

CPSC 449 Project 2

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Initialization

Initialize Database

Run these 2 commands at the project root directory to initialize the database:

```
./bin/init_auth.sh
```

```
./bin/init_game.sh
```

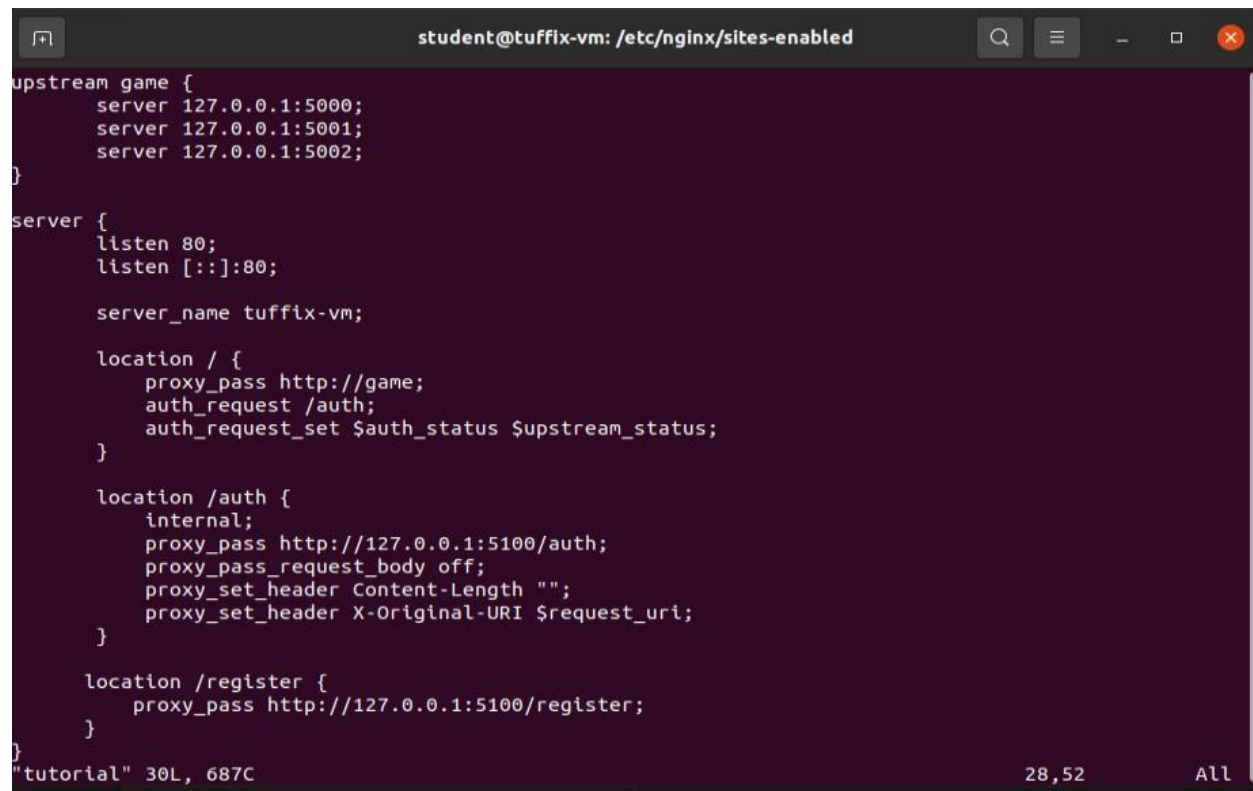
Configure Nginx

The nginx configuration file is in /nginx_config

You can either copy /nginx_config/tutorial from the project root folder to /etc/nginx/sites-enabled

Or

Create a new nginx configuration file with the following settings

A screenshot of a terminal window with a dark background. The title bar at the top reads "student@tuffix-vm: /etc/nginx/sites-enabled". The terminal displays an nginx configuration file. It starts with an "upstream game" block containing three server entries: "server 127.0.0.1:5000;", "server 127.0.0.1:5001;", and "server 127.0.0.1:5002;". This is followed by a "server" block. The "server" block has two "listen" directives: "listen 80;" and "listen [::]:80;". It then sets "server_name tuffix-vm;". There are three "location" blocks. The first "location /" block contains "proxy_pass http://game;", "auth_request /auth;", and "auth_request_set \$auth_status \$upstream_status;". The second "location /auth" block is marked "internal;" and contains "proxy_pass http://127.0.0.1:5100/auth;", "proxy_pass_request_body off;", "proxy_set_header Content-Length \"\";", and "proxy_set_header X-Original-URI \$request_uri;". The third "location /register" block contains "proxy_pass http://127.0.0.1:5100/register;". At the bottom of the terminal, a status bar shows "\"tutorial\" 30L, 687C" on the left, "28,52" in the center, and "All" on the right.

```
upstream game {  
    server 127.0.0.1:5000;  
    server 127.0.0.1:5001;  
    server 127.0.0.1:5002;  
}
```

```
server 127.0.0.1:5002;
}

server {
    listen 80;
    listen [::]:80;

    server_name tuffix-vm;

    location / {
        proxy_pass http://game;
        auth_request /auth;
        auth_request_set $auth_status $upstream_status;
    }

    location /auth {
        internal;
        proxy_pass http://127.0.0.1:5100/auth;
        proxy_pass_request_body off;
        proxy_set_header Content-Length "";
        proxy_set_header X-Original-URI $request_uri;
    }

    location /register {
        proxy_pass http://127.0.0.1:5100/register;
    }
}
```

Start Services

Run this command at the project root directory to start the services:

```
foreman start auth=1,game=3
```

Services

User Microservice

Register

Endpoint	http://tuffix-vm/register
Method	POST
Http Basic Auth	No
Body	No

Game Microservice

Create new game

Endpoint	http://tuffix-vm/game
Method	POST
Http Basic Auth	Yes
Body	No

Make a guess to a game

Endpoint	http://tuffix-vm/game/:gameId
Method	PATCH
Http Basic Auth	Yes
Body	Yes
Example Body	{"word": "apple"}

Get game state

Endpoint	http://tuffix-vm/game/:gameId
Method	GET
Http Basic Auth	Yes
Body	No

Get user's games

Endpoint	http://tuffix-vm/my-games
Method	GET
Http Basic Auth	Yes
Body	No

Examples

init

```
student@tuffix-vm: ~/Desktop/cpsc449/projects/project2
student@tuffix-vm:~/Desktop/cpsc449/projects/project2$ ./bin/init_auth.sh
student@tuffix-vm:~/Desktop/cpsc449/projects/project2$ ./bin/init_game.sh
student@tuffix-vm:~/Desktop/cpsc449/projects/project2$ foreman start auth=1,game=3
19:10:18 game.1 | started with pid 8787
19:10:18 game.2 | started with pid 8788
19:10:18 game.3 | started with pid 8789
19:10:18 auth.1 | started with pid 8790
19:10:20 game.1 | [2022-11-18 19:10:20 -0800] [8797] [INFO] Running on http://127.0.0.1:5000 (CTRL + C to quit)
19:10:20 game.2 | [2022-11-18 19:10:20 -0800] [8801] [INFO] Running on http://127.0.0.1:5001 (CTRL + C to quit)
19:10:20 game.3 | [2022-11-18 19:10:20 -0800] [8799] [INFO] Running on http://127.0.0.1:5002 (CTRL + C to quit)
19:10:20 auth.1 | [2022-11-18 19:10:20 -0800] [8804] [INFO] Running on http://127.0.0.1:5100 (CTRL + C to quit)
```

Register

```
student@tuffix-vm: ~
student@tuffix-vm:~$ http --follow POST http://tuffix-vm/register username=john password=goodpw
HTTP/1.1 200
Connection: keep-alive
Content-Length: 55
Content-Type: application/json
Date: Sat, 19 Nov 2022 03:15:57 GMT
Server: nginx/1.18.0 (Ubuntu)

{
  "message": "Successfully registered!",
  "statusCode": 200
}

student@tuffix-vm:~$
```

Game (fail auth, no auth header)

```
student@tuffix-vm:~$ http --follow POST http://tuffix-vm/game
HTTP/1.1 401 Unauthorized
Connection: keep-alive
Content-Length: 188
Content-Type: text/html
Date: Sat, 19 Nov 2022 03:17:28 GMT
Server: nginx/1.18.0 (Ubuntu)
www-authenticate: Basic realm

<html>
<head><title>401 Authorization Required</title></head>
<body>
<center><h1>401 Authorization Required</h1></center>
<hr><center>nginx/1.18.0 (Ubuntu)</center>
</body>
</html>
```

Game (success auth)

```
student@tuffix-vm:~$ http --follow -a john:goodpw POST http://tuffix-vm/game
HTTP/1.1 201
Connection: keep-alive
Content-Length: 61
Content-Type: application/json
Date: Sat, 19 Nov 2022 03:18:22 GMT
Server: nginx/1.18.0 (Ubuntu)

{
  "gameId": "482f7a86-382d-4372-a013-8893ca816390",
  "guesses": 6
}
```

```
student@tuffix-vm:~$ http --follow -a john:goodpw POST http://tuffix-vm/game
HTTP/1.1 201
Connection: keep-alive
Content-Length: 61
Content-Type: application/json
Date: Sat, 19 Nov 2022 03:18:45 GMT
Server: nginx/1.18.0 (Ubuntu)

{
  "gameId": "8d37cc6d-2121-4ae6-a2d6-d786fc716f20",
  "guesses": 6
}
```

Guess (fail auth, wrong username or password)

```
student@tuffix-vm:~$ http --follow -a rick:goodpw PATCH http://tuffix-vm/game/482f7a86-382d-4372-a013-8893ca816390 word=apple
HTTP/1.1 401 Unauthorized
Connection: keep-alive
Content-Length: 188
Content-Type: text/html
Date: Sat, 19 Nov 2022 03:20:51 GMT
Server: nginx/1.18.0 (Ubuntu)
www-authenticate: Basic realm

<html>
<head><title>401 Authorization Required</title></head>
<body>
<center><h1>401 Authorization Required</h1></center>
<hr><center>nginx/1.18.0 (Ubuntu)</center>
</body>
</html>
```

Guess (success auth, wrong user)

```
student@tuffix-vm:~$ http --follow -a johnny:goodpw PATCH http://tuffix-vm/game/482f7a86-382d-4372-a013-8893ca816390 word=apple
HTTP/1.1 400
Connection: keep-alive
Content-Length: 50
Content-Type: application/json
Date: Sat, 19 Nov 2022 03:21:45 GMT
Server: nginx/1.18.0 (Ubuntu)

{
  "error": "This game does not belong to this user"
}
```


Guess (success auth)

```
student@tuffix-vm:~$ http --follow -a john:goodpw PATCH http://tuffix-vm/game/482f7a86-382d-4372-a013-8893ca816390 word=apple
HTTP/1.1 200
Connection: keep-alive
Content-Length: 292
Content-Type: application/json
Date: Sat, 19 Nov 2022 03:22:14 GMT
Server: nginx/1.18.0 (Ubuntu)

{
  "data": [
    {
      "a": {
        "inSecret": false,
        "wrongSpot": false
      }
    },
    {
      "p": {
        "inSecret": false,
        "wrongSpot": false
      }
    },
    {
      "p": {
        "inSecret": false,
        "wrongSpot": false
      }
    },
    {
      "l": {
        "inSecret": true,
        "wrongSpot": false
      }
    },
    {
      "e": {
        "inSecret": true,
        "wrongSpot": false
      }
    }
  ],
  "guessesLeft": 5,
  "word": {
    "correct": false,
    "input": "apple",
    "valid": true
  }
}
```

Get Game State (success auth)

```
student@tuffix-vm:~$ http --follow -a john:goodpw GET http://tuffix-vm/game/482f7a86-382d-4372-a013-8893ca816390
HTTP/1.1 200
Connection: keep-alive
Content-Length: 275
Content-Type: application/json
Date: Sat, 19 Nov 2022 03:23:19 GMT
Server: nginx/1.18.0 (Ubuntu)

{
  "finished": false,
  "guessesLeft": 5,
  "gussedWords": [
    {
      "apple": [
        {
          "a": {
            "inSecret": false,
            "wrongSpot": false
          }
        },
        {
          "p": {
            "inSecret": false,
            "wrongSpot": false
          }
        },
        {
          "p": {
            "inSecret": false,
            "wrongSpot": false
          }
        },
        {
          "l": {
            "inSecret": true,
            "wrongSpot": false
          }
        },
        {
          "e": {
            "inSecret": true,
            "wrongSpot": false
          }
        }
      ]
    }
  ]
}
```

Get User Games (success auth)

```
student@tuffix-vm:~$ http --follow -a john:goodpw GET http://tuffix-vm/my-games
HTTP/1.1 200
Connection: keep-alive
Content-Length: 167
Content-Type: application/json
Date: Sat, 19 Nov 2022 03:23:59 GMT
Server: nginx/1.18.0 (Ubuntu)

[
  {
    "finished": false,
    "gameId": "482f7a86-382d-4372-a013-8893ca816390",
    "guessesLeft": 5
  },
  {
    "finished": false,
    "gameId": "8d37cc6d-2121-4ae6-a2d6-d786fc716f20",
    "guessesLeft": 6
  }
]
```

Load balancer and API gateway

```
student@tufflx-vm:~/Desktop/cpsc449/projects/project2$ foreman start auth=1,game=3
20:26:27 game.1 | started with pid 10392
20:26:27 game.2 | started with pid 10393
20:26:27 game.3 | started with pid 10394
20:26:27 auth.1 | started with pid 10395
20:26:28 auth.1 | [2022-11-18 20:26:28 -0800] [10403] [INFO] Running on http://127.0.0.1:5100 (CTRL + C to quit)
20:26:28 game.3 | [2022-11-18 20:26:28 -0800] [10406] [INFO] Running on http://127.0.0.1:5002 (CTRL + C to quit)
20:26:28 game.2 | [2022-11-18 20:26:28 -0800] [10404] [INFO] Running on http://127.0.0.1:5001 (CTRL + C to quit)
20:26:28 game.1 | [2022-11-18 20:26:28 -0800] [10408] [INFO] Running on http://127.0.0.1:5000 (CTRL + C to quit)
20:26:50 auth.1 | [2022-11-18 20:26:50 -0800] [10403] [INFO] 127.0.0.1:38456 - - [18/Nov/2022:20:26:50 -0800] "GET /auth 1.0" 200 24 "-"
"HTTPie/3.2.1"
20:26:50 game.3 | [2022-11-18 20:26:50 -0800] [10406] [INFO] 127.0.0.1:35538 - - [18/Nov/2022:20:26:50 -0800] "POST /game 1.0" 201 61 "-"
"HTTPie/3.2.1"
20:27:06 auth.1 | [2022-11-18 20:27:06 -0800] [10403] [INFO] 127.0.0.1:54478 - - [18/Nov/2022:20:27:06 -0800] "GET /auth 1.0" 200 24 "-"
"HTTPie/3.2.1"
20:27:06 game.1 | [2022-11-18 20:27:06 -0800] [10408] [INFO] 127.0.0.1:43470 - - [18/Nov/2022:20:27:06 -0800] "PATCH /game/482f7a86-382d-
4372-a013-8893ca816390 1.0" 200 292 "-" "HTTPie/3.2.1"
20:27:11 auth.1 | [2022-11-18 20:27:11 -0800] [10403] [INFO] 127.0.0.1:46708 - - [18/Nov/2022:20:27:11 -0800] "GET /auth 1.0" 200 24 "-"
"HTTPie/3.2.1"
20:27:11 game.2 | [2022-11-18 20:27:11 -0800] [10404] [INFO] 127.0.0.1:47248 - - [18/Nov/2022:20:27:11 -0800] "PATCH /game/482f7a86-382d-
4372-a013-8893ca816390 1.0" 200 292 "-" "HTTPie/3.2.1"
20:27:23 auth.1 | [2022-11-18 20:27:23 -0800] [10403] [INFO] 127.0.0.1:46830 - - [18/Nov/2022:20:27:23 -0800] "GET /auth 1.0" 200 24 "-"
"HTTPie/3.2.1"
20:27:23 game.3 | [2022-11-18 20:27:23 -0800] [10406] [INFO] 127.0.0.1:33448 - - [18/Nov/2022:20:27:23 -0800] "GET /game/482f7a86-382d-43
72-a013-8893ca816390 1.0" 200 725 "-" "HTTPie/3.2.1"
20:27:30 auth.1 | [2022-11-18 20:27:30 -0800] [10403] [INFO] 127.0.0.1:35350 - - [18/Nov/2022:20:27:30 -0800] "GET /auth 1.0" 200 24 "-"
"HTTPie/3.2.1"
20:27:30 game.1 | [2022-11-18 20:27:30 -0800] [10408] [INFO] 127.0.0.1:41518 - - [18/Nov/2022:20:27:30 -0800] "GET /my-games 1.0" 200 250
"-" "HTTPie/3.2.1"
20:28:16 auth.1 | [2022-11-18 20:28:16 -0800] [10403] [INFO] 127.0.0.1:46722 - - [18/Nov/2022:20:28:16 -0800] "GET /auth 1.0" 200 24 "-"
"HTTPie/3.2.1"
20:28:16 game.2 | [2022-11-18 20:28:16 -0800] [10404] [INFO] 127.0.0.1:54198 - - [18/Nov/2022:20:28:16 -0800] "GET /my-games 1.0" 200 250
"-" "HTTPie/3.2.1"
20:28:17 auth.1 | [2022-11-18 20:28:17 -0800] [10403] [INFO] 127.0.0.1:46730 - - [18/Nov/2022:20:28:17 -0800] "GET /auth 1.0" 200 24 "-"
"HTTPie/3.2.1"
20:28:17 game.3 | [2022-11-18 20:28:17 -0800] [10406] [INFO] 127.0.0.1:52538 - - [18/Nov/2022:20:28:17 -0800] "GET /my-games 1.0" 200 250
"-" "HTTPie/3.2.1"
```