Assignment Log Screenshot

1. Created instance up and running

Instances (1) Info   Connect   Instance state ▼   Actions ▼

|	Name 🖉	▽	Instance ID	Instance state ▽	Instance type ▽	Status check	Alarm status	Availability Zone ▽
☐	Go-WebServer-hw1b		i-02e3177c4d00709fb	⊘ Running ⊕ ⊖	t2.micro	–	View alarms +	us-west-2b

2. Modification required in the main.go file to run router in '0.0.0.0:8080'
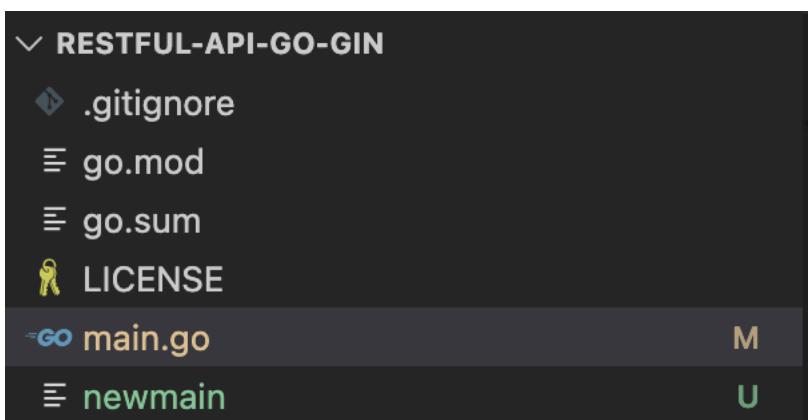
```go
func main() {
    router := gin.Default()
    router.GET("/albums", getAlbums)
    router.GET("/albums/:id", getAlbumByID)
    router.POST("/albums", postAlbums)

    router.Run("0.0.0.0:8080")
}
```

3. Creation of Binary executable

```
● vinaldsouza@Vinals-MacBook-Air RESTful-api-Go-Gin % GOOS=linux GOARCH=amd64 go build -o newmain main.go
```

4. Newmain executable file created as in the screenshot below

```
∨ RESTFUL-API-GO-GIN
  ◆ .gitignore
  ≡ go.mod
  ≡ go.sum
  🔑 LICENSE
  GO main.go                    M
  ≡ newmain                     U
```

5. Ssh into EC2 machine

```
○ vinaldsouza@Vinals-MacBook-Air RESTful-api-Go-Gin % ssh -i /Users/vinaldsouza/Desktop/Scalable-Systems/ec2-go-hw1b.pem ec2-user@16.147.205.117
The authenticity of host '16.147.205.117 (16.147.205.117)' can't be established.
ED25519 key fingerprint is SHA256:erjMlBhCufV6Kmr+SqqhQYwAOwuiEdaeOawHUjAyoG0.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '16.147.205.117' (ED25519) to the list of known hosts.
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
@         WARNING: UNPROTECTED PRIVATE KEY FILE!         @
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
Permissions 0644 for '/Users/vinaldsouza/Desktop/Scalable-Systems/ec2-go-hw1b.pem' are too open.
It is required that your private key files are NOT accessible by others.
This private key will be ignored.
Load key "/Users/vinaldsouza/Desktop/Scalable-Systems/ec2-go-hw1b.pem": bad permissions
ec2-user@16.147.205.117: Permission denied (publickey,gssapi-keyex,gssapi-with-mic).
```

Note: The SSH failed since the file had more permission than it needed.

```
[vinaldsouza@Vinals-MacBook-Air Scalable-Systems % ls -lrt
total 8
drwxr-xr-x@  5 vinaldsouza  staff   160  7 Jan 13:33 GettingStarted
-rw-r--r--@  1 vinaldsouza  staff  1678 18 Jan 14:58 ec2-go-hw1b.pem
drwxr-xr-x@ 11 vinaldsouza  staff   352 18 Jan 15:11 RESTful-api-Go-Gin
[vinaldsouza@Vinals-MacBook-Air Scalable-Systems %
[vinaldsouza@Vinals-MacBook-Air Scalable-Systems %
[vinaldsouza@Vinals-MacBook-Air Scalable-Systems % chmod -R 777 ec2-go-hw1b.pem
[vinaldsouza@Vinals-MacBook-Air Scalable-Systems %
[vinaldsouza@Vinals-MacBook-Air Scalable-Systems %
[vinaldsouza@Vinals-MacBook-Air Scalable-Systems % ls -lrt
total 8
drwxr-xr-x@  5 vinaldsouza  staff   160  7 Jan 13:33 GettingStarted
-rwxrwxrwx@  1 vinaldsouza  staff  1678 18 Jan 14:58 ec2-go-hw1b.pem
drwxr-xr-x@ 11 vinaldsouza  staff   352 18 Jan 15:11 RESTful-api-Go-Gin
```

Reduced the permissions

```
vinaldsouza@Vinals-MacBook-Air Scalable-Systems % chmod 400 /Users/vinaldsouza/Desktop/Scalable-Systems/ec2-go-hw1b.pem
[vinaldsouza@Vinals-MacBook-Air Scalable-Systems %
[vinaldsouza@Vinals-MacBook-Air Scalable-Systems % ls -lrt
total 8
drwxr-xr-x@  5 vinaldsouza  staff   160  7 Jan 13:33 GettingStarted
-r--------@  1 vinaldsouza  staff  1678 18 Jan 14:58 ec2-go-hw1b.pem
drwxr-xr-x@ 11 vinaldsouza  staff   352 18 Jan 15:11 RESTful-api-Go-Gin
```

```
○ vinaldsouza@Vinals-MacBook-Air RESTful-api-Go-Gin % ssh -i /Users/vinaldsouza/Desktop/Scalable-Systems/ec2-go-hw1b.pem ec2-user@16.147.205.117
     ,     #_
   ~\_  ####_        Amazon Linux 2023
  ~~  \_#####\
  ~~     \###|
  ~~       \#/ ___   https://aws.amazon.com/linux/amazon-linux-2023
   ~~       V~' '->
    ~~~         /
      ~~._.   _/
         _/ _/
       _/m/'
```

6. Secure copy of the executable file from local to the ec2

```
● vinaldsouza@Vinals-MacBook-Air Scalable-Systems % sudo scp -i /Users/vinaldsouza/Desktop/Scalable-Systems/ec2-go-hw1b.pem /Users/vinaldsouza/Des
ktop/Scalable-Systems/RESTful-api-Go-Gin/newmain ec2-user@16.147.205.117:restful-api-go-gin
Password:
The authenticity of host '16.147.205.117 (16.147.205.117)' can't be established.
ED25519 key fingerprint is SHA256:erjMlBhCufV6Kmr+SqqhQYwAOwuiEdaeOawHUjAyoG0.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '16.147.205.117' (ED25519) to the list of known hosts.
newmain                                                                          100%   27MB   2.7MB/s   00:09
```

7. Running of the executable file in the virtual machine

```
[ec2-user@ip-172-31-36-221 ~]$ ls
restful-api-go-gin
[ec2-user@ip-172-31-36-221 ~]$ cd restful-api-go-gin
[ec2-user@ip-172-31-36-221 restful-api-go-gin]$
[ec2-user@ip-172-31-36-221 restful-api-go-gin]$ ls
newmain
[ec2-user@ip-172-31-36-221 restful-api-go-gin]$ ./newmain
[GIN-debug] [WARNING] Creating an Engine instance with the Logger and Recovery middleware already attached.

[GIN-debug] [WARNING] Running in "debug" mode. Switch to "release" mode in production.
 - using env:   export GIN_MODE=release
 - using code:  gin.SetMode(gin.ReleaseMode)

[GIN-debug] GET    /albums                   --> main.getAlbums (3 handlers)
[GIN-debug] GET    /albums/:id               --> main.getAlbumByID (3 handlers)
[GIN-debug] POST   /albums                   --> main.postAlbums (3 handlers)
[GIN-debug] [WARNING] You trusted all proxies, this is NOT safe. We recommend you to set a value.
Please check https://github.com/gin-gonic/gin/blob/master/docs/doc.md#dont-trust-all-proxies for details.
[GIN-debug] Listening and serving HTTP on 0.0.0.0:8080
[GIN] 2026/01/18 - 23:31:51 | 200 |      80.82µs |   67.188.204.222 | GET       "/albums"
```

8. Testing with curl

```
vinaldsouza@Vinals-MacBook-Air Scalable-Systems % curl -v http://16.147.205.117:8080/albums
*   Trying 16.147.205.117:8080...
* Connected to 16.147.205.117 (16.147.205.117) port 8080
> GET /albums HTTP/1.1
> Host: 16.147.205.117:8080
> User-Agent: curl/8.7.1
> Accept: */*
>
* Request completely sent off
< HTTP/1.1 200 OK
< Content-Type: application/json; charset=utf-8
< Date: Sun, 18 Jan 2026 23:31:51 GMT
< Content-Length: 382
<
[
    {
        "id": "1",
        "title": "Blue Train",
        "artist": "John Coltrane",
        "price": 56.99
    },
    {
        "id": "2",
        "title": "Jeru",
        "artist": "Gerry Mulligan",
        "price": 17.99
    },
    {
        "id": "3",
        "title": "Sarah Vaughan and Clifford Brown",
        "artist": "Sarah Vaughan",
        "price": 39.99
    }
* Connection #0 to host 16.147.205.117 left intact
]
```

9. Load Performance on the ec2

```
vinaldsouza@Vinals-MacBook-Air RESTful-api-Go-Gin % python performanceTest.py
Starting load test for 30 seconds...
Request 1: 150.58ms
Request 2: 86.51ms
Request 3: 84.40ms
Request 4: 84.50ms
Request 5: 83.21ms
Request 6: 79.14ms
Request 7: 76.20ms
Request 8: 89.14ms
Request 9: 87.96ms
Request 10: 77.88ms
Request 11: 77.64ms
Request 12: 93.37ms
Request 13: 77.14ms
Request 14: 86.34ms
Request 15: 75.67ms
Request 16: 82.90ms
Request 17: 81.16ms
Request 18: 84.93ms
Request 19: 83.13ms
Request 20: 85.00ms
Request 21: 90.94ms
Request 22: 89.82ms
Request 23: 76.32ms
Request 24: 75.65ms
Request 25: 83.26ms
Request 26: 79.80ms
Request 27: 84.79ms
Request 28: 76.42ms
Request 29: 91.18ms
```
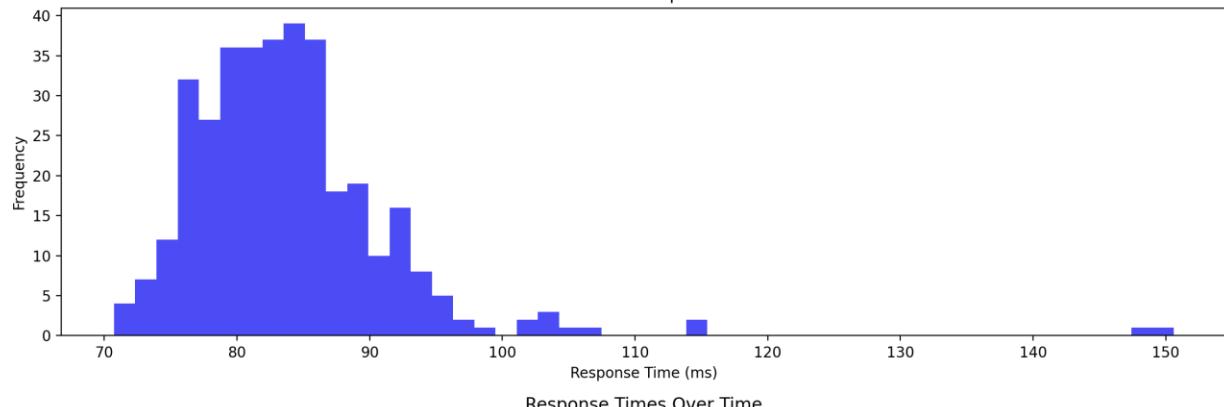
```
Request 357: 86.45ms

Statistics:
Total requests: 357
Average response time: 84.00ms
Median response time: 83.24ms
95th percentile: 94.82ms
99th percentile: 110.18ms
Max response time: 150.58ms
```
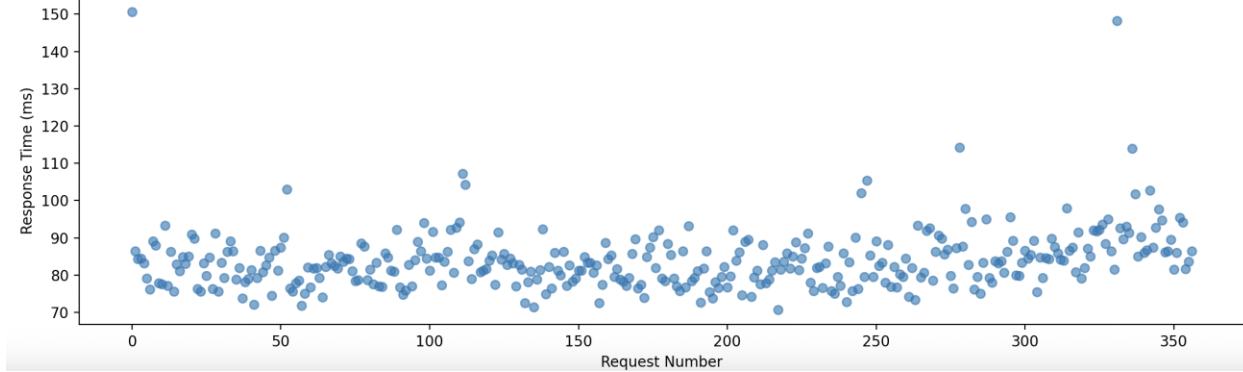
[GIN-debug] [WARNING] You trusted all proxies, this is NOT safe. We recommend you to set a value.
Please check https://github.com/gin-gonic/gin/blob/master/docs/doc.md#dont-trust-all-proxies for details.
[GIN-debug] Listening and serving HTTP on 0.0.0.0:8080
[GIN] 2026/01/18 - 23:31:51 | 200 | 80.82µs | 67.188.204.222 | GET | "/albums"
[GIN] 2026/01/18 - 23:38:09 | 200 | 84.682µs | 67.188.204.222 | GET | "/albums"
[GIN] 2026/01/18 - 23:38:09 | 200 | 28.585µs | 67.188.204.222 | GET | "/albums"
[GIN] 2026/01/18 - 23:38:10 | 200 | 23.918µs | 67.188.204.222 | GET | "/albums"
[GIN] 2026/01/18 - 23:38:10 | 200 | 23.434µs | 67.188.204.222 | GET | "/albums"
[GIN] 2026/01/18 - 23:38:10 | 200 | 23.392µs | 67.188.204.222 | GET | "/albums"
[GIN] 2026/01/18 - 23:38:10 | 200 | 23.172µs | 67.188.204.222 | GET | "/albums"
[GIN] 2026/01/18 - 23:38:10 | 200 | 27.43µs | 67.188.204.222 | GET | "/albums"
[GIN] 2026/01/18 - 23:38:10 | 200 | 22.79µs | 67.188.204.222 | GET | "/albums"
[GIN] 2026/01/18 - 23:38:10 | 200 | 22.653µs | 67.188.204.222 | GET | "/albums"
[GIN] 2026/01/18 - 23:38:10 | 200 | 23.932µs | 67.188.204.222 | GET | "/albums"
[GIN] 2026/01/18 - 23:38:10 | 200 | 26.499µs | 67.188.204.222 | GET | "/albums"
[GIN] 2026/01/18 - 23:38:10 | 200 | 23.925µs | 67.188.204.222 | GET | "/albums"
[GIN] 2026/01/18 - 23:38:10 | 200 | 24.099µs | 67.188.204.222 | GET | "/albums"
[GIN] 2026/01/18 - 23:38:10 | 200 | 59.629µs | 67.188.204.222 | GET | "/albums"
[GIN] 2026/01/18 - 23:38:11 | 200 | 24.238µs | 67.188.204.222 | GET | "/albums"
[GIN] 2026/01/18 - 23:38:11 | 200 | 59.633µs | 67.188.204.222 | GET | "/albums"
[GIN] 2026/01/18 - 23:38:11 | 200 | 53.29µs | 67.188.204.222 | GET | "/albums"
[GIN] 2026/01/18 - 23:38:11 | 200 | 21.786µs | 67.188.204.222 | GET | "/albums"
[GIN] 2026/01/18 - 23:38:11 | 200 | 22.913µs | 67.188.204.222 | GET | "/albums"
[GIN] 2026/01/18 - 23:38:11 | 200 | 46.056µs | 67.188.204.222 | GET | "/albums"
[GIN] 2026/01/18 - 23:38:11 | 200 | 56.982µs | 67.188.204.222 | GET | "/albums"
[GIN] 2026/01/18 - 23:38:11 | 200 | 24.19µs | 67.188.204.222 | GET | "/albums"
[GIN] 2026/01/18 - 23:38:11 | 200 | 22.889µs | 67.188.204.222 | GET | "/albums"
[GIN] 2026/01/18 - 23:38:11 | 200 | 28.543µs | 67.188.204.222 | GET | "/albums"
[GIN] 2026/01/18 - 23:38:11 | 200 | 22.306µs | 67.188.204.222 | GET | "/albums"
[GIN] 2026/01/18 - 23:38:11 | 200 | 22.301µs | 67.188.204.222 | GET | "/albums"

Distribution of Response Times

Response Times Over Time

10. Close the connection

```
[ec2-user@ip-172-31-36-221 restful-api-go-gin]$ exit
logout
Connection to 16.147.205.117 closed.
```