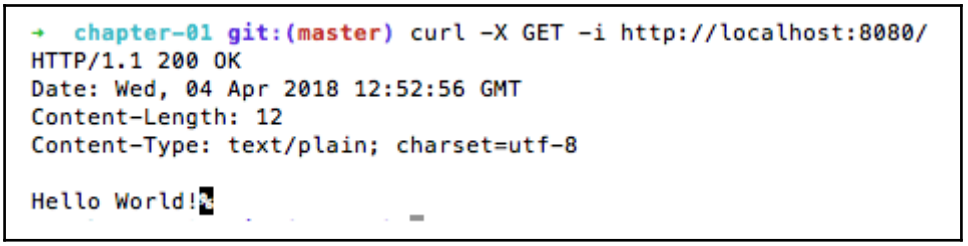


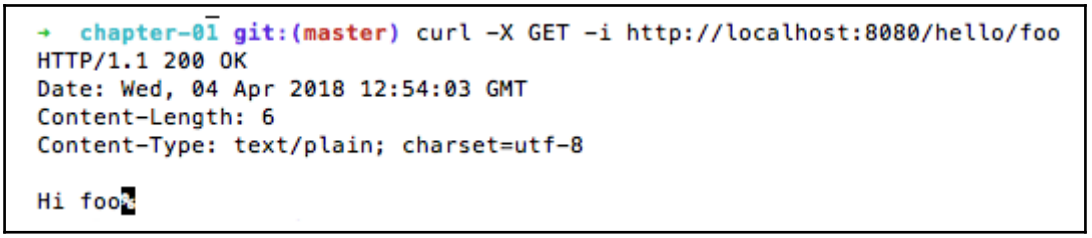


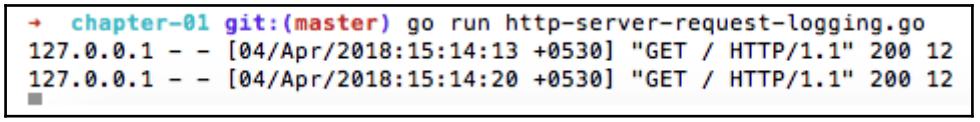

```
➜  chapter-01 git:(master) ✗ go run tcp-server-read-data.go
2018/04/04 15:27:35 Listening on localhost:8080
Message Received from the client: Hello to TCP server
```

```
➜  chapter-01 git:(master) curl -X GET -i http://localhost:8080/
HTTP/1.1 200 OK
Date: Wed, 04 Apr 2018 12:34:22 GMT
Content-Length: 12
Content-Type: text/plain; charset=utf-8

Hello World!%
```

```
➜  chapter-01 git:(master) curl -X GET -i http://localhost:8080/login
HTTP/1.1 200 OK
Date: Wed, 04 Apr 2018 12:36:53 GMT
Content-Length: 11
Content-Type: text/plain; charset=utf-8

Login Page!%
```


→ chapter-01 git:(master) curl -X GET -i http://localhost:8080/
HTTP/1.1 200 OK
Date: Wed, 04 Apr 2018 12:52:56 GMT
Content-Length: 12
Content-Type: text/plain; charset=utf-8
Hello World!


→ chapter-01 git:(master) curl -X GET -i http://localhost:8080/hello/foo
HTTP/1.1 200 OK
Date: Wed, 04 Apr 2018 12:54:03 GMT
Content-Length: 6
Content-Type: text/plain; charset=utf-8
Hi foo


→ chapter-01 git:(master) go run http-server-request-logging.go
127.0.0.1 - - [04/Apr/2018:15:14:13 +0530] "GET / HTTP/1.1" 200 12
127.0.0.1 - - [04/Apr/2018:15:14:20 +0530] "GET / HTTP/1.1" 200 12

```
127.0.0.1 - - [04/Apr/2018:18:45:41 +0530] "GET /hello/foo HTTP/1.1" 200 6 "" "curl/7.43.0"
127.0.0.1 - - [04/Apr/2018:18:45:47 +0530] "GET /hello/foo HTTP/1.1" 200 6 "" "curl/7.43.0"
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~
"server.log" 2L, 184C
```
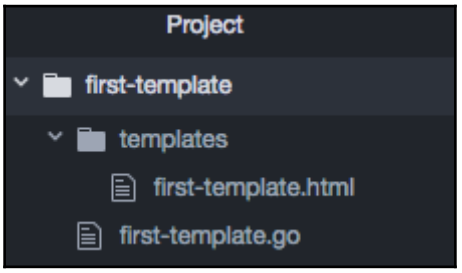
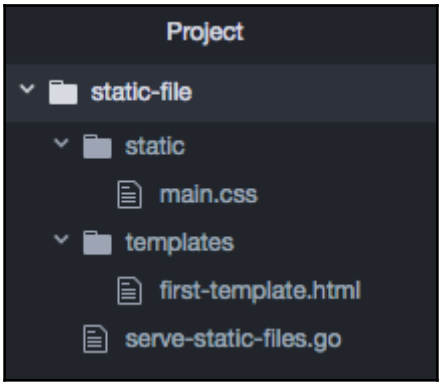
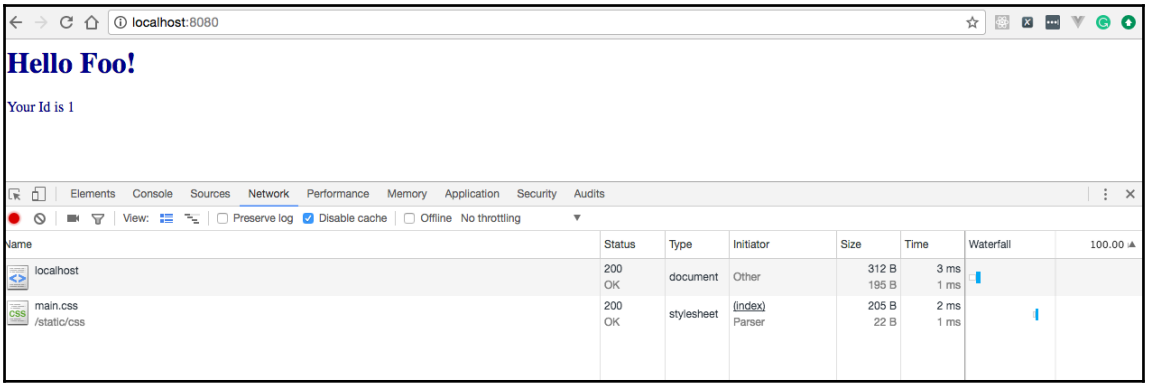
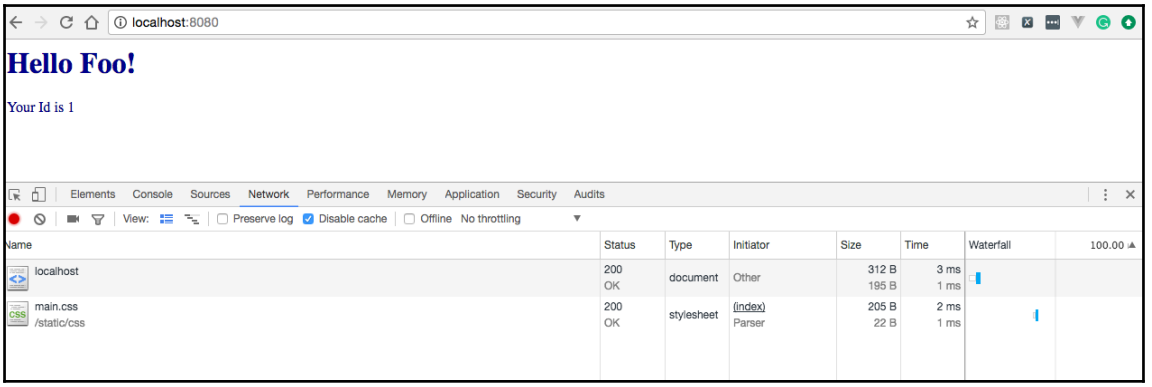

Chapter 2: Working with Templates, Static Files, and HTML Forms

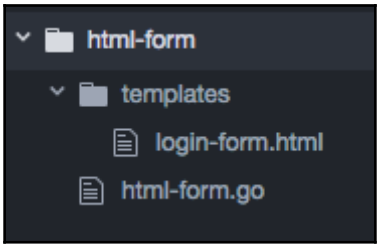


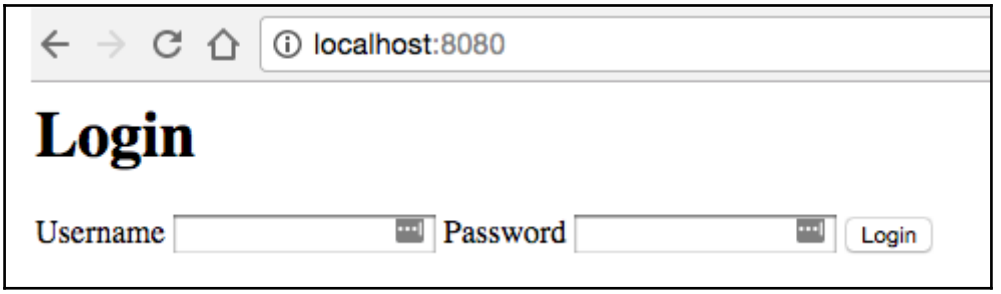

```
➜  chapter-02 git:(master) curl -X GET http://localhost:8080
<html>
<head>
  <meta charset="utf-8">
  <title>First Template</title>
  <link rel="stylesheet" href="/static/css/main.css">
</head>
<body>
  <h1>Hello Foo!</h1>
    Your Id is 1
</body>
</html>
```

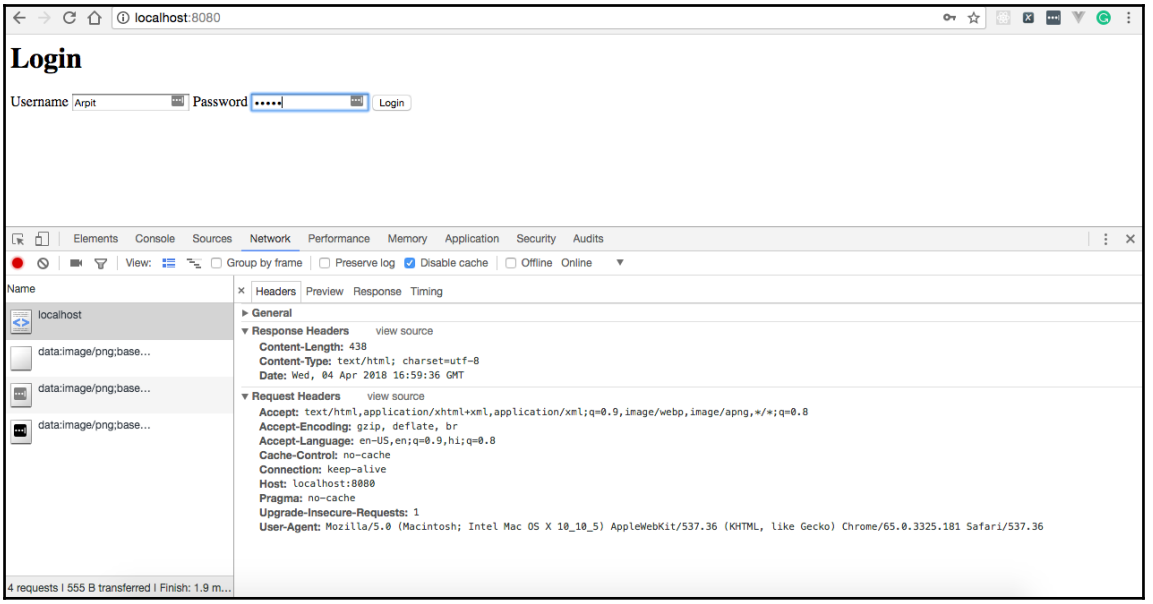

Project
static-file
static
main.css
templates
first-template.html
serve-static-files.go

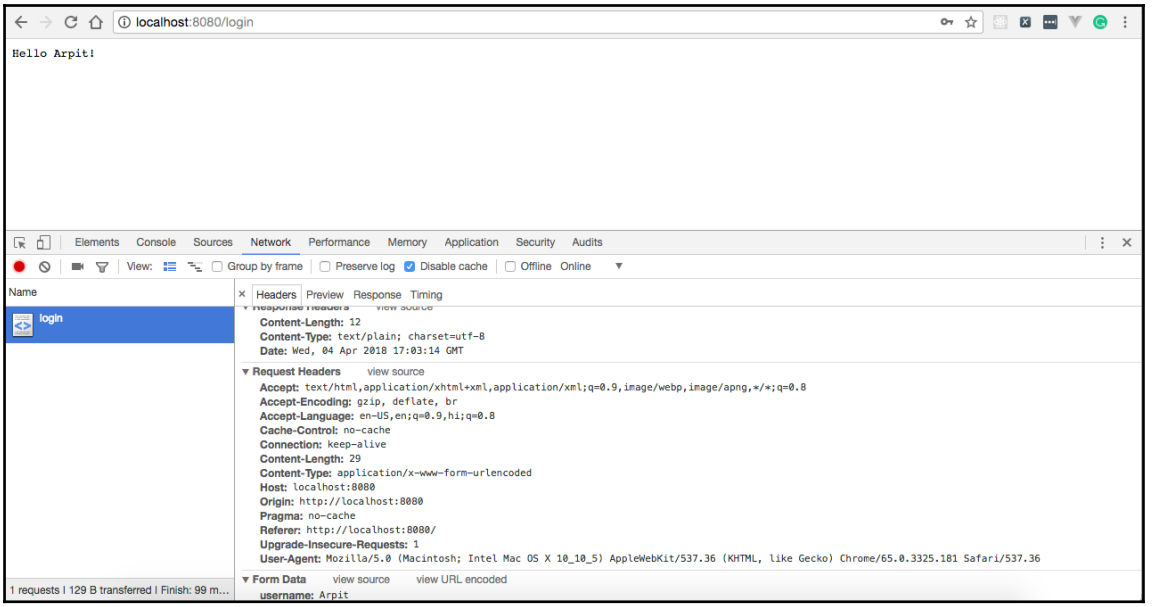

localhost:8080
Hello Foo!
Your Id is 1
Elements Console Sources Network Performance Memory Application Security Audits
View: Preserve log Disable cache Offline No throttling
Name Status Type Initiator Size Time Waterfall 100.00
localhost 200 OK document Other 312 B 195 B 3 ms 1 ms
main.css /static/css 200 OK stylesheet (index) Parser 205 B 22 B 2 ms 1 ms

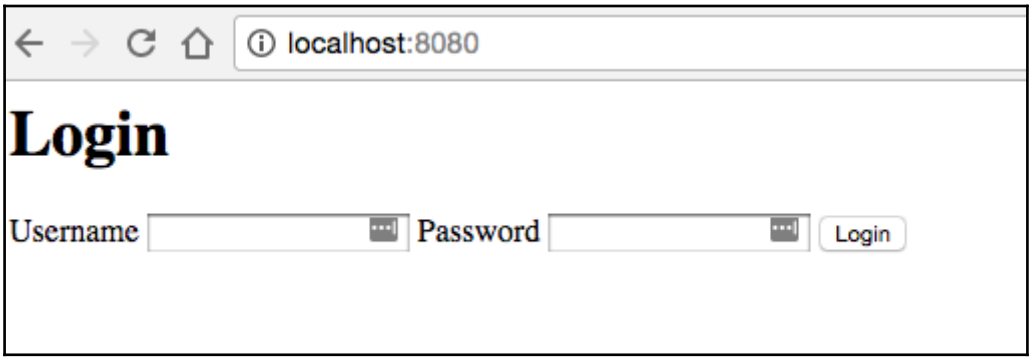

localhost:8080
Hello Foo!
Your Id is 1
Elements Console Sources Network Performance Memory Application Security Audits
View: Preserve log Disable cache Offline No throttling
Name Status Type Initiator Size Time Waterfall 100.00
localhost 200 OK document Other 312 B 195 B 3 ms 1 ms
main.css /static/css 200 OK stylesheet (index) Parser 205 B 22 B 2 ms 1 ms


html-form
templates
login-form.html
html-form.go

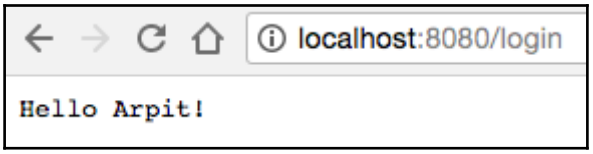

localhost:8080
Login
Username
Password
Login

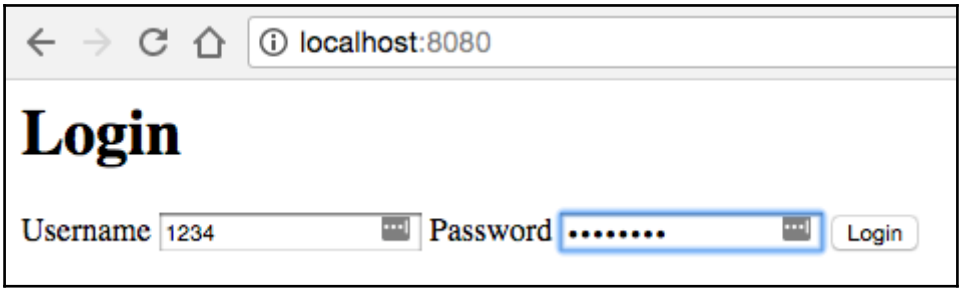

localhost:8080
Login
Username Arpit
Password
Login
Elements Console Sources Network Performance Memory Application Security Audits
View: Group by frame Preserve log Disable cache Offline Online
Name
localhost
data:image/png;base...
data:image/png;base...
data:image/png;base...
Headers Preview Response Timing
General
Response Headers view source
Content-Length: 438
Content-Type: text/html; charset=utf-8
Date: Wed, 04 Apr 2018 16:59:36 GMT
Request Headers view source
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-US,en;q=0.9,hi;q=0.8
Cache-Control: no-cache
Connection: keep-alive
Host: localhost:8080
Pragma: no-cache
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10_10_5) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/65.0.3325.181 Safari/537.36
4 requests | 555 B transferred | Finish: 1.9 m...


localhost:8080/login
Hello Arpit!
Elements Console Sources Network Performance Memory Application Security Audits
View: Group by frame Preserve log Disable cache Offline Online
Name
login
Headers Preview Response Timing
Content-Length: 12
Content-Type: text/plain; charset=utf-8
Date: Wed, 04 Apr 2018 17:03:14 GMT
Request Headers view source
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-US,en;q=0.9,hi;q=0.8
Cache-Control: no-cache
Connection: keep-alive
Content-Length: 29
Content-Type: application/x-www-form-urlencoded
Host: localhost:8080
Origin: http://localhost:8080
Pragma: no-cache
Referer: http://localhost:8080/
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10_10_5) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/65.0.3325.181 Safari/537.36
Form Data view source view URL encoded
username: Arpit
1 requests | 129 B transferred | Finish: 99 m...

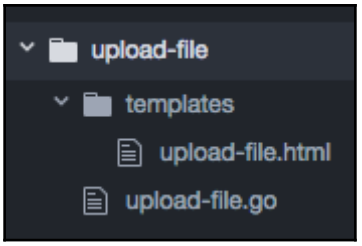

localhost:8080
Login
Username
Password
Login

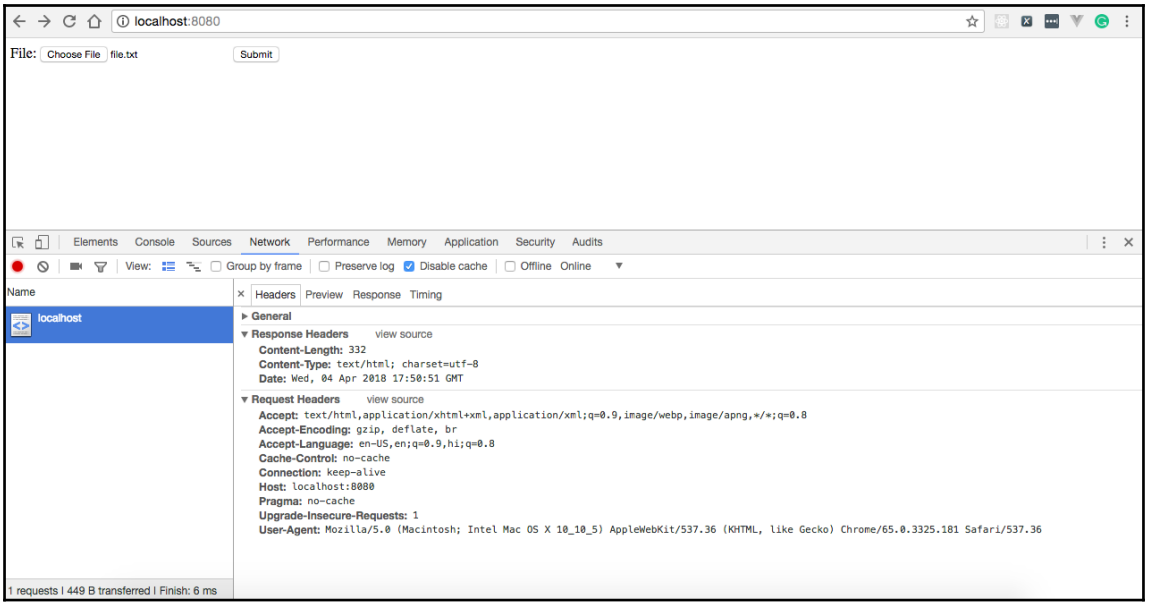

localhost:8080
Login
Username
Arpit
Password
Login

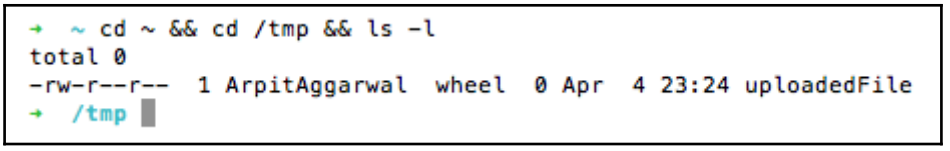


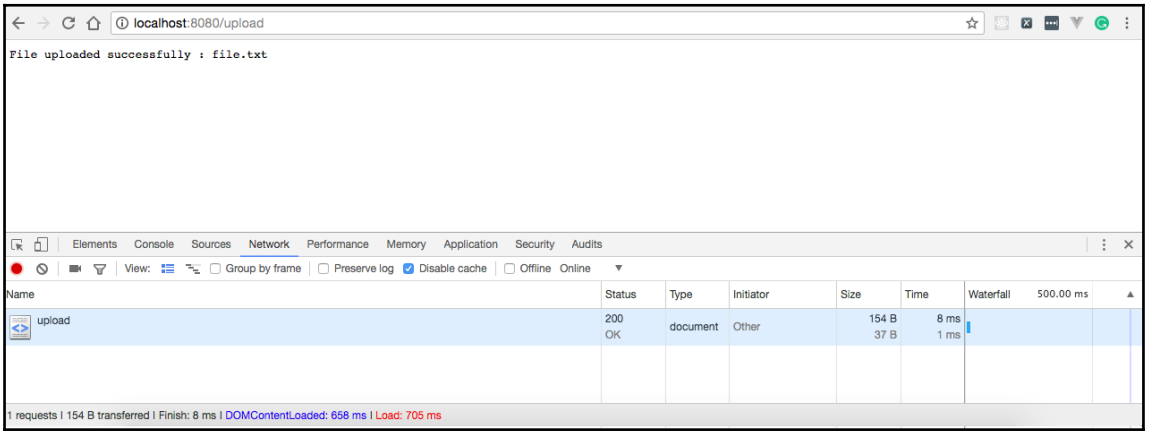



```
➜  ~ curl --data "username=Arpit&password=password" http://localhost:8080/
Hello Arpit!%
```

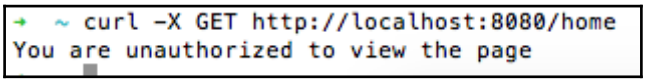


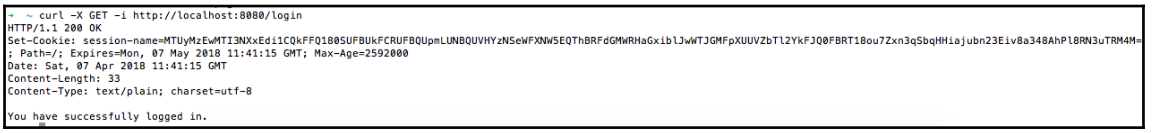

localhost:8080
File: Choose File file.txt
Submit
Elements Console Sources Network Performance Memory Application Security Audits
View: Group by frame Preserve log Disable cache Offline Online
Name
localhost
Headers Preview Response Timing
General
Response Headers view source
Content-Length: 332
Content-Type: text/html; charset=utf-8
Date: Wed, 04 Apr 2018 17:50:51 GMT
Request Headers view source
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-US,en;q=0.9,hi;q=0.8
Cache-Control: no-cache
Connection: keep-alive
Host: localhost:8080
Pragma: no-cache
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10_10_5) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/65.0.3325.181 Safari/537.36
1 requests | 449 B transferred | Finish: 6 ms

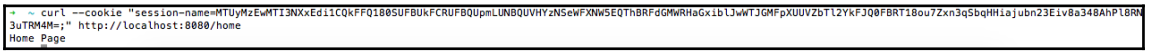

~ cd ~ && cd /tmp && ls -l
total 0
-rw-r--r-- 1 ArpitAggarwal wheel 0 Apr 4 23:24 uploadedFile
/tmp

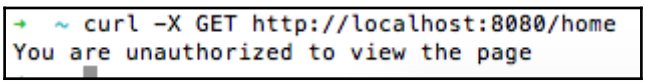

localhost:8080/upload
File uploaded successfully : file.txt
Elements Console Sources Network Performance Memory Application Security Audits
View: Group by frame Preserve log Disable cache Offline Online
Name Status Type Initiator Size Time Waterfall 500.00 ms
upload 200 OK document Other 154 B 37 B 8 ms 1 ms
1 requests | 154 B transferred | Finish: 8 ms | DOMContentLoaded: 658 ms | Load: 705 ms

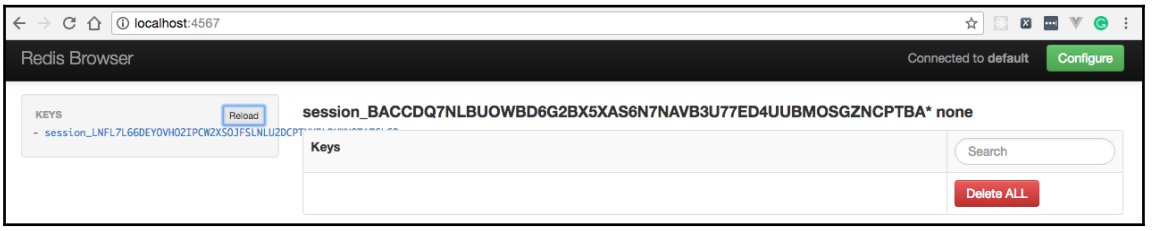
Chapter 3: Working with Sessions, Error Handling, and Caching in Go

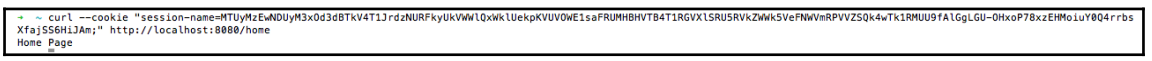


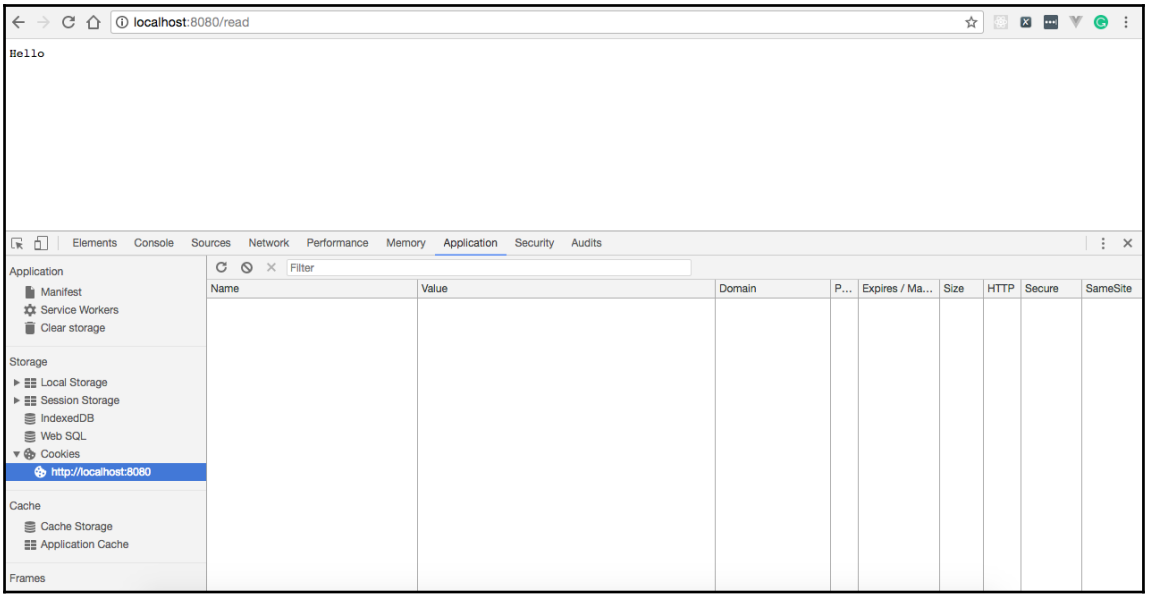


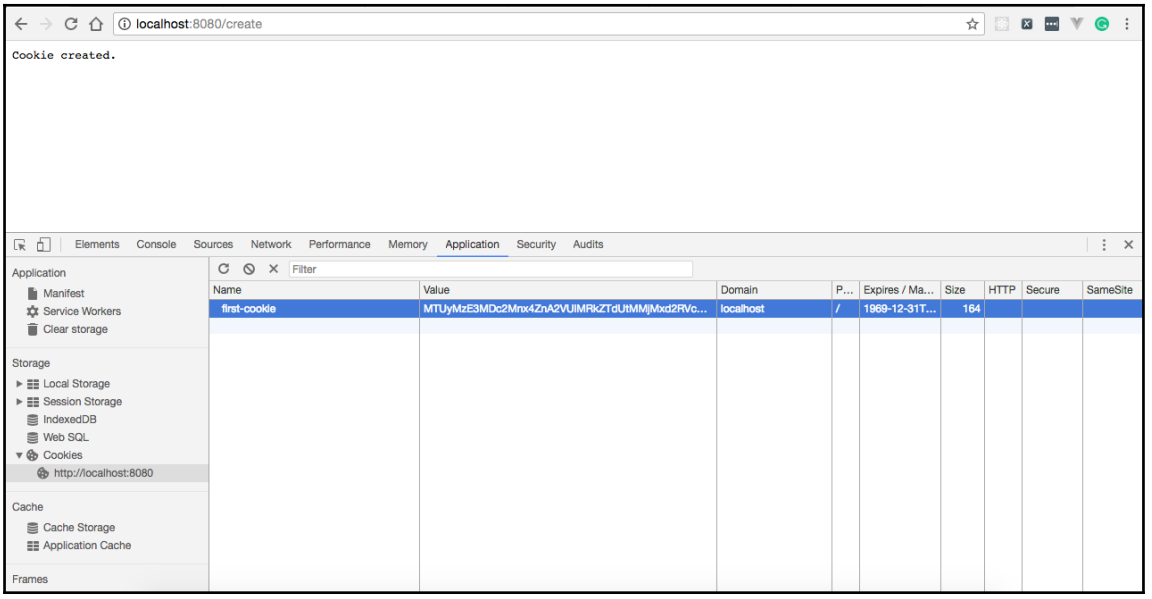


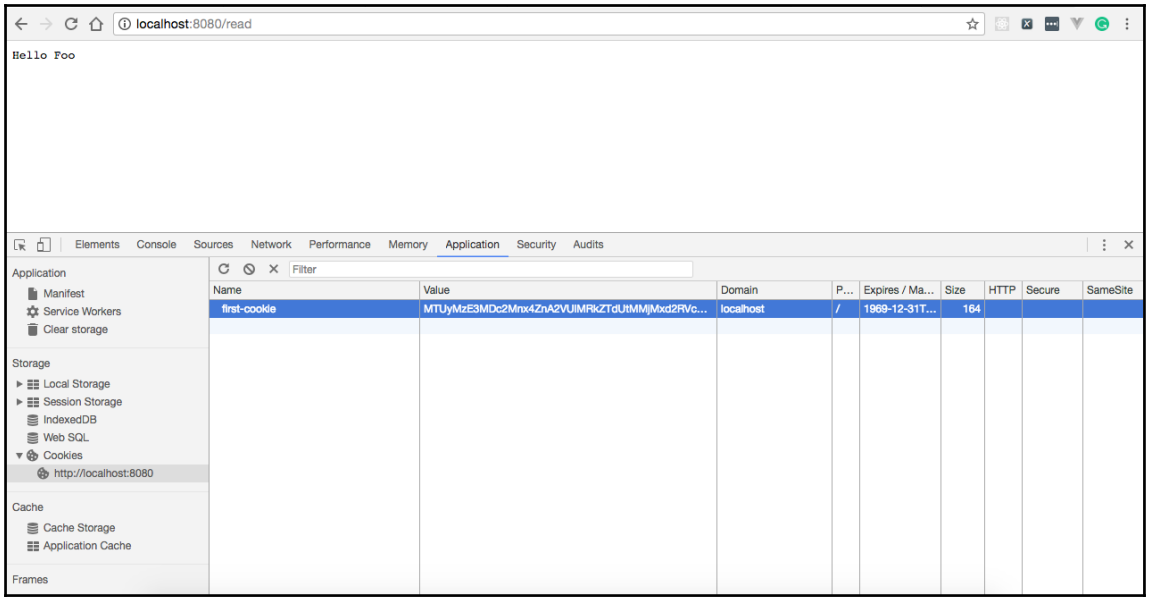


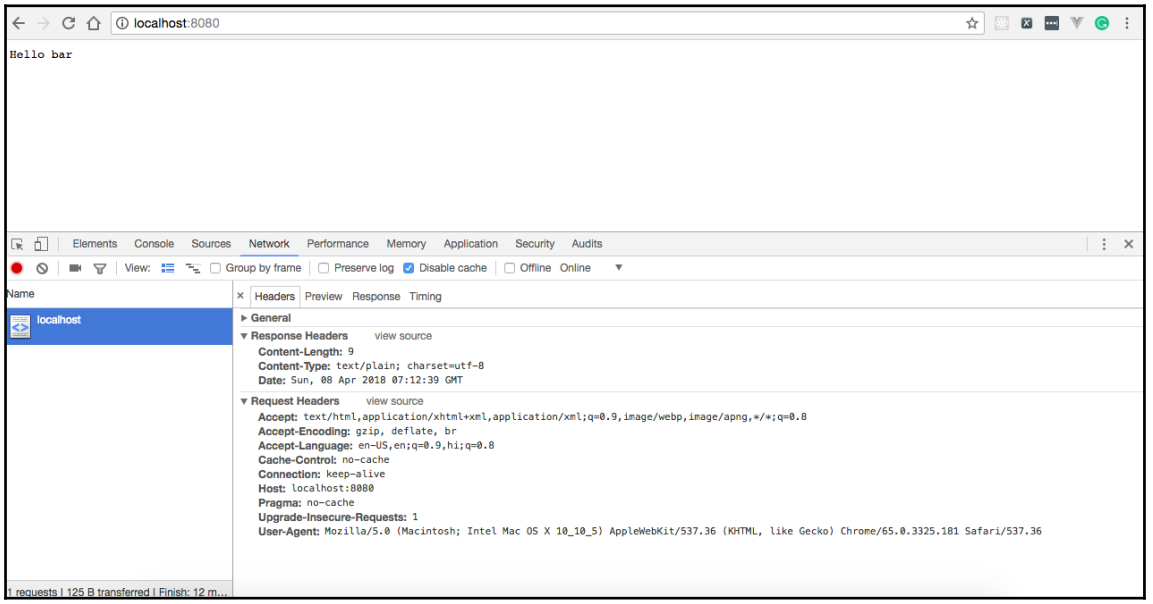


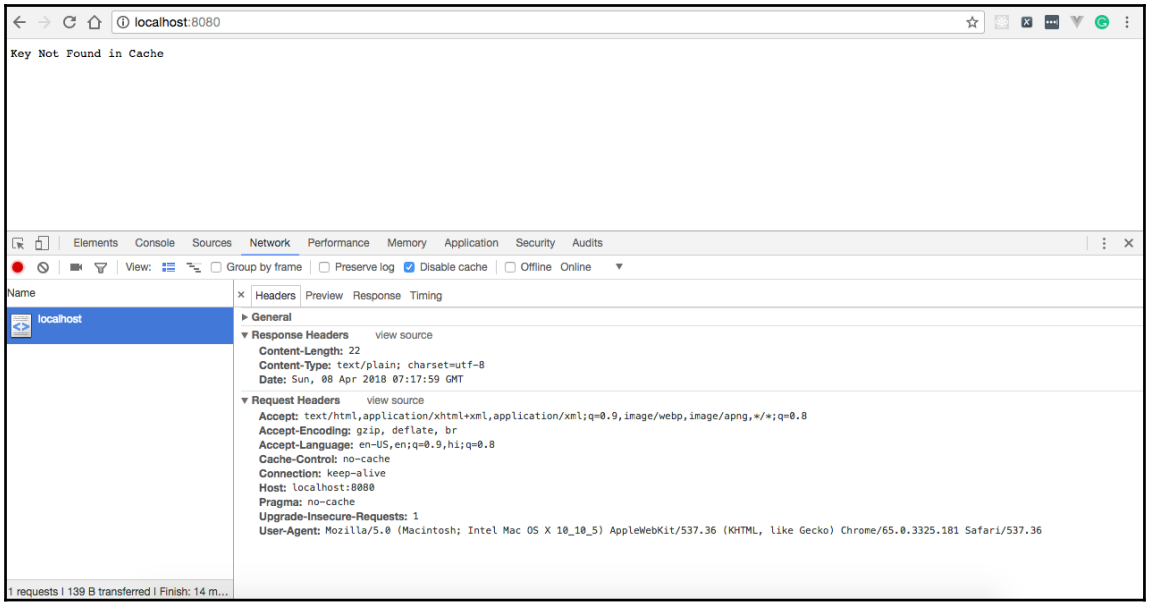


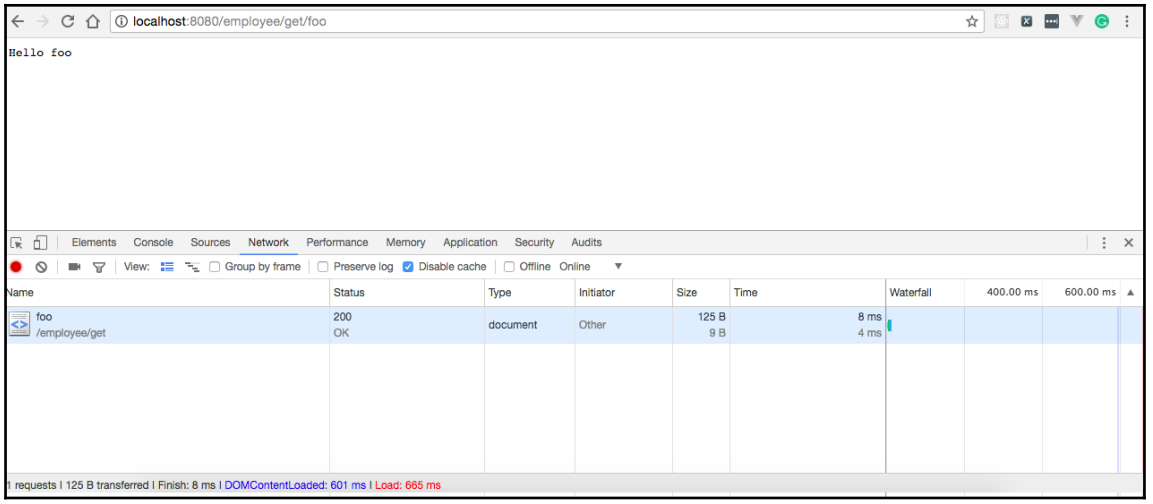

localhost:8080/read
Hello
Elements Console Sources Network Performance Memory Application Security Audits
Application
Manifest
Service Workers
Clear storage
Storage
Local Storage
Session Storage
IndexedDB
Web SQL
Cookies
http://localhost:8080
Cache
Cache Storage
Application Cache
Frames
Filter
Name Value Domain P... Expires / Ma... Size HTTP Secure SameSite

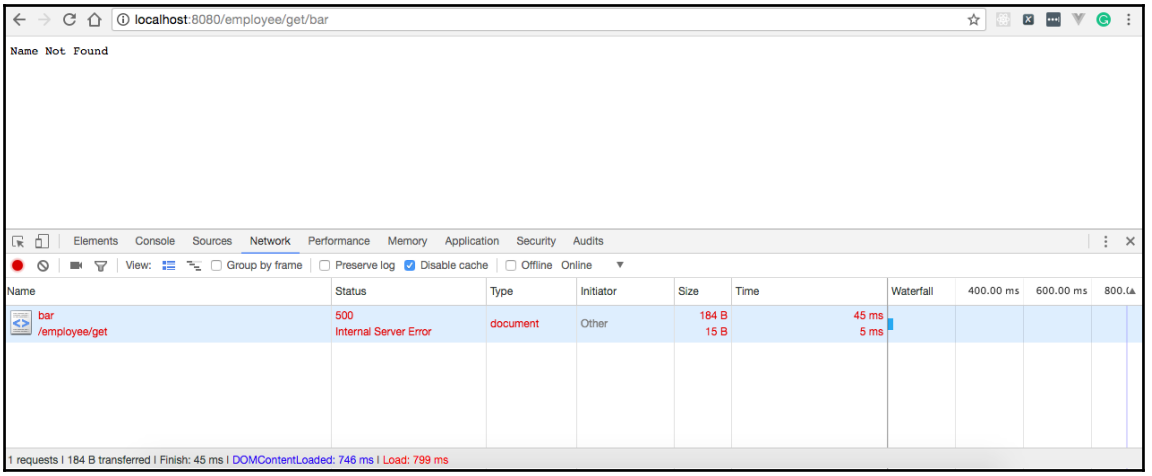

localhost:8080/create
Cookie created.
Elements Console Sources Network Performance Memory Application Security Audits
Application
Manifest
Service Workers
Clear storage
Storage
Local Storage
Session Storage
IndexedDB
Web SQL
Cookies
http://localhost:8080
Cache
Cache Storage
Application Cache
Frames
Filter
Name Value Domain P... Expires / Ma... Size HTTP Secure SameSite
first-cookie MTUyMzE3MDc2Mnx4ZnA2VUlMRkZTdUtMMjMxd2RVc... localhost / 1969-12-31T... 164

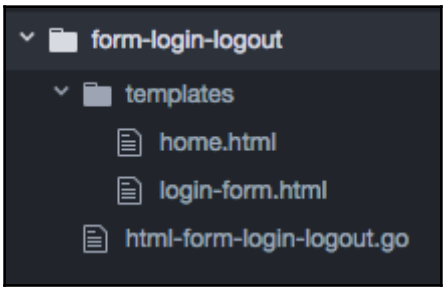

localhost:8080/read
Hello Foo
Elements Console Sources Network Performance Memory Application Security Audits
Application
Manifest
Service Workers
Clear storage
Storage
Local Storage
Session Storage
IndexedDB
Web SQL
Cookies
http://localhost:8080
Cache
Cache Storage
Application Cache
Frames
Filter
Name Value Domain P... Expires / Ma... Size HTTP Secure SameSite
first-cookie MTUyMzE3MDc2Mnx4ZnA2VUlMRkZTdUtMMjMxd2RVc... localhost / 1969-12-31T... 164

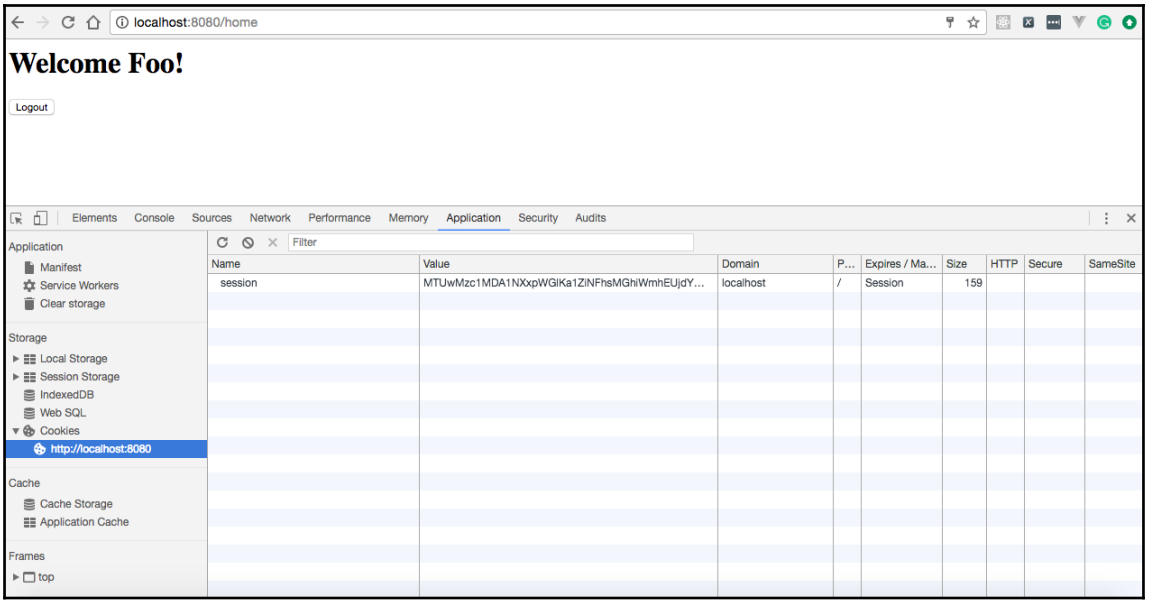

localhost:8080
Hello bar
Elements Console Sources Network Performance Memory Application Security Audits
View: Group by frame Preserve log Disable cache Offline Online
Name
localhost
Headers Preview Response Timing
General
Response Headers view source
Content-Length: 9
Content-Type: text/plain; charset=utf-8
Date: Sun, 08 Apr 2018 07:12:39 GMT
Request Headers view source
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-US,en;q=0.9,hi;q=0.8
Cache-Control: no-cache
Connection: keep-alive
Host: localhost:8080
Pragma: no-cache
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10_10_5) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/65.0.3325.181 Safari/537.36
1 requests | 125 B transferred | Finish: 12 m...

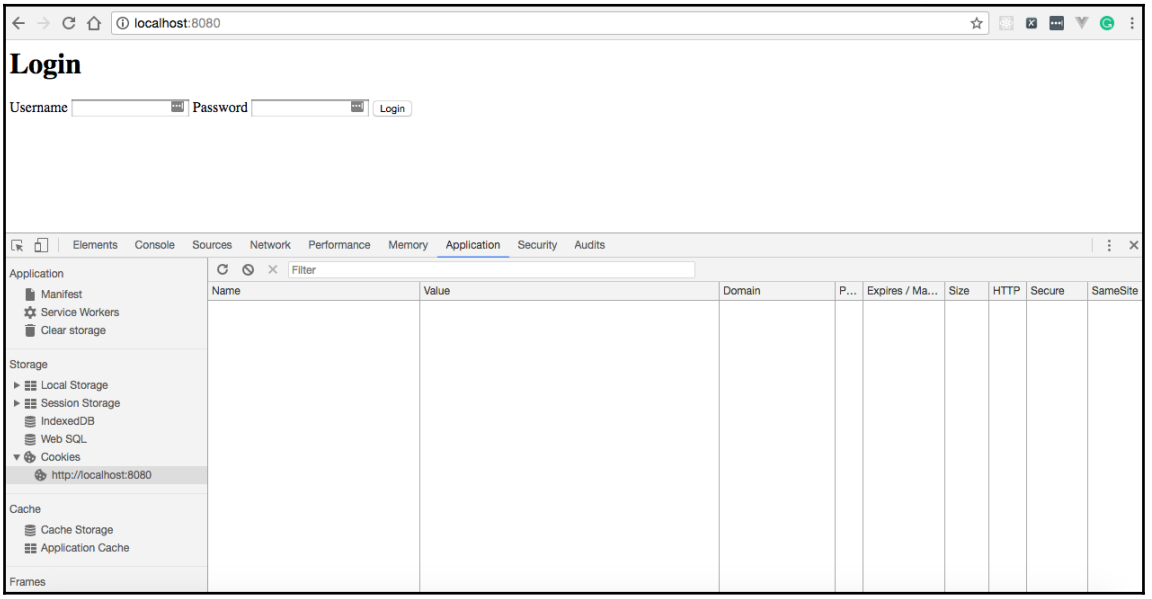

localhost:8080
Key Not Found in Cache
Elements Console Sources Network Performance Memory Application Security Audits
View: Group by frame Preserve log Disable cache Offline Online
Name
localhost
Headers Preview Response Timing
General
Response Headers view source
Content-Length: 22
Content-Type: text/plain; charset=utf-8
Date: Sun, 08 Apr 2018 07:17:59 GMT
Request Headers view source
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-US,en;q=0.9,hi;q=0.8
Cache-Control: no-cache
Connection: keep-alive
Host: localhost:8080
Pragma: no-cache
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10_10_5) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/65.0.3325.181 Safari/537.36
1 requests | 139 B transferred | Finish: 14 m...


localhost:8080/employee/get/foo
Hello foo
Elements Console Sources Network Performance Memory Application Security Audits
View: Group by frame Preserve log Disable cache Offline Online
Name Status Type Initiator Size Time Waterfall 400.00 ms 600.00 ms
foo
/employee/get
200
OK
document
Other
125 B
9 B
8 ms
4 ms
1 requests | 125 B transferred | Finish: 8 ms | DOMContentLoaded: 601 ms | Load: 665 ms


localhost:8080/employee/get/bar
Name Not Found
Elements
Console
Sources
Network
Performance
Memory
Application
Security
Audits
View:
Group by frame
Preserve log
Disable cache
Offline
Online
Name
Status
Type
Initiator
Size
Time
Waterfall
400.00 ms
600.00 ms
bar
/employee/get
500
Internal Server Error
document
Other
184 B
15 B
45 ms
5 ms
1 requests I 184 B transferred I Finish: 45 ms I DOMContentLoaded: 746 ms I Load: 799 ms


form-login-logout
templates
home.html
login-form.html
html-form-login-logout.go


localhost:8080/home
Welcome Foo!
Logout
Elements Console Sources Network Performance Memory Application Security Audits
Application
Manifest
Service Workers
Clear storage
Storage
Local Storage
Session Storage
IndexedDB
Web SQL
Cookies
http://localhost:8080
Cache
Cache Storage
Application Cache
Frames
top
Filter
Name Value Domain P... Expires / Ma... Size HTTP Secure SameSite
session MTUwMzc1MDA1NXxpWGlKa1ZlNFhsMGhiWmhEUjdY... localhost / Session 159


localhost:8080
Login
Username
Password
Login
Elements Console Sources Network Performance Memory Application Security Audits
Application
Manifest
Service Workers
Clear storage
Storage
Local Storage
Session Storage
IndexedDB
Web SQL
Cookies
http://localhost:8080
Cache
Cache Storage
Application Cache
Frames
Filter
Name Value Domain P... Expires / Ma... Size HTTP Secure SameSite

Chapter 4: Writing and Consuming RESTful Web Services in Go

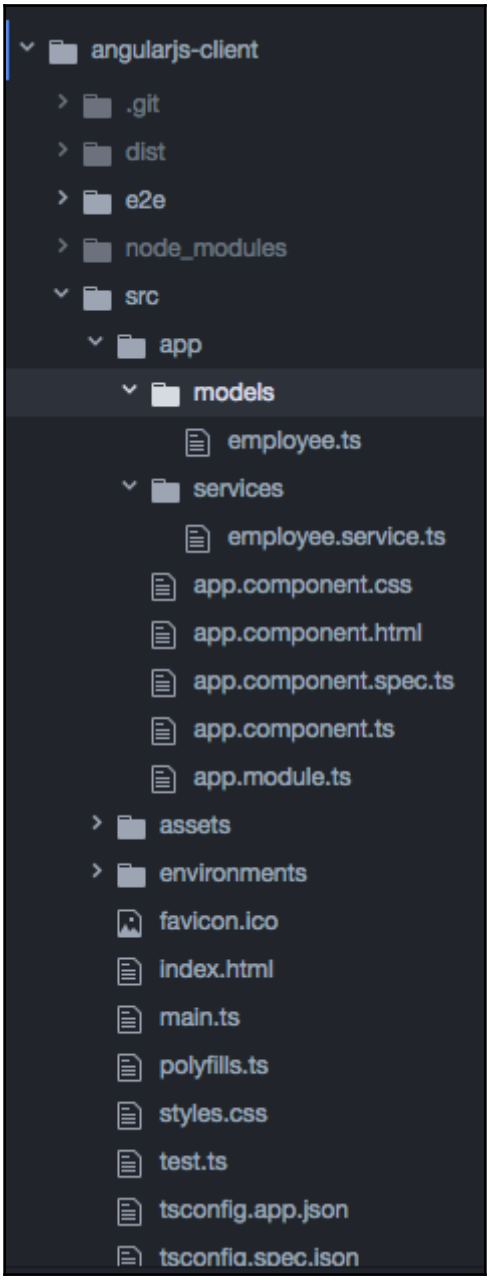
```
→  ~ curl -H "Content-Type: application/json" -X POST -d '{"Id":"3", "firstName":"Quux", "lastName":"Corge"}' http://localhost:8080/employee/add
[{"id":"1","firstName":"Foo","lastName":"Bar"},{"id":"2","firstName":"Baz","lastName":"Qux"},{"id":"3","firstName":"Quux","lastName":"Corge"}]
```

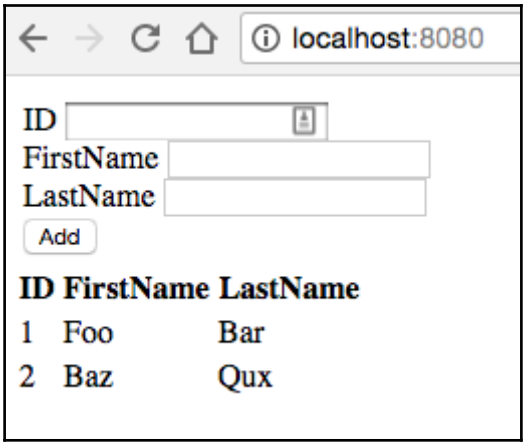
```
→  ~ curl -H "Content-Type: application/json" -X PUT -d '{"Id":"1", "firstName":"Grault", "lastName":"Garply"}' http://localhost:8080/employee/update
[{"id":"1","firstName":"Grault","lastName":"Garply"},{"id":"2","firstName":"Baz","lastName":"Qux"}]
```

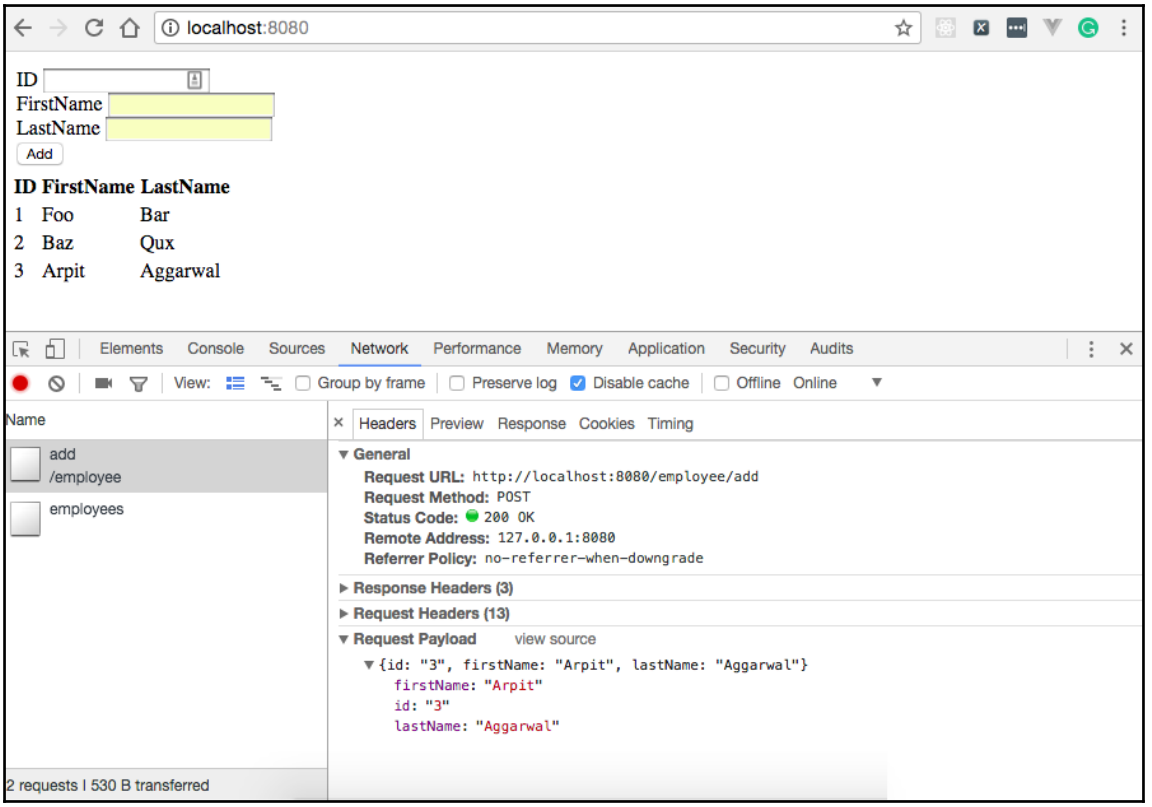
```
→  ~ curl -H "Content-Type: application/json" -X PUT -d '{"Id":"3", "firstName":"Quux", "lastName":"Corge"}' http://localhost:8080/employee/update
[{"id":"1","firstName":"Grault","lastName":"Garply"},{"id":"2","firstName":"Baz","lastName":"Qux"},{"id":"3","firstName":"Quux","lastName":"Corge"}]
```

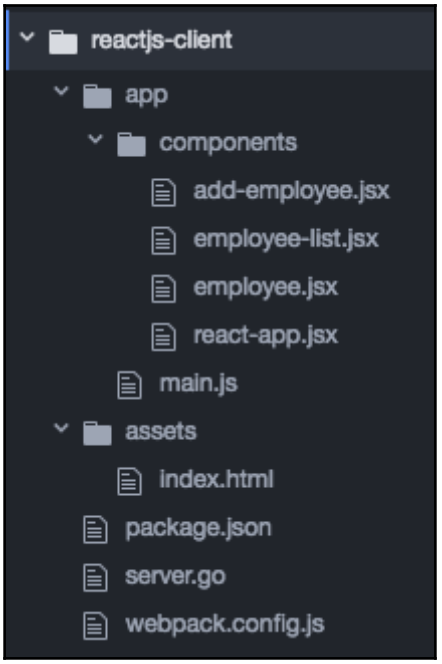
```
→  ~ curl -H "Content-Type: application/json" -X DELETE -d '{"Id":"1", "firstName": "Foo", "lastName": "Bar"}' http://localhost:8080/employee/delete
[{"id":"2","firstName":"Baz","lastName":"Qux"}]
```

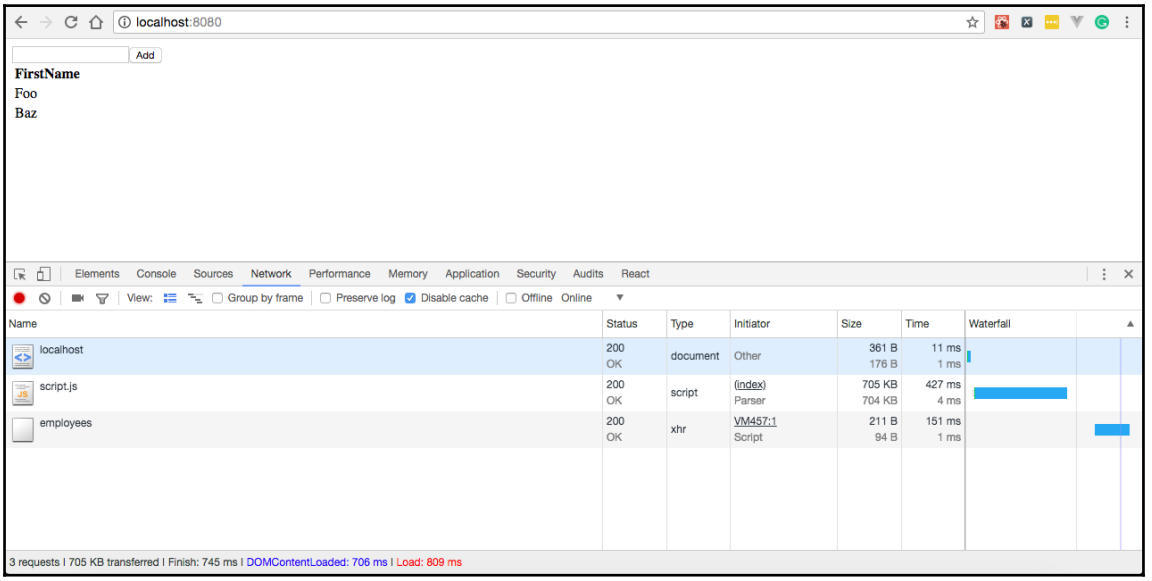
```
→  ~ curl -H "Content-Type: application/json" -X POST -d '{"Id":"3", "firstName":"Quux", "lastName":"Corge"}' http://localhost:8090/employee/add
[{"id":"1","firstName":"Foo","lastName":"Bar"},{"id":"2","firstName":"Baz","lastName":"Qux"},{"id":"3","firstName":"Quux","lastName":"Corge"}]
```

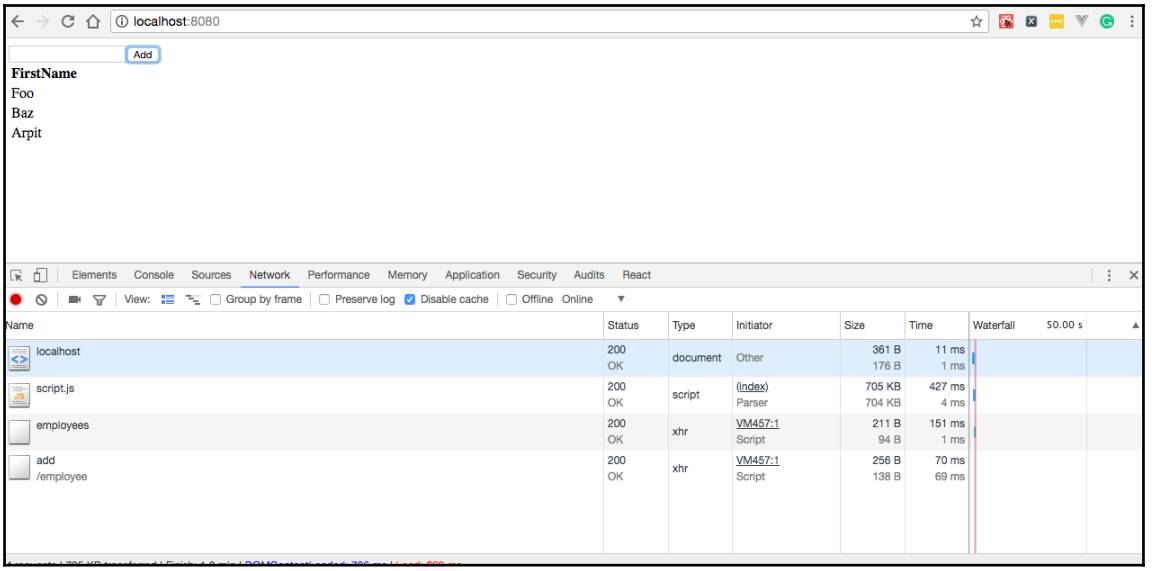

angularjs-client
.git
dist
e2e
node_modules
src
app
models
employee.ts
services
employee.service.ts
app.component.css
app.component.html
app.component.spec.ts
app.component.ts
app.module.ts
assets
environments
favicon.ico
index.html
main.ts
polyfills.ts
styles.css
test.ts
tsconfig.app.json
tsconfig.spec.json

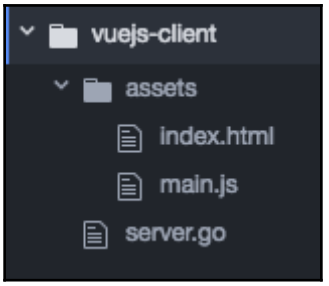

localhost:8080
ID
FirstName
LastName
Add
ID FirstName LastName
1 Foo Bar
2 Baz Qux

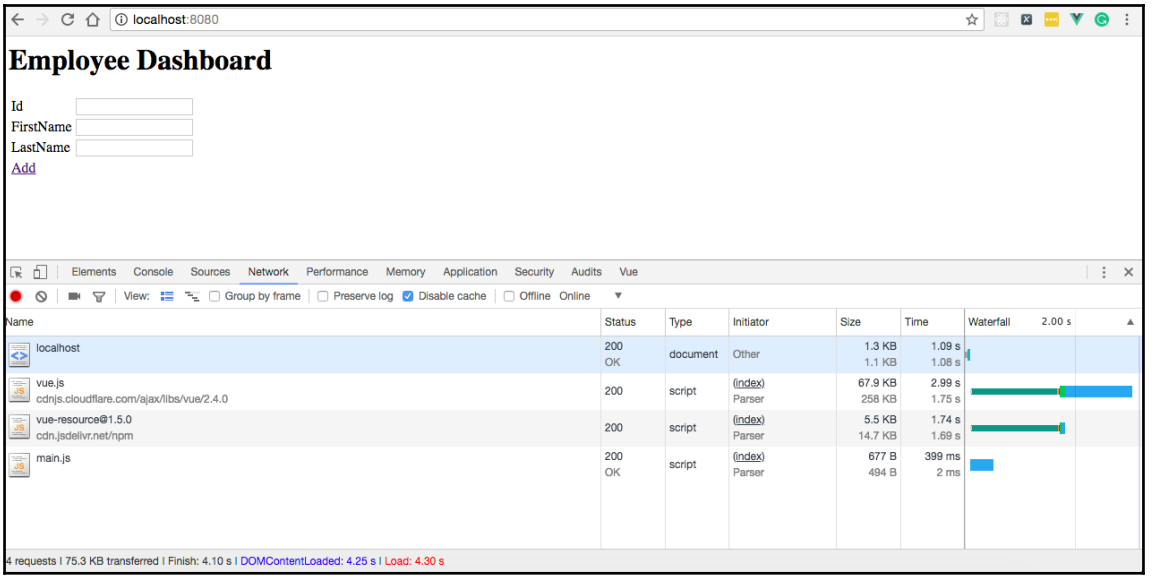

localhost:8080
ID
FirstName
LastName
Add
ID FirstName LastName
1 Foo Bar
2 Baz Qux
3 Arpit Aggarwal
Elements Console Sources Network Performance Memory Application Security Audits
View: Group by frame Preserve log Disable cache Offline Online
Name
add
/employee
employees
Headers Preview Response Cookies Timing
General
Request URL: http://localhost:8080/employee/add
Request Method: POST
Status Code: 200 OK
Remote Address: 127.0.0.1:8080
Referrer Policy: no-referrer-when-downgrade
Response Headers (3)
Request Headers (13)
Request Payload view source
{id: "3", firstName: "Arpit", lastName: "Aggarwal"}
firstName: "Arpit"
id: "3"
lastName: "Aggarwal"
2 requests | 530 B transferred

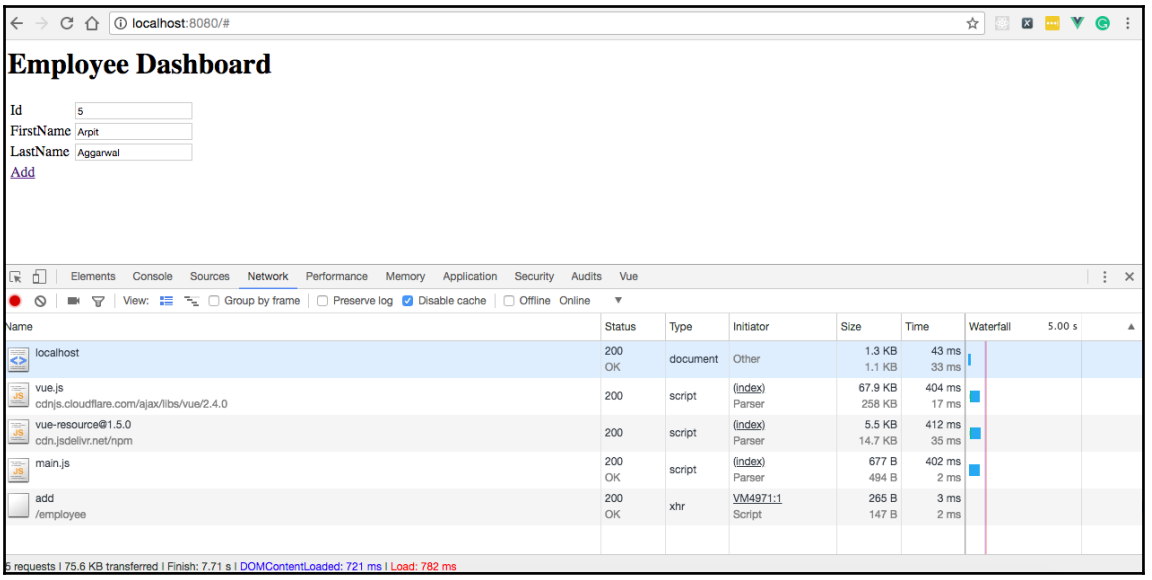

reactjs-client
app
components
add-employee.jsx
employee-list.jsx
employee.jsx
react-app.jsx
main.js
assets
index.html
package.json
server.go
webpack.config.js


localhost:8080
Add
FirstName
Foo
Baz
Elements Console Sources Network Performance Memory Application Security Audits React
Name Status Type Initiator Size Time Waterfall
localhost 200 OK document Other 361 B 176 B 11 ms 1 ms
script.js 200 OK script (index) Parser 705 KB 704 KB 427 ms 4 ms
employees 200 OK xhr VM457:1 Script 211 B 94 B 151 ms 1 ms
3 requests | 705 KB transferred | Finish: 745 ms | DOMContentLoaded: 706 ms | Load: 809 ms

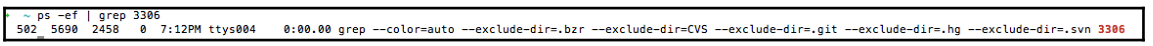

localhost:8080
Add
FirstName
Foo
Baz
Arpit
Elements
Console
Sources
Network
Performance
Memory
Application
Security
Audits
React
View:
Group by frame
Preserve log
Disable cache
Offline
Online
Name
Status
Type
Initiator
Size
Time
Waterfall
50.00 s
localhost
200 OK
document
Other
361 B
176 B
11 ms
1 ms
script.js
200 OK
script
(index) Parser
705 KB
704 KB
427 ms
4 ms
employees
200 OK
xhr
VM457:1 Script
211 B
94 B
151 ms
1 ms
add
/employee
200 OK
xhr
VM457:1 Script
256 B
138 B
70 ms
69 ms


vuejs-client
assets
index.html
main.js
server.go


localhost:8080
Employee Dashboard
Id
FirstName
LastName
Add
Elements Console Sources Network Performance Memory Application Security Audits Vue
View: Group by frame Preserve log Disable cache Offline Online
Name Status Type Initiator Size Time Waterfall 2.00 s
localhost 200 OK document Other 1.3 KB 1.1 KB 1.09 s 1.08 s
vue.js cdnjs.cloudflare.com/ajax/libs/vue/2.4.0 200 script (index) Parser 67.9 KB 258 KB 2.99 s 1.75 s
vue-resource@1.5.0 cdn.jsdelivr.net/npm 200 script (index) Parser 5.5 KB 14.7 KB 1.74 s 1.69 s
main.js 200 OK script (index) Parser 677 B 494 B 399 ms 2 ms
4 requests | 75.3 KB transferred | Finish: 4.10 s | DOMContentLoaded: 4.25 s | Load: 4.30 s


localhost:8080/#
Employee Dashboard
Id 5
FirstName Arpit
LastName Aggarwal
Add
Elements Console Sources Network Performance Memory Application Security Audits Vue
View: Group by frame Preserve log Disable cache Offline Online
Name Status Type Initiator Size Time Waterfall 5.00 s
localhost 200 OK document Other 1.3 KB 1.1 KB 43 ms 33 ms
vue.js cdnjs.cloudflare.com/ajax/libs/vue/2.4.0 200 script (index) Parser 67.9 KB 258 KB 404 ms 17 ms
vue-resource@1.5.0 cdn.jsdelivr.net/npm 200 script (index) Parser 5.5 KB 14.7 KB 412 ms 35 ms
main.js 200 OK script (index) Parser 677 B 494 B 402 ms 2 ms
add /employee 200 OK xhr VM4971:1 Script 265 B 147 B 3 ms 2 ms
5 requests | 75.6 KB transferred | Finish: 7.71 s | DOMContentLoaded: 721 ms | Load: 782 ms

Chapter 5: Working with SQL and NoSQL Databases




```
→  ~ mysql -u root -ppassword
mysql: [Warning] Using a password on the command line interface can be insecure.
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 9
Server version: 5.7.21 Homebrew

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> create database mydb;
Query OK, 1 row affected (0.00 sec)

mysql> commit;
Query OK, 0 rows affected (0.00 sec)

mysql>
```

```
→  ~ mysql -u root -ppassword
mysql: [Warning] Using a password on the command line interface can be insecure.
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 10
Server version: 5.7.21 Homebrew

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> use mydb;
Database changed
mysql> CREATE TABLE employee (uid INT(10) NOT NULL AUTO_INCREMENT, name VARCHAR(64) NULL DEFAULT NULL, PRIMARY KEY (uid));
Query OK, 0 rows affected (0.09 sec)

mysql> commit;
Query OK, 0 rows affected (0.00 sec)

mysql>
```
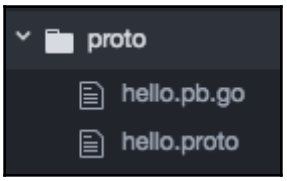


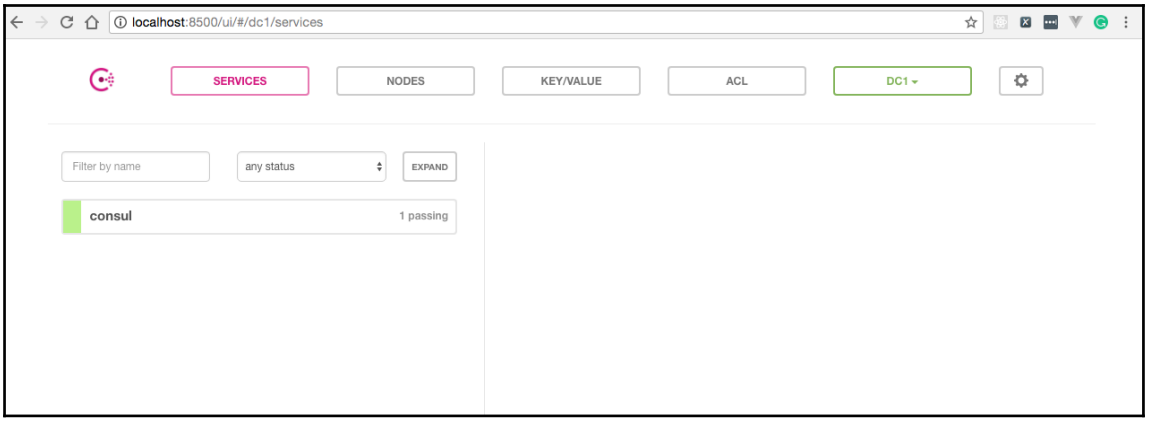
```
→  ~ mongo
MongoDB shell version: 3.0.7
connecting to: test
Server has startup warnings:
2018-04-07T19:24:52.196+0530 I CONTROL  [initandlisten]
2018-04-07T19:24:52.196+0530 I CONTROL  [initandlisten] ** WARNING: soft rlimits too low. Number of files is 256, should be at least 1000
>
```

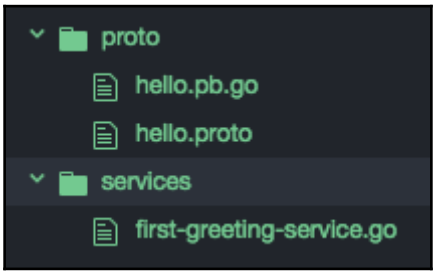
Chapter 6: Writing Microservices in Go Using Micro – a Microservice Toolkit




```
==> Starting Consul agent...
==> Consul agent running!
           Version: 'v0.8.5'
           Node ID: 'ba19a892-7e82-ba57-8d2c-dc41cf826256'
         Node name: 'apples-MacBook-Pro-3.local'
        Datacenter: 'dc1'
            Server: true (bootstrap: false)
       Client Addr: 127.0.0.1 (HTTP: 8500, HTTPS: -1, DNS: 8600)
      Cluster Addr: 127.0.0.1 (LAN: 8301, WAN: 8302)
    Gossip encrypt: false, RPC-TLS: false, TLS-Incoming: false

==> Log data will now stream in as it occurs:

    2018/04/04 23:54:24 [DEBUG] Using random ID "ba19a892-7e82-ba57-8d2c-dc41cf826256" as node ID
    2018/04/04 23:54:24 [INFO] raft: Initial configuration (index=1): [{Suffrage:Voter ID:127.0.0.1:8300 Address:127.0.0.1:8300}]
    2018/04/04 23:54:24 [INFO] raft: Node at 127.0.0.1:8300 [Follower] entering Follower state (Leader: "")
    2018/04/04 23:54:24 [INFO] serf: EventMemberJoin: apples-MacBook-Pro-3.local 127.0.0.1
    2018/04/04 23:54:24 [INFO] consul: Adding LAN server apples-MacBook-Pro-3.local (Addr: tcp/127.0.0.1:8300) (DC: dc1)
    2018/04/04 23:54:24 [INFO] serf: EventMemberJoin: apples-MacBook-Pro-3.local.dc1 127.0.0.1
    2018/04/04 23:54:24 [INFO] consul: Handled member-join event for server "apples-MacBook-Pro-3.local.dc1" in area "wan"
    2018/04/04 23:54:24 [INFO] agent: Started DNS server 127.0.0.1:8600 (udp)
    2018/04/04 23:54:24 [INFO] agent: Started DNS server 127.0.0.1:8600 (tcp)
    2018/04/04 23:54:24 [INFO] agent: Started HTTP server on 127.0.0.1:8500
    2018/04/04 23:54:24 [WARN] raft: Heartbeat timeout from "" reached, starting election
    2018/04/04 23:54:24 [INFO] raft: Node at 127.0.0.1:8300 [Candidate] entering Candidate state in term 2
    2018/04/04 23:54:24 [DEBUG] raft: Votes needed: 1
    2018/04/04 23:54:24 [DEBUG] raft: Vote granted from 127.0.0.1:8300 in term 2. Tally: 1
    2018/04/04 23:54:24 [INFO] raft: Election won. Tally: 1
    2018/04/04 23:54:24 [INFO] raft: Node at 127.0.0.1:8300 [Leader] entering Leader state
    2018/04/04 23:54:24 [INFO] consul: cluster leadership acquired
    2018/04/04 23:54:24 [INFO] consul: New leader elected: apples-MacBook-Pro-3.local
    2018/04/04 23:54:24 [DEBUG] consul: reset tombstone GC to index 3
    2018/04/04 23:54:24 [INFO] consul: member 'apples-MacBook-Pro-3.local' joined, marking health alive
    2018/04/04 23:54:24 [INFO] agent: Synced service 'consul'
    2018/04/04 23:54:24 [DEBUG] agent: Node info in sync
```

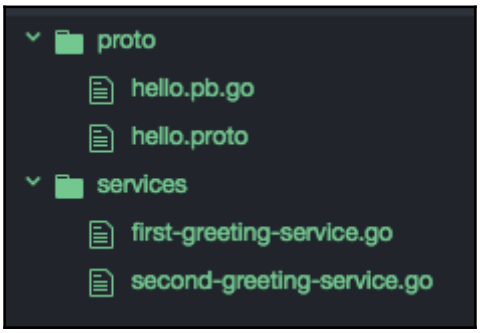
```
→  ~ consul members
Node                      Address          Status  Type    Build  Protocol  DC
apples-MacBook-Pro-3.local  127.0.0.1:8301  alive   server  0.8.5  2         dc1
→  ~
```






```
+  ~ curl -X POST -H 'Content-Type: application/json' -d '{"service": "go.micro.service.greeter", "method": "Say.Hello", "request": {"name": "Arpit Aggarwal"}}' http://localhost:8080/rpc
{"msg":"Hello Arpit Aggarwal"}
+  ~  {"msg":"Hello Arpit Aggarwal"}
```

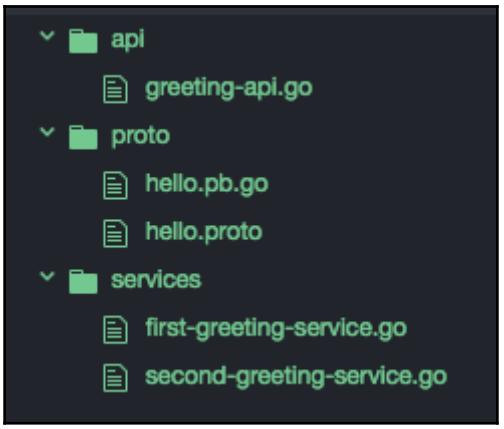
```
➜  services git:(master) go run first-greeting-service.go
2018/04/08 19:12:23 Listening on [::]:60667
2018/04/08 19:12:23 Broker Listening on [::]:60668
2018/04/08 19:12:23 Registering node: go.micro.service.greeter-aa9eeecc-3b32-11e8-8132-685b35d52676
2018/04/08 19:12:28 Received Say.Hello request - first greeting service
```



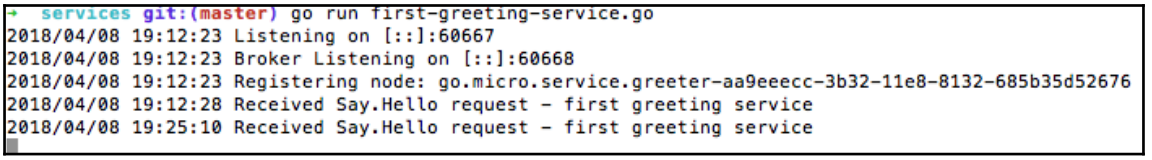
```
→  ~ curl -X POST -H 'Content-Type: application/json' -d '{"service": "go.micro.service.greeter", "method": "Say.Hello", "request": {"name": "Arpit Aggarwal"}}' http://localhost:8080/rpc
{"msg":"Hello Arpit Aggarwal"}
→  ~
```

```
→  services git:(master) go run second-greeting-service.go
2018/04/08 19:24:30 Listening on [::]:61505
2018/04/08 19:24:30 Broker Listening on [::]:61506
2018/04/08 19:24:30 Registering node: go.micro.service.greeter-5bf9291d-3b34-11e8-9179-685b35d52676
2018/04/08 19:24:35 Received Say.Hello request - second greeting service
```

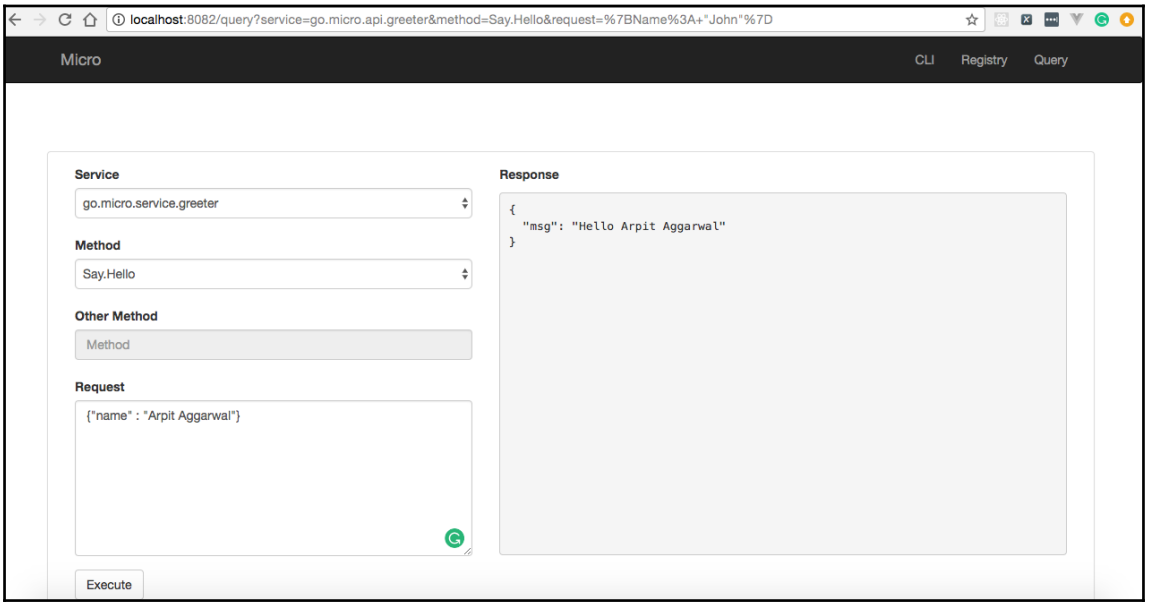
```
→  services git:(master) go run first-greeting-service.go
2018/04/08 19:12:23 Listening on [::]:60667
2018/04/08 19:12:23 Broker Listening on [::]:60668
2018/04/08 19:12:23 Registering node: go.micro.service.greeter-aa9eeecc-3b32-11e8-8132-685b35d52676
2018/04/08 19:12:28 Received Say.Hello request - first greeting service
2018/04/08 19:25:10 Received Say.Hello request - first greeting service
```

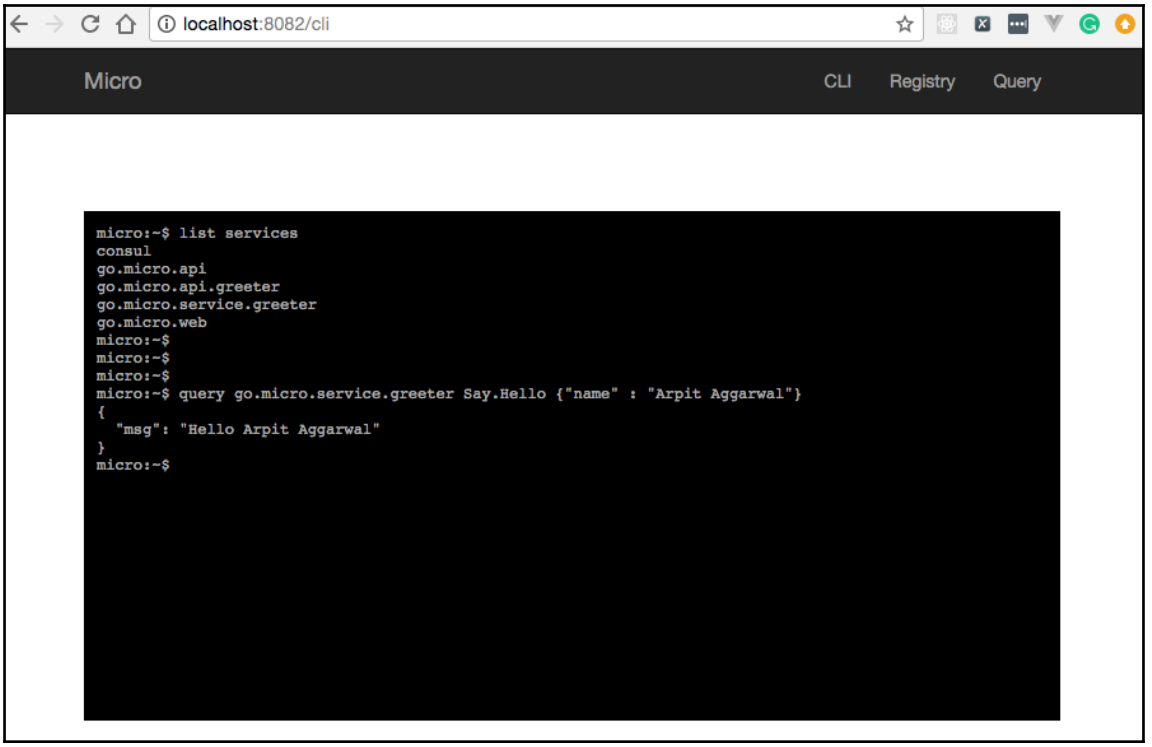



```
→  services git:(master) go run second-greeting-service.go
2018/04/08 19:24:30 Listening on [::]:61505
2018/04/08 19:24:30 Broker Listening on [::]:61506
2018/04/08 19:24:30 Registering node: go.micro.service.greeter-5bf9291d-3b34-11e8-9179-685b35d52676
2018/04/08 19:24:35 Received Say.Hello request - second greeting service
```

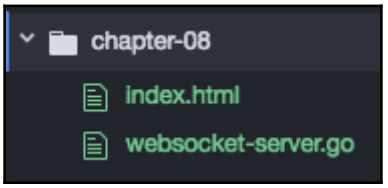

→ services git:(master) go run first-greeting-service.go
2018/04/08 19:12:23 Listening on [::]:60667
2018/04/08 19:12:23 Broker Listening on [::]:60668
2018/04/08 19:12:23 Registering node: go.micro.service.greeter-aa9eeecc-3b32-11e8-8132-685b35d52676
2018/04/08 19:12:28 Received Say.Hello request - first greeting service
2018/04/08 19:25:10 Received Say.Hello request - first greeting service

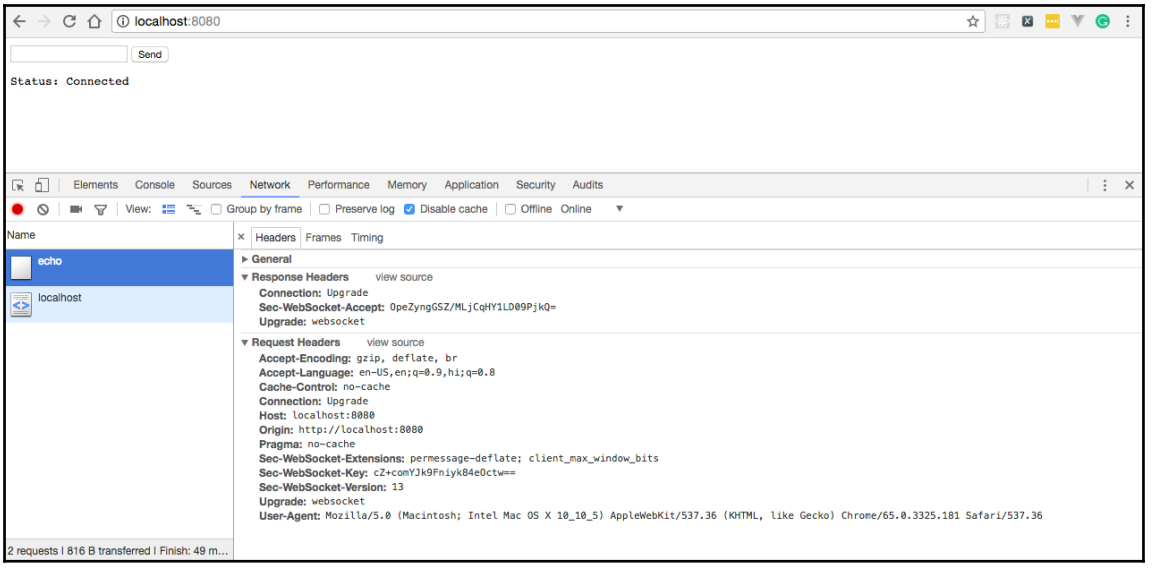

localhost:8082/registry
Micro
CLI
Registry
Query
Search
consul
go.micro.api
go.micro.api.greeter
go.micro.service.greeter
go.micro.web


localhost:8082/query?service=go.micro.api.greeter&method=Say.Hello&request=%7BName%3A+"John"%7D
Micro
CLI
Registry
Query
Service
go.micro.service.greeter
Method
Say.Hello
Other Method
Method
Request
{"name" : "Arpit Aggarwal"}
Execute
Response
{
"msg": "Hello Arpit Aggarwal"
}

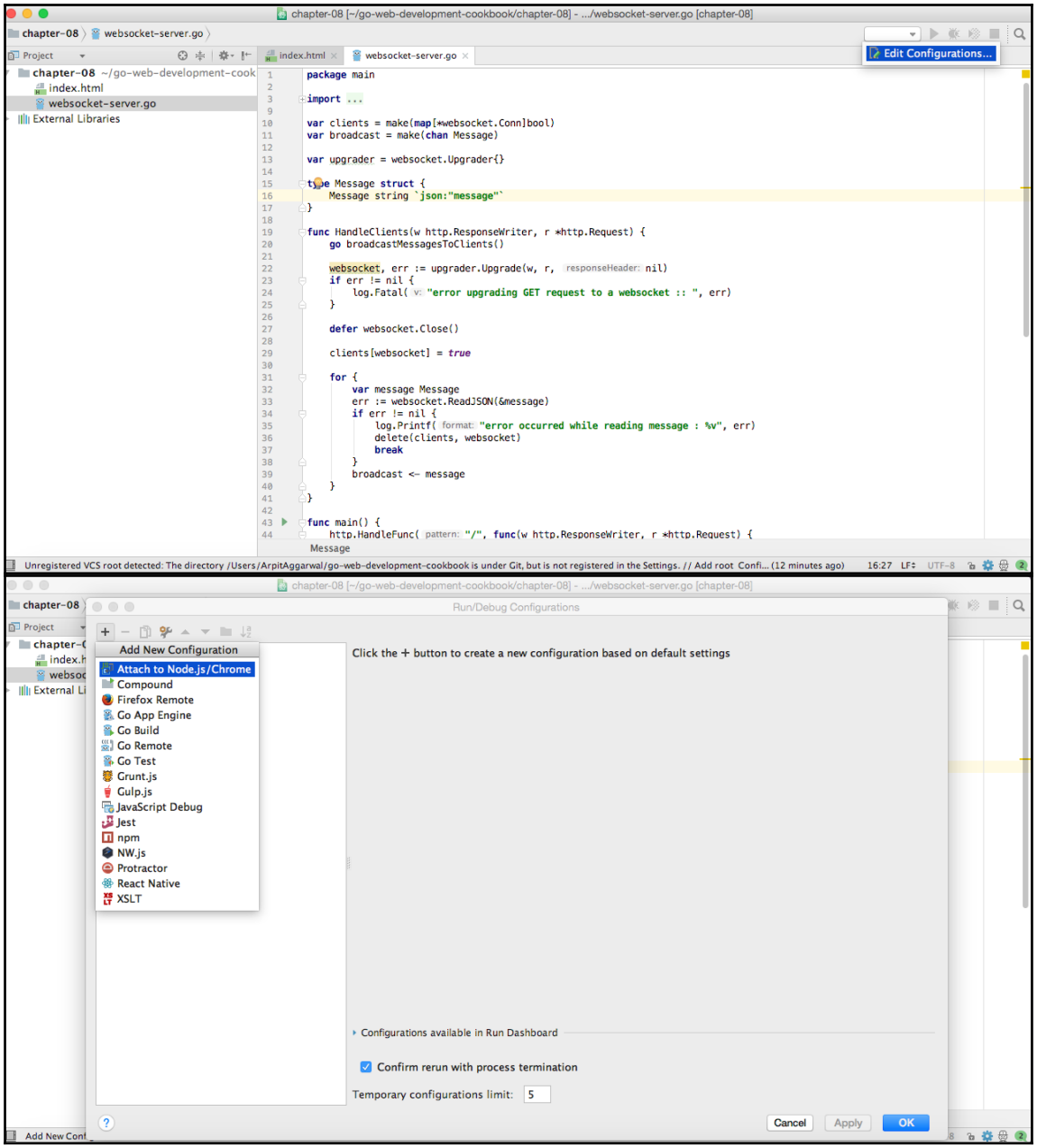


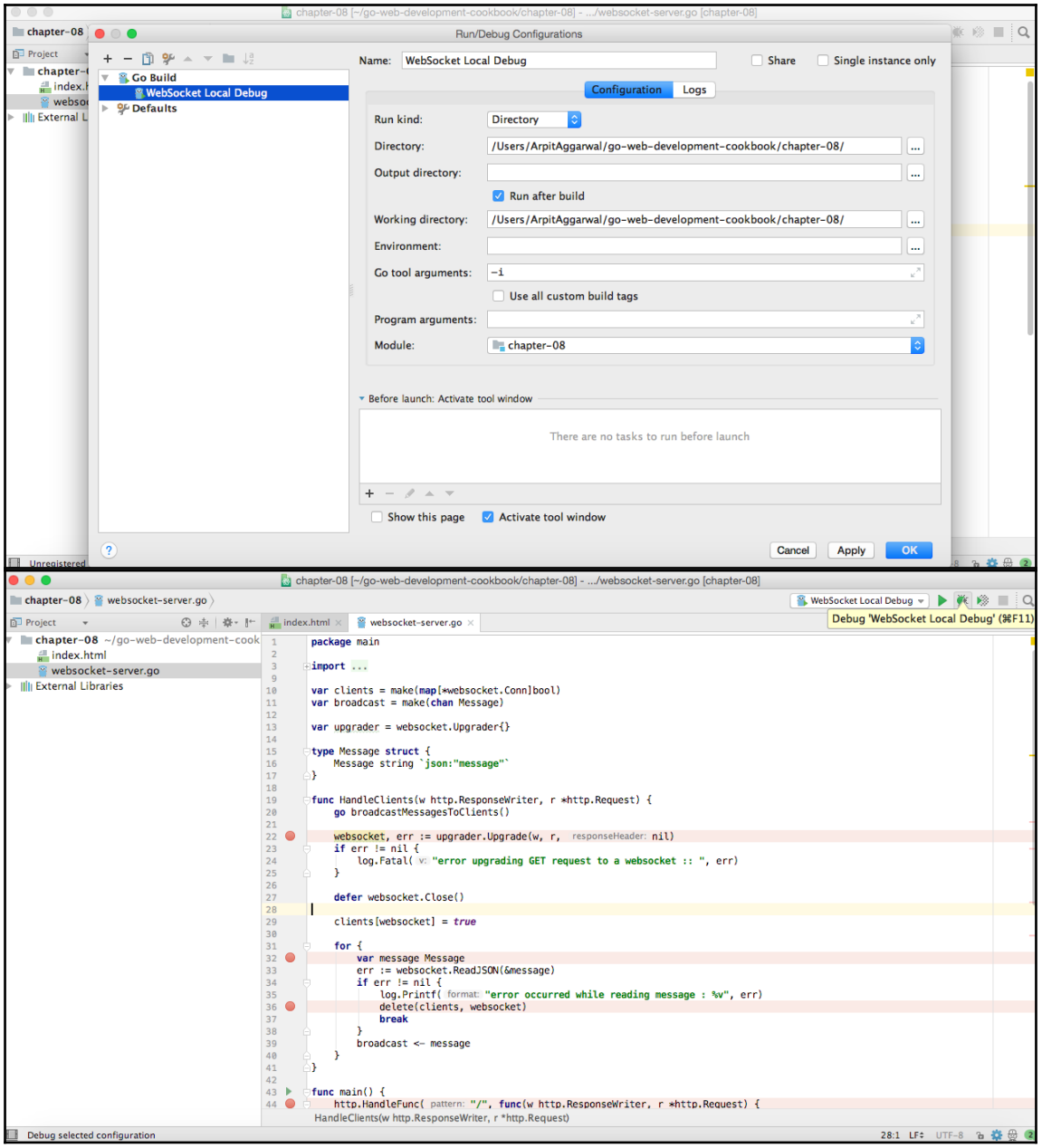
Chapter 7: Working with WebSocket in Go



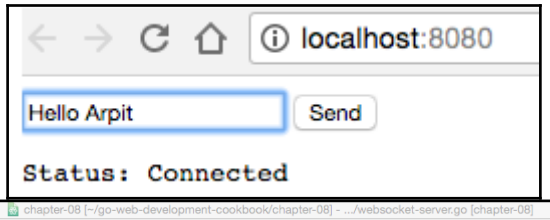

localhost:8080
Send
Status: Connected
Elements
Console
Sources
Network
Performance
Memory
Application
Security
Audits
View:
Group by frame
Preserve log
Disable cache
Offline
Online
Name
echo
localhost
Headers
Frames
Timing
General
Response Headers
view source
Connection: Upgrade
Sec-WebSocket-Accept: OpeZyngGSZ/MLjCqHY1LD09PjkQ=
Upgrade: websocket
Request Headers
view source
Accept-Encoding: gzip, deflate, br
Accept-Language: en-US,en;q=0.9,hi;q=0.8
Cache-Control: no-cache
Connection: Upgrade
Host: localhost:8080
Origin: http://localhost:8080
Pragma: no-cache
Sec-WebSocket-Extensions: permessage-deflate; client_max_window_bits
Sec-WebSocket-Key: cZ+comYJk9Fniyk84eOctw==
Sec-WebSocket-Version: 13
Upgrade: websocket
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10_10_5) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/65.0.3325.181 Safari/537.36
2 requests | 816 B transferred | Finish: 49 m...

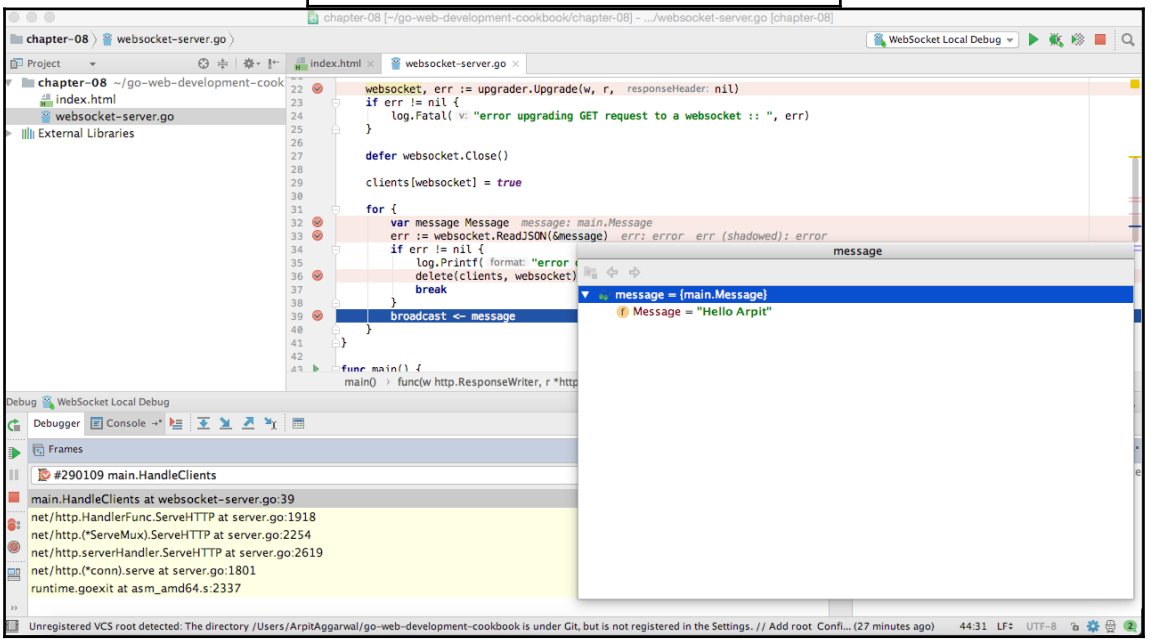

Welcome to GoLand
GO
GoLand
Version 2017.3.3
New Project
Open Project
Check out from Version Control
1 Events
Configure
Get Help

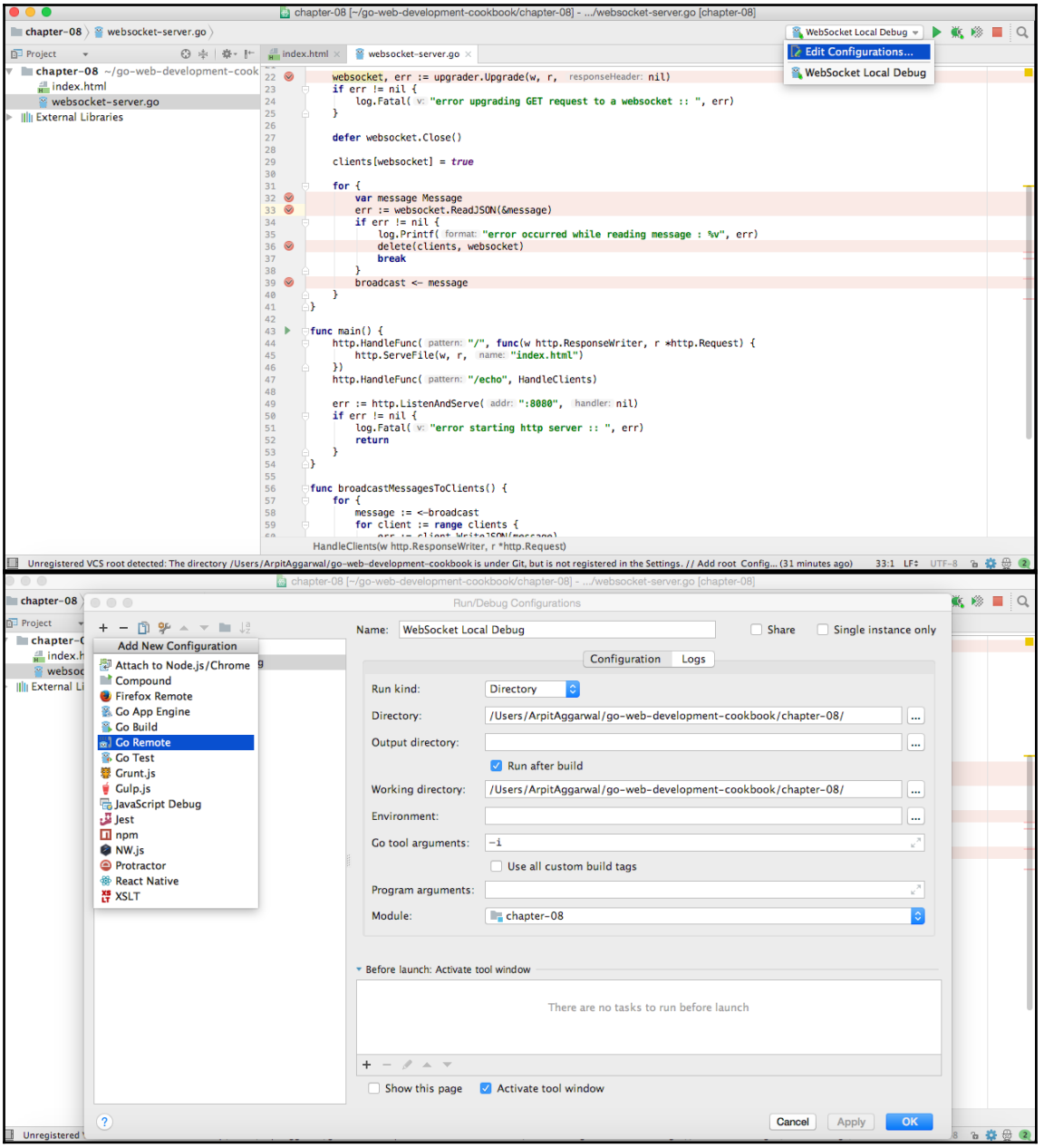

chapter-08 [~/go-web-development-cookbook/chapter-08] - .../websocket-server.go [chapter-08]
Edit Configurations...
package main
import ...
var clients = make(map[*websocket.Conn]bool)
var broadcast = make(chan Message)
var upgrader = websocket.Upgrader{}
type Message struct {
Message string `json:"message"`
}
func HandleClients(w http.ResponseWriter, r *http.Request) {
go broadcastMessagesToClients()
websocket, err := upgrader.Upgrade(w, r, responseHeader: nil)
if err != nil {
log.Fatal(v: "error upgrading GET request to a websocket :: ", err)
}
defer websocket.Close()
clients[websocket] = true
for {
var message Message
err := websocket.ReadJSON(&message)
if err != nil {
log.Printf(format: "error occurred while reading message : %v", err)
delete(clients, websocket)
break
}
broadcast <- message
}
}
func main() {
http.HandleFunc(pattern: "/", func(w http.ResponseWriter, r *http.Request) {
Message
Unregistered VCS root detected: The directory /Users/ArpitAggarwal/go-web-development-cookbook is under Git, but is not registered in the Settings. // Add root Confi... (12 minutes ago)
16:27 LF: UTF-8
Run/Debug Configurations
Add New Configuration
Attach to Node.js/Chrome
Compound
Firefox Remote
Go App Engine
Go Build
Go Remote
Go Test
Grunt.js
Gulp.js
JavaScript Debug
Jest
npm
NW.js
Protractor
React Native
XSLT
Click the + button to create a new configuration based on default settings
Configurations available in Run Dashboard
Confirm rerun with process termination
Temporary configurations limit: 5
Cancel
Apply
OK

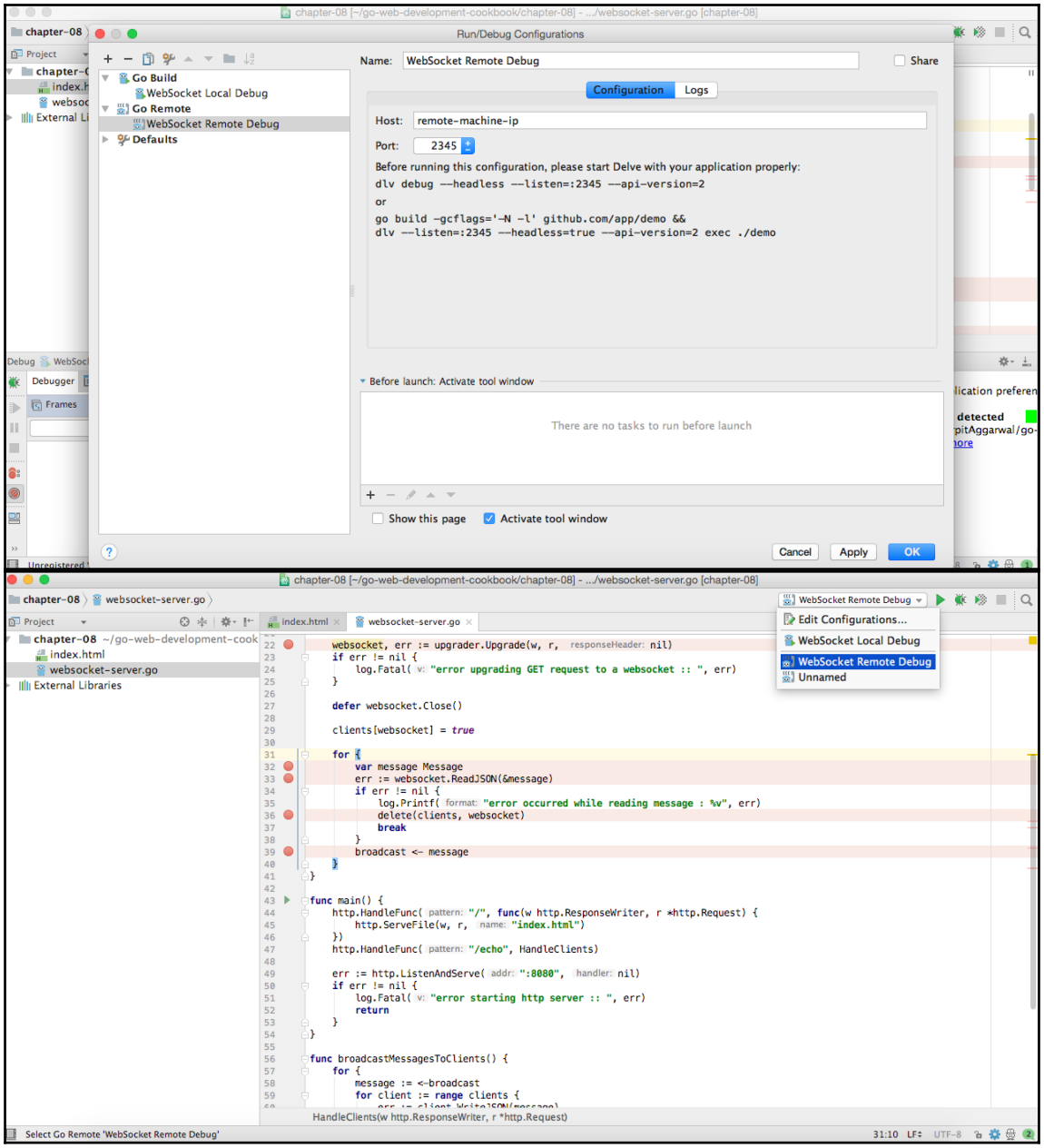


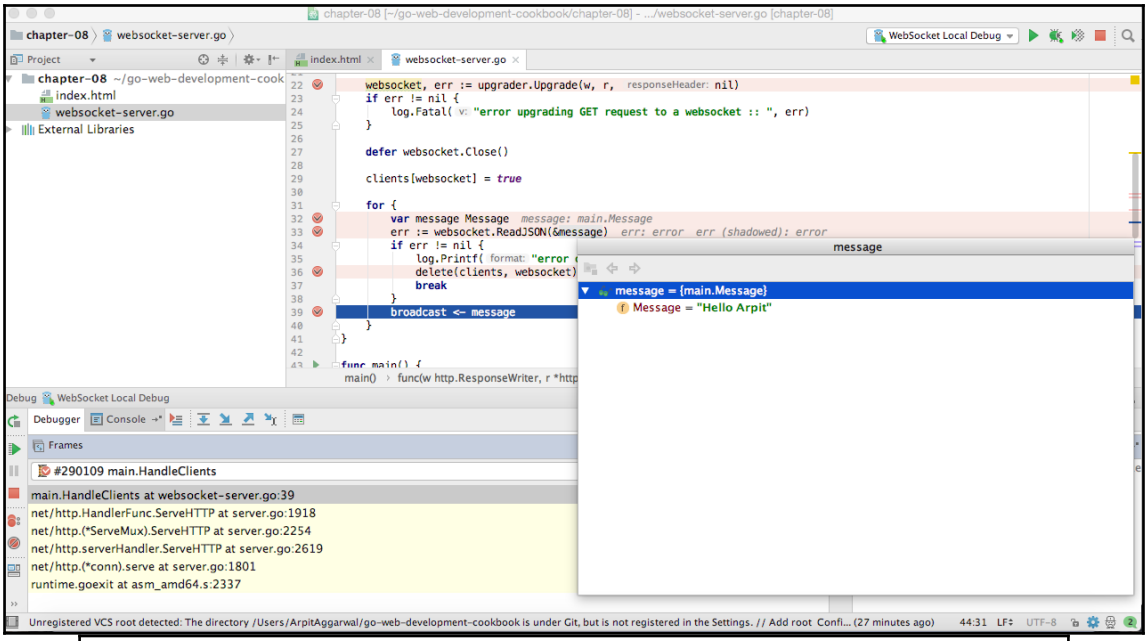

```
package main

import ...

var clients = make(map[*websocket.Conn]bool)
var broadcast = make(chan Message)

var upgrader = websocket.Upgrader{}

type Message struct {
    Message string `json:"message"`
}

func HandleClients(w http.ResponseWriter, r *http.Request) {
    go broadcastMessagesToClients()

    websocket, err := upgrader.Upgrade(w, r,  responseHeader: nil)
    if err != nil {
        log.Fatal( v: "error upgrading GET request to a websocket :: ", err)
    }

    defer websocket.Close()

    clients[websocket] = true

    for {
        var message Message
        err := websocket.ReadJSON(&message)
        if err != nil {
            log.Printf( format: "error occurred while reading message : %v", err)
            delete(clients, websocket)
            break
        }
        broadcast <- message
    }
}

func main() {
    http.HandleFunc( pattern: "/", func(w http.ResponseWriter, r *http.Request) {
HandleClients(w http.ResponseWriter, r *http.Request)
```


localhost:8080
Hello Arpit
Send
Status: Connected


chapter-08 [~/go-web-development-cookbook/chapter-08] - .../websocket-server.go [chapter-08]
chapter-08 〉 websocket-server.go 〉
WebSocket Local Debug
Project
index.html
websocket-server.go
chapter-08 ~/go-web-development-cook
index.html
websocket-server.go
External Libraries
websocket, err := upgrader.Upgrade(w, r, responseHeader: nil)
if err != nil {
log.Fatal(v: "error upgrading GET request to a websocket :: ", err)
}
defer websocket.Close()
clients[websocket] = true
for {
var message Message message: main.Message
err := websocket.ReadJSON(&message) err: error err (shadowed): error
if err != nil {
log.Printf(format: "error
delete(clients, websocket)
break
}
broadcast <- message
}
}
func main() {
main() 〉 func(w http.ResponseWriter, r *http
message
message = {main.Message}
Message = "Hello Arpit"
Debug WebSocket Local Debug
Debugger
Console
Frames
#290109 main.HandleClients
main.HandleClients at websocket-server.go:39
net/http.HandlerFunc.ServeHTTP at server.go:1918
net/http.(*ServeMux).ServeHTTP at server.go:2254
net/http.serverHandler.ServeHTTP at server.go:2619
net/http.(*conn).serve at server.go:1801
runtime.goexit at asm_amd64.s:2337
Unregistered VCS root detected: The directory /Users/ArpitAggarwal/go-web-development-cookbook is under Git, but is not registered in the Settings. // Add root Confi... (27 minutes ago)
44:31
LF
UTF-8


chapter-08 [~/go-web-development-cookbook/chapter-08] - .../websocket-server.go [chapter-08]
WebSocket Local Debug
Edit Configurations...
WebSocket Local Debug
Run/Debug Configurations
Add New Configuration
Attach to Node.js/Chrome
Compound
Firefox Remote
Go App Engine
Go Build
Go Remote
Go Test
Grunt.js
Gulp.js
JavaScript Debug
Jest
npm
NW.js
Protractor
React Native
XSLT
Name: WebSocket Local Debug
Share
Single instance only
Configuration
Logs
Run kind: Directory
Directory: /Users/ArpitAggarwal/go-web-development-cookbook/chapter-08/
Output directory:
Run after build
Working directory: /Users/ArpitAggarwal/go-web-development-cookbook/chapter-08/
Environment:
Go tool arguments: -i
Use all custom build tags
Program arguments:
Module: chapter-08
Before launch: Activate tool window
There are no tasks to run before launch
Show this page
Activate tool window
Cancel
Apply
OK


Run/Debug Configurations
Name: WebSocket Remote Debug
Share
Go Build
WebSocket Local Debug
Go Remote
WebSocket Remote Debug
Defaults
Configuration
Logs
Host: remote-machine-ip
Port: 2345
Before running this configuration, please start Delve with your application properly:
dlv debug --headless --listen=:2345 --api-version=2
or
go build -gcflags='-N -l' github.com/app/demo &&
dlv --listen=:2345 --headless=true --api-version=2 exec ./demo
Before launch: Activate tool window
There are no tasks to run before launch
Show this page
Activate tool window
Cancel
Apply
OK
chapter-08 [~/go-web-development-cookbook/chapter-08] - .../websocket-server.go [chapter-08]
chapter-08
websocket-server.go
WebSocket Remote Debug
Edit Configurations...
WebSocket Local Debug
WebSocket Remote Debug
Unnamed
index.html
websocket-server.go
External Libraries
Select Go Remote 'WebSocket Remote Debug'
31:10
LF
UTF-8

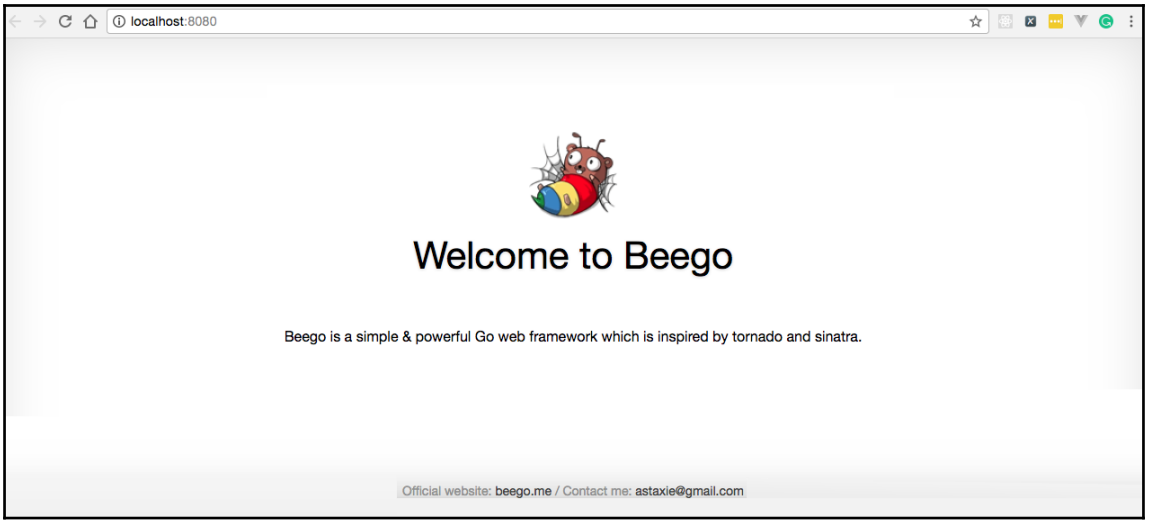


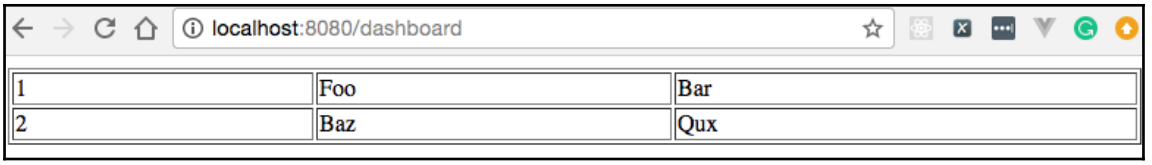

```
--- FAIL: TestWebSocketServer (0.00s)
        websocket-server_test.go:36:
                        Error Trace:    websocket-server_test.go:36
                        Error:          Not equal:
                                        expected: "hi"
                                        actual  : "hello"
                        Test:           TestWebSocketServer
                        Messages:       they should be equal
FAIL
FAIL    command-line-arguments  0.138s
```

Chapter 8: Working with the Go Web Application Framework – Beego

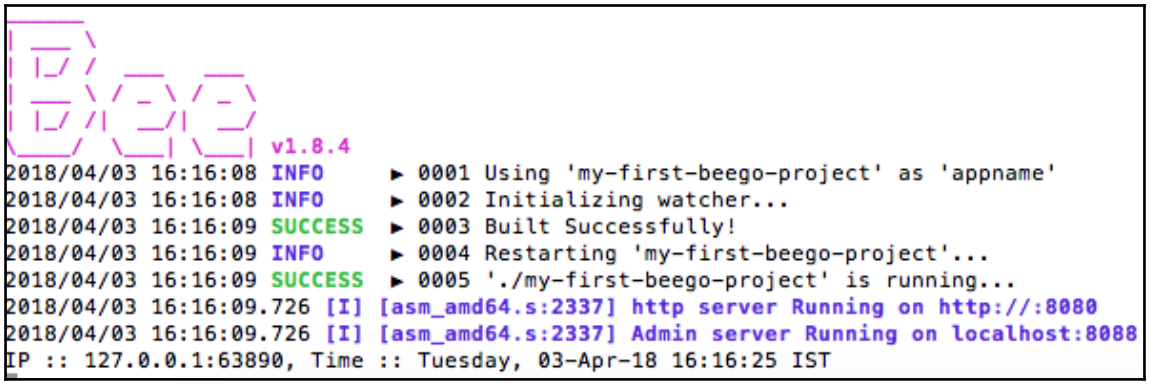
```
➜  src bee new my-first-beego-project
______
| ___ \
| |_/ /  ___   ___
| ___ \ / _ \ / _ \
| |_/ /|  __/|  __/
\____/  \___| \___| v1.8.4
2018/04/03 16:05:23 INFO     ▶ 0001 Creating application...
        create   /Users/ArpitAggarwal/src/my-first-beego-project/
        create   /Users/ArpitAggarwal/src/my-first-beego-project/conf/
        create   /Users/ArpitAggarwal/src/my-first-beego-project/controllers/
        create   /Users/ArpitAggarwal/src/my-first-beego-project/models/
        create   /Users/ArpitAggarwal/src/my-first-beego-project/routers/
        create   /Users/ArpitAggarwal/src/my-first-beego-project/tests/
        create   /Users/ArpitAggarwal/src/my-first-beego-project/static/
        create   /Users/ArpitAggarwal/src/my-first-beego-project/static/js/
        create   /Users/ArpitAggarwal/src/my-first-beego-project/static/css/
        create   /Users/ArpitAggarwal/src/my-first-beego-project/static/img/
        create   /Users/ArpitAggarwal/src/my-first-beego-project/views/
        create   /Users/ArpitAggarwal/src/my-first-beego-project/conf/app.conf
        create   /Users/ArpitAggarwal/src/my-first-beego-project/controllers/default.go
        create   /Users/ArpitAggarwal/src/my-first-beego-project/views/index.tpl
        create   /Users/ArpitAggarwal/src/my-first-beego-project/routers/router.go
        create   /Users/ArpitAggarwal/src/my-first-beego-project/tests/default_test.go
        create   /Users/ArpitAggarwal/src/my-first-beego-project/main.go
2018/04/03 16:05:23 SUCCESS  ▶ 0002 New application successfully created!
```

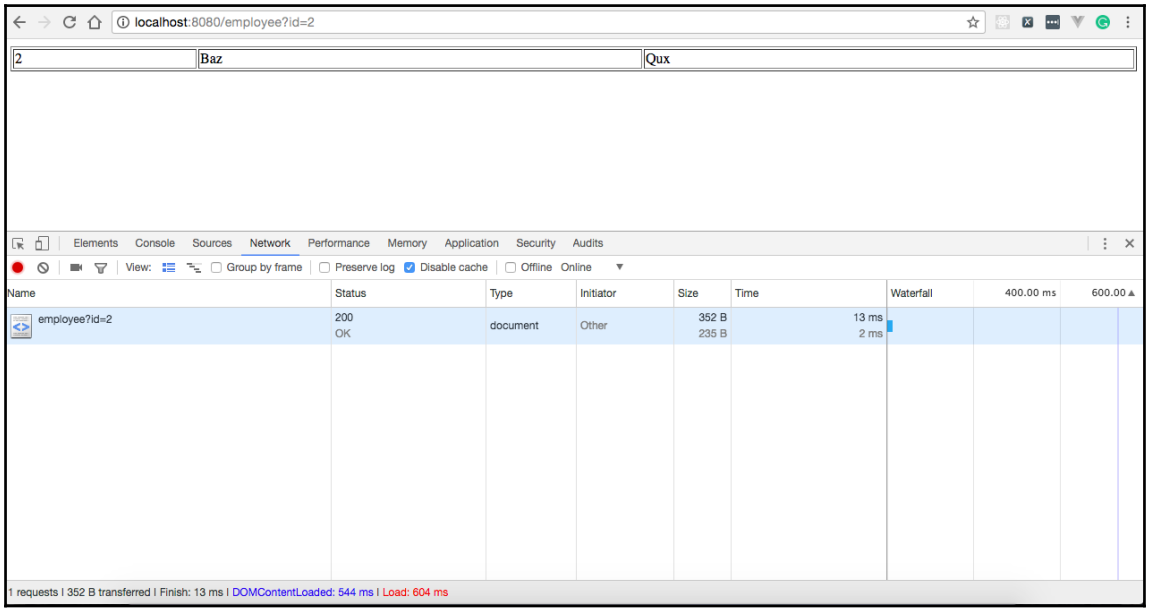
```
➜  my-first-beego-project bee run
______
| ___ \
| |_/ /  ___   ___
| ___ \ / _ \ / _ \
| |_/ /|  __/|  __/
\____/  \___| \___| v1.8.4
2018/04/03 16:11:35 INFO     ▶ 0001 Using 'my-first-beego-project' as 'appname'
2018/04/03 16:11:35 INFO     ▶ 0002 Initializing watcher...
my-first-beego-project/controllers
my-first-beego-project/routers
my-first-beego-project
2018/04/03 16:11:56 SUCCESS  ▶ 0003 Built Successfully!
2018/04/03 16:11:56 INFO     ▶ 0004 Restarting 'my-first-beego-project'...
2018/04/03 16:11:56 SUCCESS  ▶ 0005 './my-first-beego-project' is running...
2018/04/03 16:11:56.778 [I] [asm_amd64.s:2337] http server Running on http://:8080
```

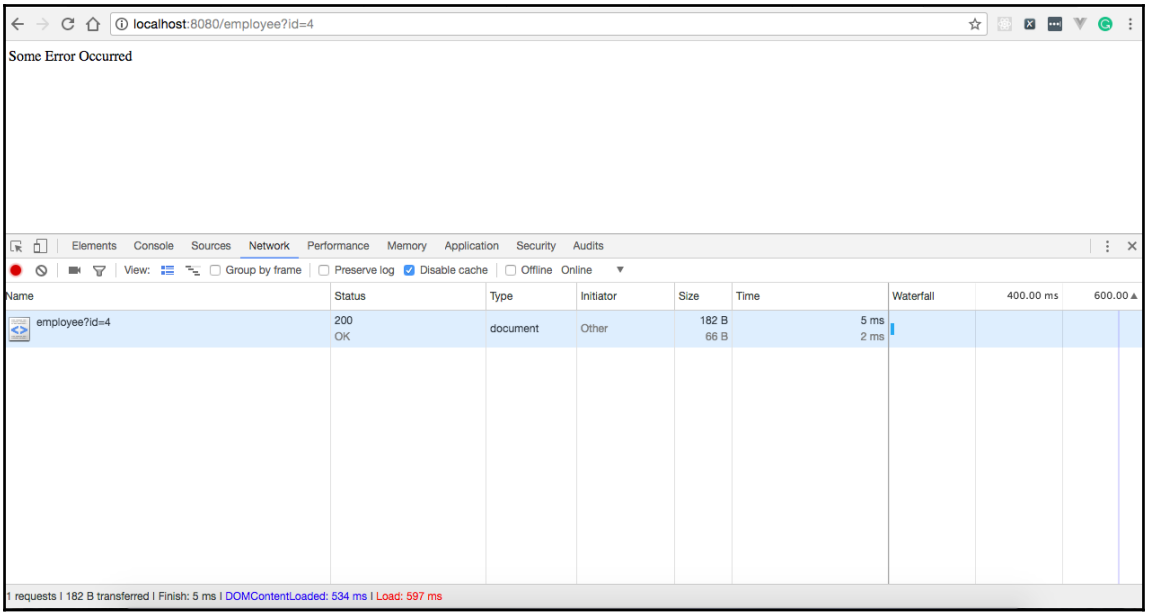


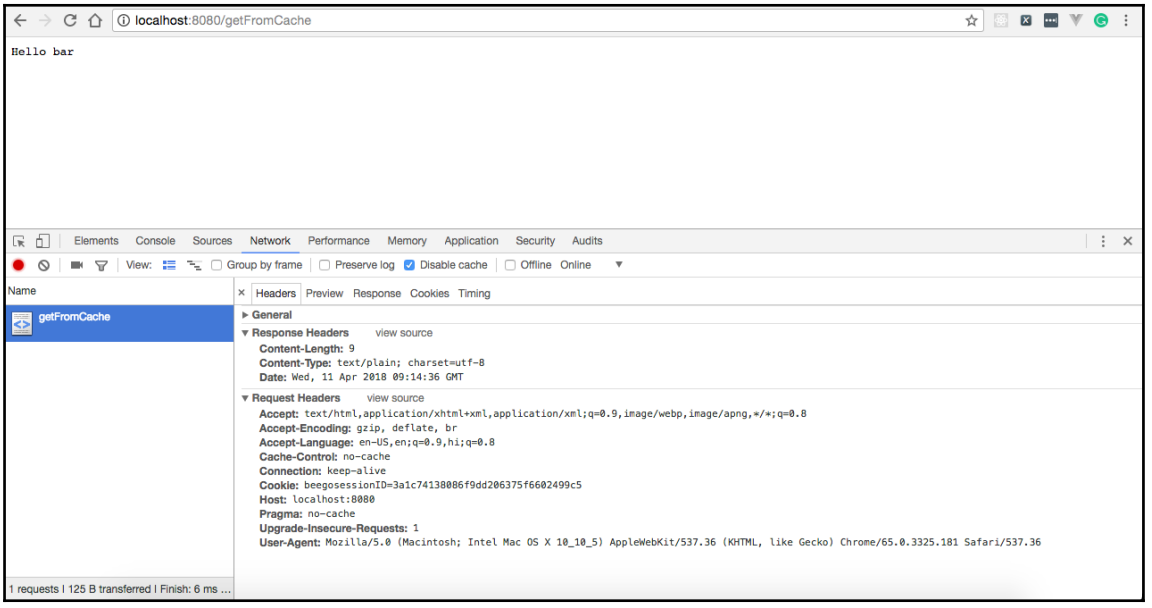


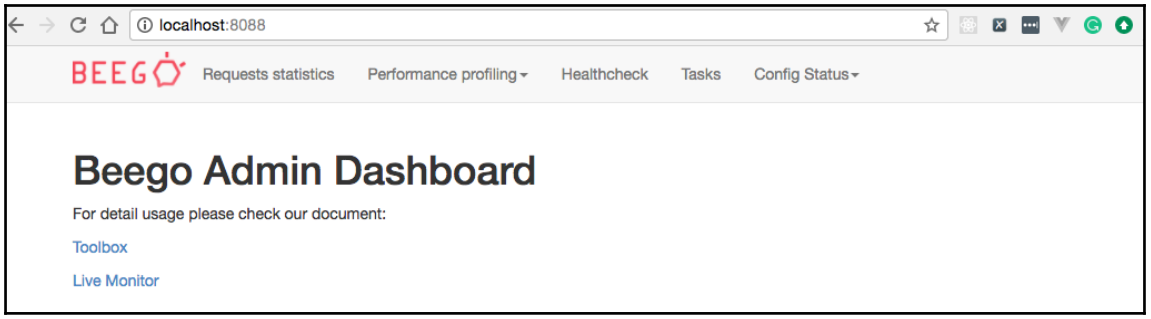

```
➜  ~ curl -X GET -i http://localhost:8080/login
HTTP/1.1 200 OK
Set-Cookie: beegosessionID=6e1c6f60141811f1371d7ea044f1c194; Path=/; HttpOnly
Date: Wed, 11 Apr 2018 08:51:38 GMT
Content-Length: 32
Content-Type: text/plain; charset=utf-8

You have successfully logged in.
```

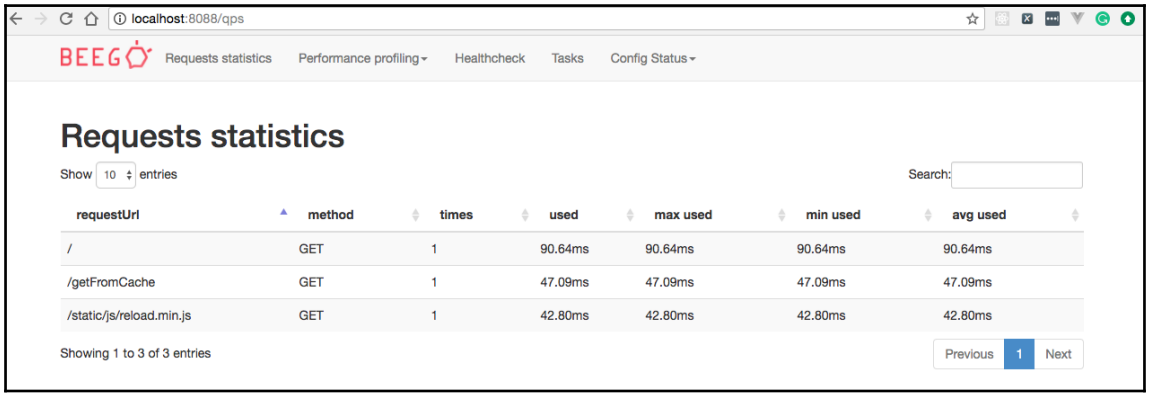

v1.8.4
2018/04/03 16:16:08 INFO ▶ 0001 Using 'my-first-beego-project' as 'appname'
2018/04/03 16:16:08 INFO ▶ 0002 Initializing watcher...
2018/04/03 16:16:09 SUCCESS ▶ 0003 Built Successfully!
2018/04/03 16:16:09 INFO ▶ 0004 Restarting 'my-first-beego-project'...
2018/04/03 16:16:09 SUCCESS ▶ 0005 './my-first-beego-project' is running...
2018/04/03 16:16:09.726 [I] [asm_amd64.s:2337] http server Running on http://:8080
2018/04/03 16:16:09.726 [I] [asm_amd64.s:2337] Admin server Running on localhost:8088
IP :: 127.0.0.1:63890, Time :: Tuesday, 03-Apr-18 16:16:25 IST

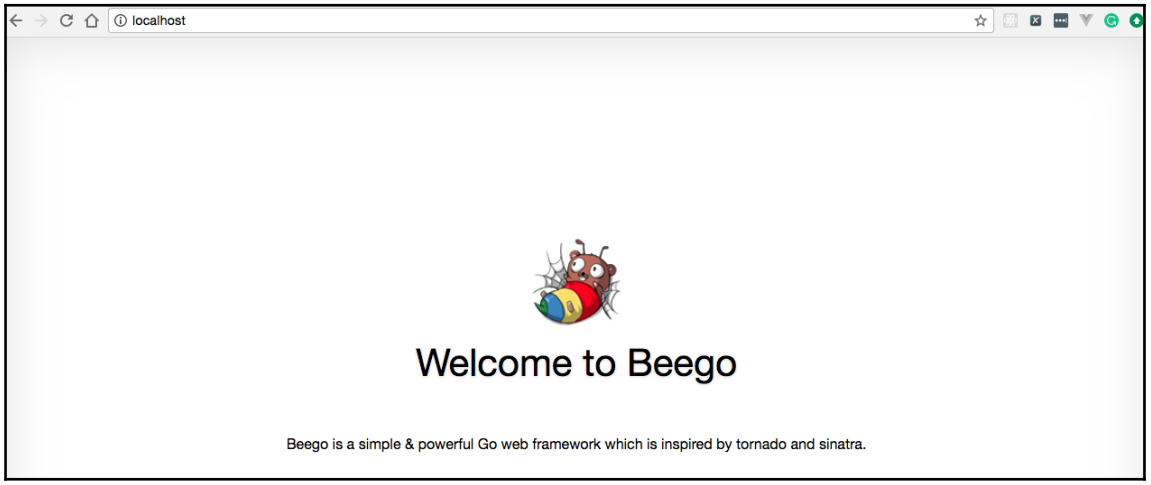

localhost:8080/employee?id=2
2
Baz
Qux
Elements
Console
Sources
Network
Performance
Memory
Application
Security
Audits
Name
Status
Type
Initiator
Size
Time
Waterfall
employee?id=2
200
OK
document
Other
352 B
235 B
13 ms
2 ms
1 requests I 352 B transferred I Finish: 13 ms I DOMContentLoaded: 544 ms I Load: 604 ms

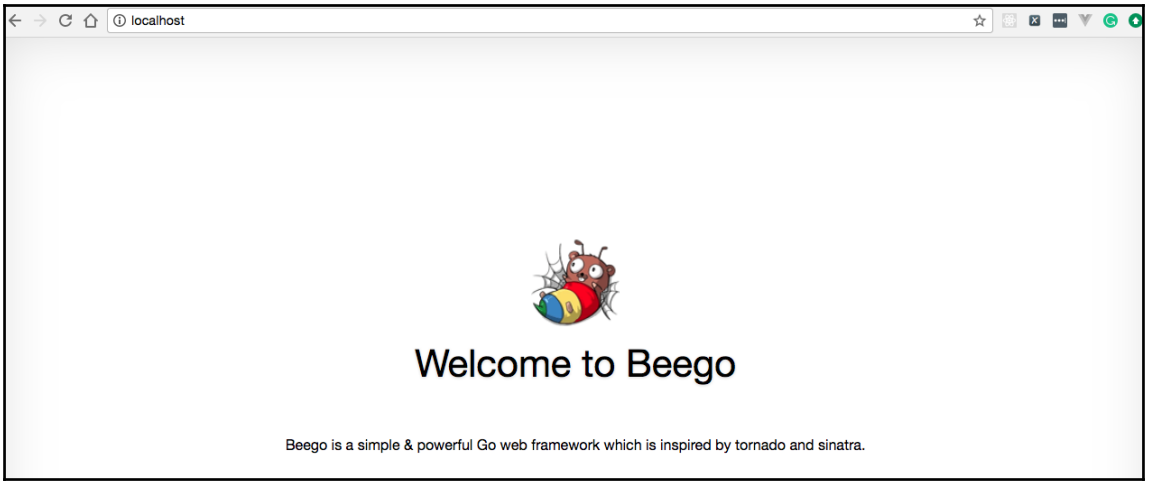

localhost:8080/employee?id=4
Some Error Occurred
Elements Console Sources Network Performance Memory Application Security Audits
View: Group by frame Preserve log Disable cache Offline Online
Name Status Type Initiator Size Time Waterfall 400.00 ms 600.00
employee?id=4 200 OK document Other 182 B 66 B 5 ms 2 ms
1 requests | 182 B transferred | Finish: 5 ms | DOMContentLoaded: 534 ms | Load: 597 ms


localhost:8080/getFromCache
Hello bar
Elements Console Sources Network Performance Memory Application Security Audits
View: Group by frame Preserve log Disable cache Offline Online
Name
getFromCache
Headers Preview Response Cookies Timing
General
Response Headers view source
Content-Length: 9
Content-Type: text/plain; charset=utf-8
Date: Wed, 11 Apr 2018 09:14:36 GMT
Request Headers view source
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-US,en;q=0.9,hi;q=0.8
Cache-Control: no-cache
Connection: keep-alive
Cookie: beegosessionID=3a1c74138086f9dd206375f6602499c5
Host: localhost:8080
Pragma: no-cache
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10_10_5) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/65.0.3325.181 Safari/537.36
1 requests | 125 B transferred | Finish: 6 ms ...

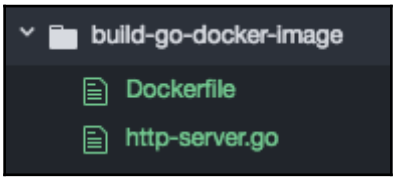

localhost:8088
BEEGO
Requests statistics
Performance profiling
Healthcheck
Tasks
Config Status
Beego Admin Dashboard
For detail usage please check our document:
Toolbox
Live Monitor


localhost:8088/qps
BEEGO
Requests statistics
Performance profiling
Healthcheck
Tasks
Config Status
Requests statistics
Show 10 entries
Search:
requestUrl
method
times
used
max used
min used
avg used
/ GET 1 90.64ms 90.64ms 90.64ms 90.64ms
/getFromCache GET 1 47.09ms 47.09ms 47.09ms 47.09ms
/static/js/reload.min.js GET 1 42.80ms 42.80ms 42.80ms 42.80ms
Showing 1 to 3 of 3 entries
Previous
1
Next


localhost
Welcome to Beego
Beego is a simple & powerful Go web framework which is inspired by tornado and sinatra.


localhost
Welcome to Beego
Beego is a simple & powerful Go web framework which is inspired by tornado and sinatra.

Chapter 9: Working with Go and Docker

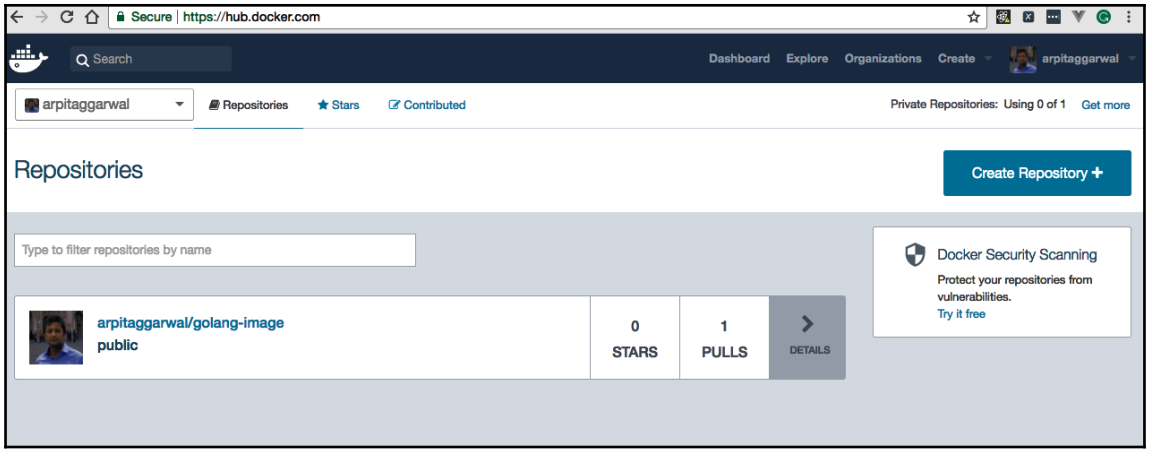


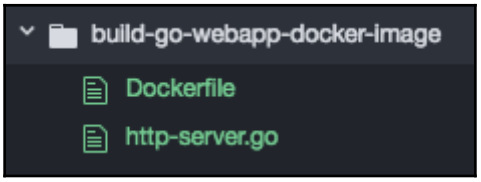

```
Sending build context to Docker daemon 3.072 kB
Step 1/9 : FROM golang:1.9.2
 ---> 1a34fad76b34
Step 2/9 : ENV SRC_DIR=/go/src/github.com/arpitaggarwal/
 ---> Running in 5c9f11938ed6
 ---> f836db6f231f
Step 3/9 : ENV GOBIN=/go/bin
 ---> Running in 496961141a2c
 ---> faa3a29eb48f
Step 4/9 : WORKDIR $GOBIN
 ---> 816c09ec84ce
Step 5/9 : ADD . $SRC_DIR
 ---> 9634ae0cf48e
Step 6/9 : RUN cd /go/src/;
 ---> Running in 51b204150e3c
 ---> 8c5653df7b73
Step 7/9 : RUN go install github.com/arpitaggarwal/;
 ---> Running in 82b94378ae7c
 ---> 5342329603b2
Step 8/9 : ENTRYPOINT ["./arpitaggarwal"]
 ---> Running in fadbf159c613
 ---> 3b56a627e2f8
Step 9/9 : EXPOSE 8080
 ---> Running in 95abb9d08245
 ---> bd2a74aec5e9
Removing intermediate container 82b94378ae7c
Removing intermediate container fadbf159c613
Removing intermediate container 95abb9d08245
Removing intermediate container 5c9f11938ed6
Removing intermediate container 496961141a2c
Removing intermediate container 260a8fe27095
Removing intermediate container 51b204150e3c
Successfully built bd2a74aec5e9
Successfully tagged golang-image:latest
```

```
REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE
golang-image        latest              bd2a74aec5e9        8 minutes ago       739.4 MB
golang              1.9.2               1a34fad76b34        5 months ago        733.3 MB
golang              <none>              1a34fad76b34        5 months ago        733.3 MB
```

```
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS                    NAMES
f632ef0ee754        golang-image        "./arpitaggarwal"   7 seconds ago       Up 6 seconds        0.0.0.0:8080->8080/tcp   golang-container
```

```
➜  build-go-docker-image git:(master) ✗ docker images
REPOSITORY                      TAG                 IMAGE ID            CREATED             SIZE
arpitaggarwal/golang-image      latest              8e38322fb8e3        About an hour ago   739MB
golang-image                    latest              8e38322fb8e3        About an hour ago   739MB
golang                          1.9.2               138bd936fa29        3 months ago        733MB
```

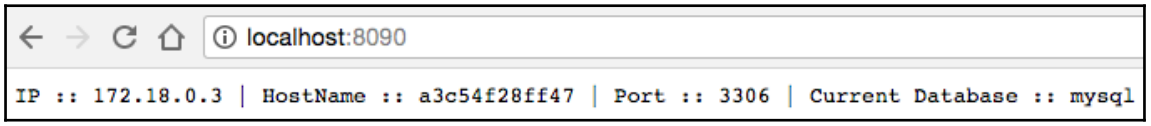




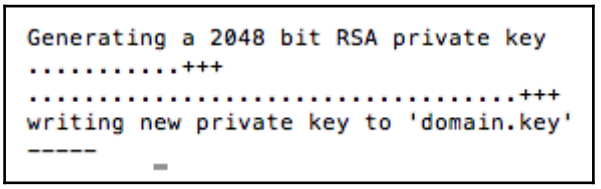
```
Sending build context to Docker daemon 4.096 kB
Step 1/11 : FROM golang:1.9.2
 ---> 1a34fad76b34
Step 2/11 : ENV SRC_DIR=/go/src/github.com/arpitaggarwal/
 ---> Running in 6187b07590f1
 ---> 209f2d60e094
Step 3/11 : ENV GOBIN=/go/bin
 ---> Running in c9ef7e31b8a8
 ---> 15c8db245ffa
Step 4/11 : WORKDIR $GOBIN
 ---> 7e2f82fa1ff8
Step 5/11 : ADD . $SRC_DIR
 ---> 5d186d741391
Step 6/11 : RUN cd /go/src/;
 ---> Running in 598aa85da523
 ---> b54a398b5423
Step 7/11 : RUN go get github.com/go-sql-driver/mysql;
 ---> Running in d8164949ff3a
 ---> 133f3ced8881
Step 8/11 : RUN go get github.com/gorilla/mux;
 ---> Running in caa0e603a0ec
 ---> a3a1dcf87e8c
Step 9/11 : RUN go install github.com/arpitaggarwal/;
 ---> Running in 6d29d56eeebc
 ---> c455f356e132
Step 10/11 : ENTRYPOINT ["./arpitaggarwal"]
 ---> Running in 279c1f75e9ef
 ---> af9e0a261fe7
Step 11/11 : EXPOSE 8080
 ---> Running in ea61d0b01cba
 ---> 7f36e951babd
Removing intermediate container c9ef7e31b8a8
Removing intermediate container 1ee190aea442
Removing intermediate container 279c1f75e9ef
Removing intermediate container ea61d0b01cba
Removing intermediate container 6187b07590f1
Removing intermediate container 598aa85da523
Removing intermediate container d8164949ff3a
Removing intermediate container caa0e603a0ec
Removing intermediate container 6d29d56eeebc
Successfully built 7f36e951babd
Successfully tagged web-application-image:latest
```

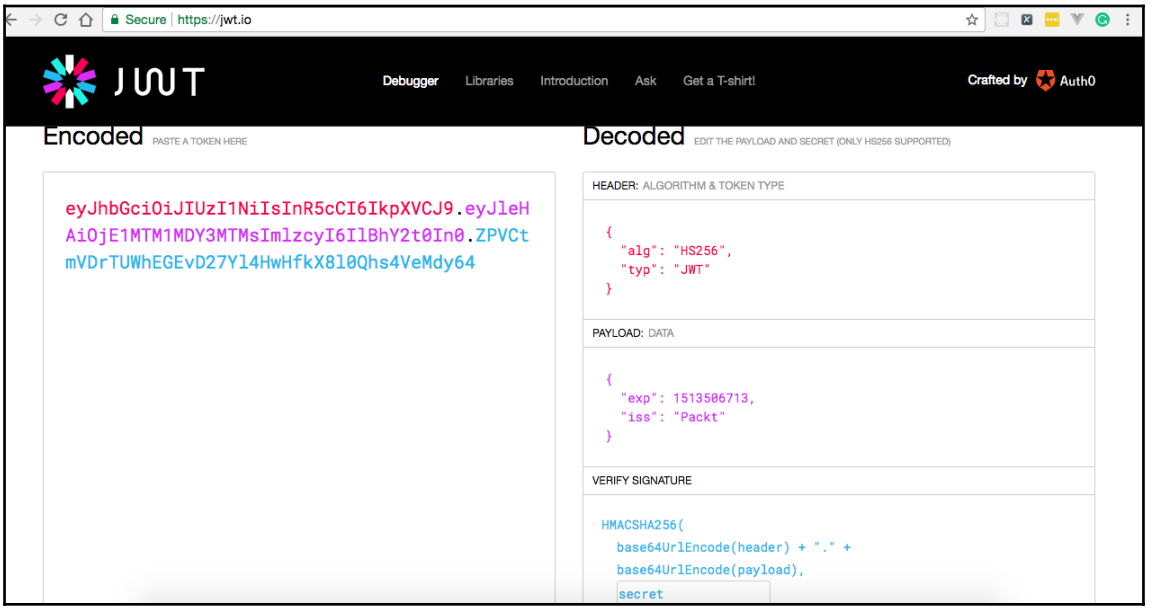
```
REPOSITORY              TAG                 IMAGE ID            CREATED             SIZE
web-application-image   latest              7f36e951babd        2 minutes ago       742.8 MB
golang-image            latest              bd2a74aec5e9        16 minutes ago      739.4 MB
golang                  1.9.2               1a34fad76b34        5 months ago        733.3 MB
golang                  <none>              1a34fad76b34        5 months ago        733.3 MB
```

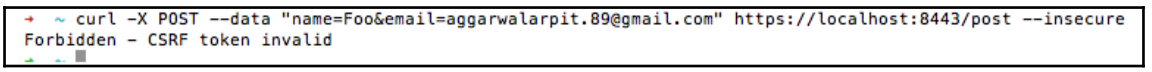
```
➜  build-go-webapp-docker-image git:(master) ✗ docker ps
CONTAINER ID        IMAGE                   COMMAND                  CREATED             STATUS              PORTS                    NAMES
0b8be2be1987        web-application-image   "./arpitaggarwal"        8 seconds ago       Up 21 seconds       0.0.0.0:8090->8080/tcp   web-application-container
a3c54f28ff47        mysql:latest            "docker-entrypoint.s…"   19 minutes ago      Up 19 minutes       0.0.0.0:3306->3306/tcp   mysql-container
d418ab1623c0        golang-image            "./arpitaggarwal"        About an hour ago   Up About an hour    0.0.0.0:8080->8080/tcp   golang-container
```



Chapter 10: Securing a Go Web Application

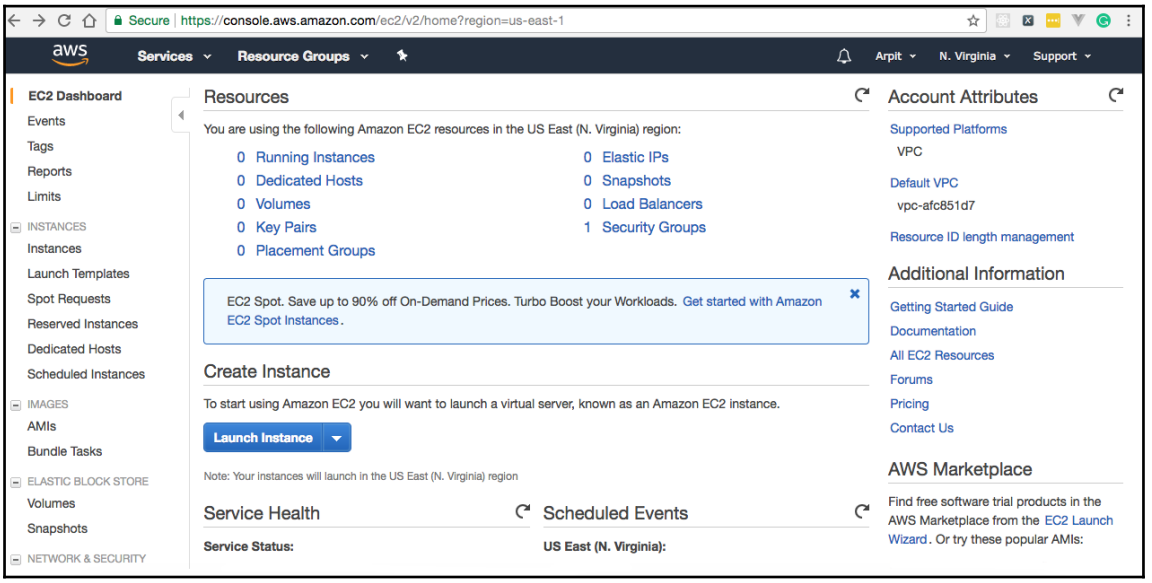


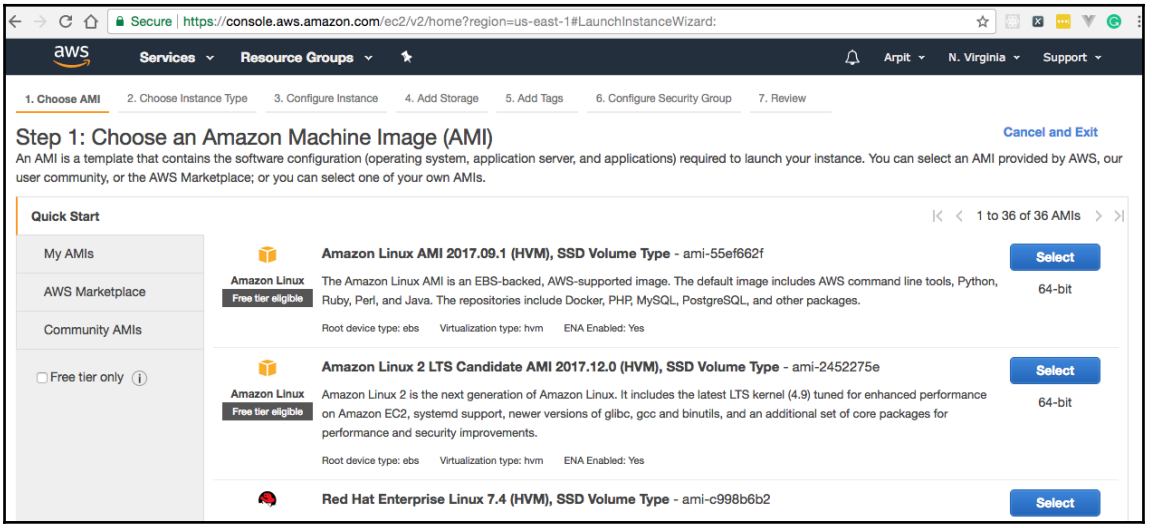


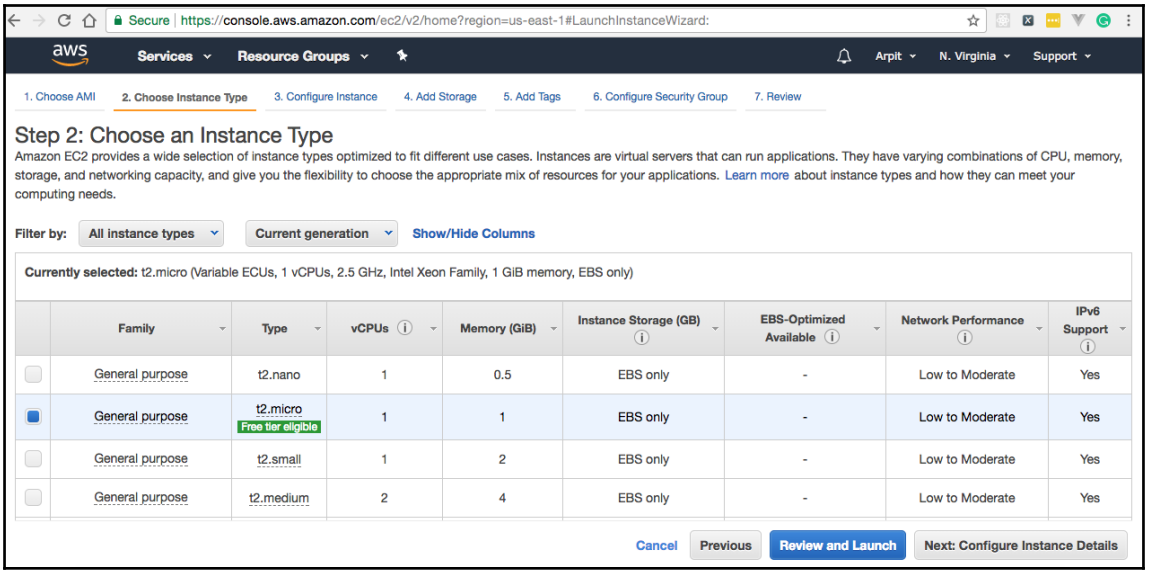


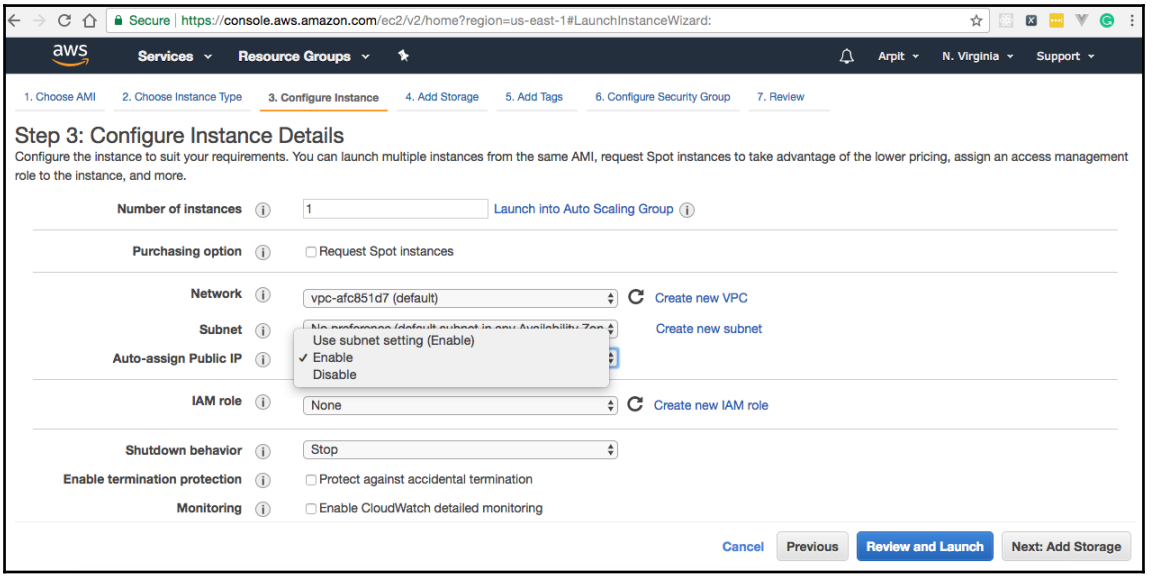
```
→  ~ curl -i -X GET https://localhost:8443/signup --insecure
HTTP/1.1 200 OK
Set-Cookie: _gorilla_csrf=MTUyMzQzMjg0OXxJa1ZLVTFsbGJHODFMMHg0VEdWc0wxZENVRVpCWVZGU1l6bHVMMVZKVEVGM01EVjBUakVyUlVoTFdsVTlJZ289fJI5dumuyObaHVp97GN_CiZBCCpnbO0wlIwgSgvHL7-C; HttpOnly;
 Secure
Vary: Cookie
Date: Wed, 11 Apr 2018 07:47:29 GMT
Content-Length: 404
Content-Type: text/html; charset=utf-8

<html>
 <head>
 <title>Sign Up!</title>
 </head>
 <body>
  <form method="POST" action="/post" accept-charset="UTF-8">
  <input type="text" name="name">
  <input type="text" name="email">
   <input type="hidden" name="gorilla.csrf.Token" value="M9gqV7rRcXERvSJVRSYprcMzwtFmjEHKXRm6C8cDC4EjTLIt4OiNzVrHfYNB12nEx280rrKs8fqOgvfcJgQiFA==">
  <input type="submit" value="Sign up!">
  </form>
  </body>
</html>
```

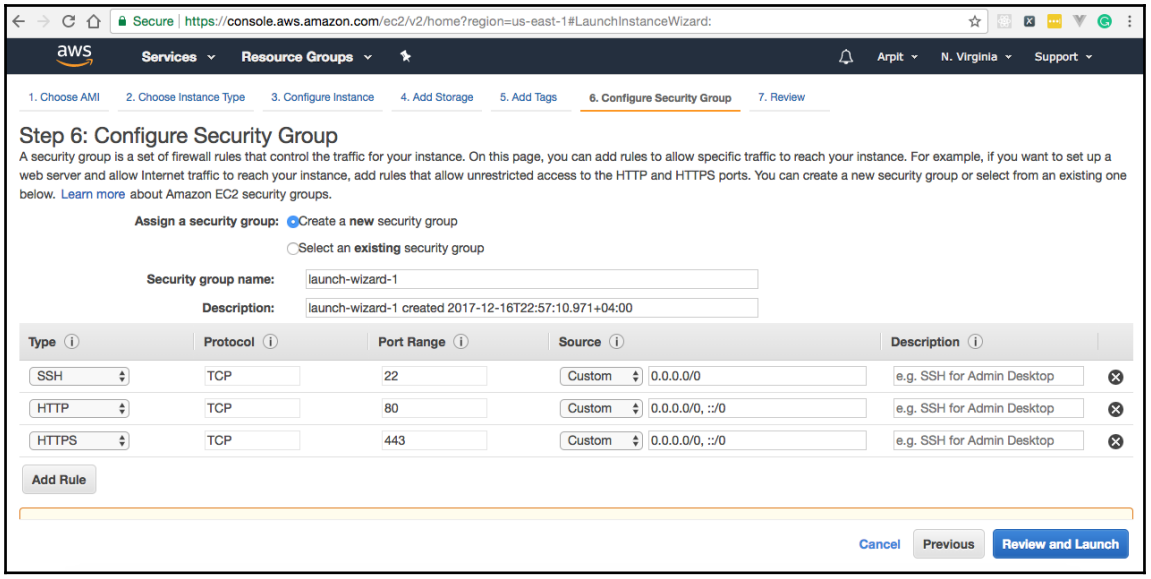
Chapter 11: Deploying a Go Web App and Docker Containers to AWS

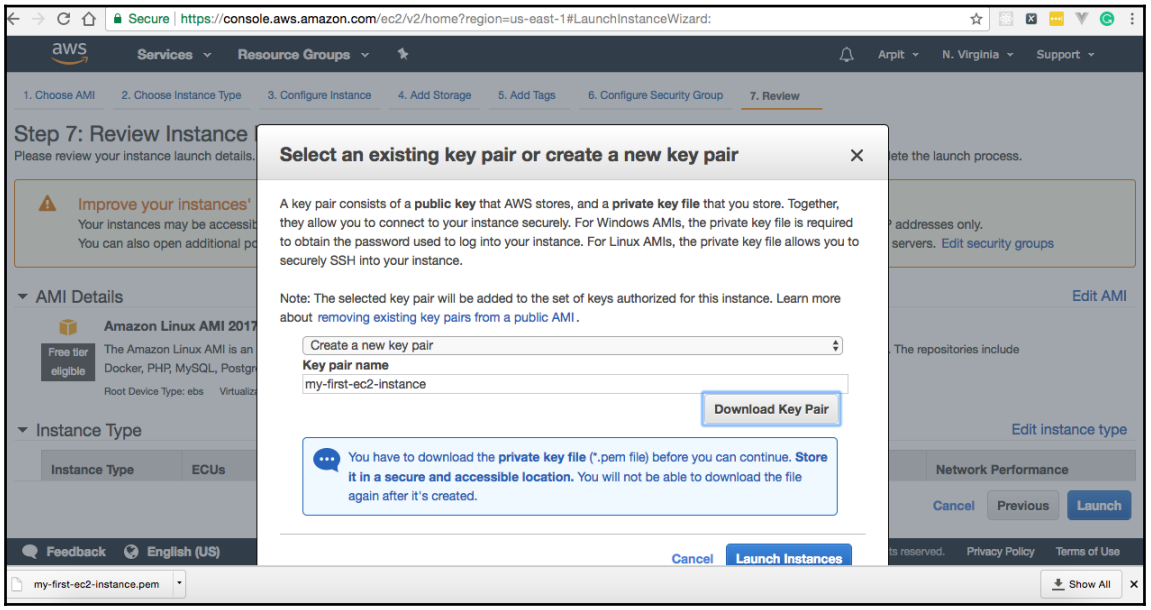


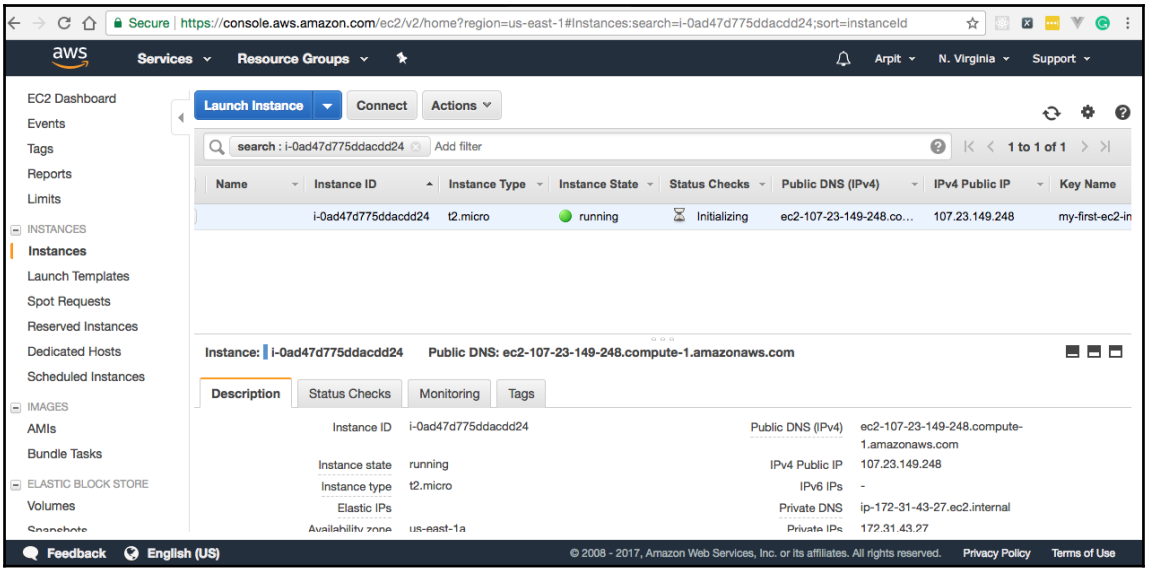



Secure | https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard:
aws
Services
Resource Groups
Arpit
N. Virginia
Support
1. Choose AMI
2. Choose Instance Type
3. Configure Instance
4. Add Storage
5. Add Tags
6. Configure Security Group
7. Review
Step 2: Choose an Instance Type
Amazon EC2 provides a wide selection of instance types optimized to fit different use cases. Instances are virtual servers that can run applications. They have varying combinations of CPU, memory, storage, and networking capacity, and give you the flexibility to choose the appropriate mix of resources for your applications. Learn more about instance types and how they can meet your computing needs.
Filter by:
All instance types
Current generation
Show/Hide Columns
Currently selected: t2.micro (Variable ECUs, 1 vCPUs, 2.5 GHz, Intel Xeon Family, 1 GiB memory, EBS only)
Family
Type
vCPUs
Memory (GiB)
Instance Storage (GB)
EBS-Optimized Available
Network Performance
IPv6 Support
General purpose
t2.nano
1
0.5
EBS only
-
Low to Moderate
Yes
General purpose
t2.micro
Free tier eligible
1
1
EBS only
-
Low to Moderate
Yes
General purpose
t2.small
1
2
EBS only
-
Low to Moderate
Yes
General purpose
t2.medium
2
4
EBS only
-
Low to Moderate
Yes
Cancel
Previous
Review and Launch
Next: Configure Instance Details

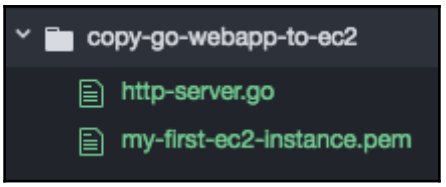

Secure | https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard:
aws
Services
Resource Groups
Arpit
N. Virginia
Support
1. Choose AMI
2. Choose Instance Type
3. Configure Instance
4. Add Storage
5. Add Tags
6. Configure Security Group
7. Review
Step 3: Configure Instance Details
Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot instances to take advantage of the lower pricing, assign an access management role to the instance, and more.
Number of instances
1
Launch into Auto Scaling Group
Purchasing option
Request Spot instances
Network
vpc-afc851d7 (default)
Create new VPC
Subnet
Create new subnet
Auto-assign Public IP
Use subnet setting (Enable)
Enable
Disable
IAM role
None
Create new IAM role
Shutdown behavior
Stop
Enable termination protection
Protect against accidental termination
Monitoring
Enable CloudWatch detailed monitoring
Cancel
Previous
Review and Launch
Next: Add Storage


Secure | https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard:
aws
Services
Resource Groups
Arpit
N. Virginia
Support
1. Choose AMI
2. Choose Instance Type
3. Configure Instance
4. Add Storage
5. Add Tags
6. Configure Security Group
7. Review
Step 6: Configure Security Group
A security group is a set of firewall rules that control the traffic for your instance. On this page, you can add rules to allow specific traffic to reach your instance. For example, if you want to set up a web server and allow Internet traffic to reach your instance, add rules that allow unrestricted access to the HTTP and HTTPS ports. You can create a new security group or select from an existing one below. Learn more about Amazon EC2 security groups.
Assign a security group: Create a new security group
Select an existing security group
Security group name: launch-wizard-1
Description: launch-wizard-1 created 2017-12-16T22:57:10.971+04:00
Type
Protocol
Port Range
Source
Description
SSH
TCP
22
Custom
0.0.0.0/0
e.g. SSH for Admin Desktop
HTTP
TCP
80
Custom
0.0.0.0/0, ::/0
e.g. SSH for Admin Desktop
HTTPS
TCP
443
Custom
0.0.0.0/0, ::/0
e.g. SSH for Admin Desktop
Add Rule
Cancel
Previous
Review and Launch


Secure | https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard:
aws
Services
Resource Groups
Arpit
N. Virginia
Support
1. Choose AMI
2. Choose Instance Type
3. Configure Instance
4. Add Storage
5. Add Tags
6. Configure Security Group
7. Review
Step 7: Review Instance
Please review your instance launch details.
Improve your instances'
Your instances may be accessib
You can also open additional pc
AMI Details
Amazon Linux AMI 2017
Free tier eligible
The Amazon Linux AMI is an
Docker, PHP, MySQL, Postgr
Root Device Type: ebs
Instance Type
Instance Type
ECUs
Network Performance
Edit AMI
Edit instance type
Cancel
Previous
Launch
Feedback
English (US)
Privacy Policy
Terms of Use
Select an existing key pair or create a new key pair
A key pair consists of a public key that AWS stores, and a private key file that you store. Together, they allow you to connect to your instance securely. For Windows AMIs, the private key file is required to obtain the password used to log into your instance. For Linux AMIs, the private key file allows you to securely SSH into your instance.
Note: The selected key pair will be added to the set of keys authorized for this instance. Learn more about removing existing key pairs from a public AMI.
Create a new key pair
Key pair name
my-first-ec2-instance
Download Key Pair
You have to download the private key file (*.pem file) before you can continue. Store it in a secure and accessible location. You will not be able to download the file again after it's created.
Cancel
Launch Instances
my-first-ec2-instance.pem
Show All




```
The authenticity of host 'ec2-54-196-74-162.compute-1.amazonaws.com (54.196.74.162)' can't be established.
RSA key fingerprint is 5e:88:cf:86:7c:38:d9:f5:a2:9d:f6:20:f4:e5:7c:2a.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'ec2-54-196-74-162.compute-1.amazonaws.com,54.196.74.162' (RSA) to the list of known hosts.

       __|  __|_  )
       _|  (     /   Amazon Linux AMI
      ___|\___|___|

https://aws.amazon.com/amazon-linux-ami/2017.09-release-notes/
2 package(s) needed for security, out of 5 available
Run "sudo yum update" to apply all updates.
-bash: warning: setlocale: LC_CTYPE: cannot change locale (UTF-8): No such file or directory
[ec2-user@ip-172-31-34-99 ~]$
```



```
Last login: Wed Apr 11 06:12:24 2018 from 106.215.83.65

       __|  __|_  )
       _|  (     /   Amazon Linux AMI
      ___|\___|___|

https://aws.amazon.com/amazon-linux-ami/2017.09-release-notes/
9 package(s) needed for security, out of 15 available
Run "sudo yum update" to apply all updates.
-bash: warning: setlocale: LC_CTYPE: cannot change locale (UTF-8): No such file or directory
[ec2-user@ip-172-31-34-99 ~]$
```

```
[ec2-user@ip-172-31-34-99 ~]$ docker pull arpitaggarwal/golang-image
Using default tag: latest
latest: Pulling from arpitaggarwal/golang-image
3e17c6eae66c: Pull complete
fdfb54153de7: Pull complete
a4ca6e73242a: Pull complete
93bd198d0a5f: Pull complete
2a43f474a764: Pull complete
e19893b2f35c: Pull complete
3b8a1a0cc426: Pull complete
85a9bedd68ab: Pull complete
7d686bba9845: Pull complete
2bb693dde155: Pull complete
Digest: sha256:c9e43c556581f4a1a741847d95af9aacd5a4e99f5fd68708f3e26cf88bac22a9
Status: Downloaded newer image for arpitaggarwal/golang-image:latest
[ec2-user@ip-172-31-34-99 ~]$
```

```
[ec2-user@ip-172-31-34-99 ~]$ docker images
REPOSITORY                    TAG                 IMAGE ID            CREATED             SIZE
arpitaggarwal/golang-image    latest              0bc234df2d2a        4 months ago        739MB
[ec2-user@ip-172-31-34-99 ~]$
```

```
[ec2-user@ip-172-31-34-99 ~]$ docker ps
CONTAINER ID        IMAGE                         COMMAND             CREATED             STATUS              PORTS                   NAMES
273b489403e8        arpitaggarwal/golang-image    "./arpitaggarwal"   9 seconds ago       Up 9 seconds        0.0.0.0:80->8080/tcp    golang-container
[ec2-user@ip-172-31-34-99 ~]$
```