컴퓨터네트워크

제출일자	2022.11.05
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Python 3 Dynamic App Server 실습

```
myngint
kiwoong-kim@LAPTOP-UHDQAHEK:~/computer-network/prac8$ docker run --name mynginx -p 8080:8080 -v /home/k
iwoong-kim/computer-network/prac8/nginx.conf:/etc/nginx/nginx.conf --add-host mynginx:host-gateway -d n
ginx
c64c41315060ae850141c17c63deae9f5c7f4678134357d215b4e10580a1690a
```

```
kiwoong-kim@LAPTOP-UHDQAHEK:~/computer-network/prac8$ docker logs mynginx
/docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform configuration
/docker-entrypoint.sh: Looking for shell scripts in /docker-entrypoint.d/
/docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on-ipv6-by-default.sh
10-listen-on-ipv6-by-default.sh: info: Getting the checksum of /etc/nginx/conf.d/default.conf
10-listen-on-ipv6-by-default.sh: info: Enabled listen on IPv6 in /etc/nginx/conf.d/default.conf
/docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-on-templates.sh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/30-tune-worker-processes.sh
/docker-entrypoint.sh: Configuration complete; ready for start up
2022/11/02 14:02:07 [notice] 1#1: using the "epoll" event method
2022/11/02 14:02:07 [notice] 1#1: nginx/1.23.1
2022/11/02 14:02:07 [notice] 1#1: built by gcc 10.2.1 20210110 (Debian 10.2.1-6)
2022/11/02 14:02:07 [notice] 1#1: OS: Linux 5.4.72-microsoft-standard-WSL2
2022/11/02 14:02:07 [notice] 1#1: getrlimit(RLIMIT_NOFILE): 1048576:1048576
2022/11/02 14:02:07 [notice] 1#1: start worker processes
2022/11/02 14:02:07 [notice] 1#1: start worker process 31
2022/11/02 14:02:07 [notice] 1#1: start worker process 32
2022/11/02 14:02:07 [notice] 1#1: start worker process 33
2022/11/02 14:02:07 [notice] 1#1: start worker process 34
172.17.0.1 - - [02/Nov/2022:14:02:14 +0000] "GET /counter/ HTTP/1.1" 200 97 "-" "Mozilla/5.0 (Windows N
T 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/106.0.0.0 Safari/537.36 Edg/106.0.137
0.52" "-"
172.17.0.1 - - [02/Nov/2022:14:02:16 +0000] "GET /counter/ HTTP/1.1" 200 97 "-" "Mozilla/5.0 (Windows N
T 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/106.0.0.0 Safari/537.36 Edg/106.0.137
0.52" "-"
172.17.0.1 - - [02/Nov/2022:14:02:17 +0000] "GET /counter/ HTTP/1.1" 200 97 "-" "Mozilla/5.0 (Windows N
T 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/106.0.0.0 Safari/537.36 Edg/106.0.137
0.52" "-"
172.17.0.1 - - [02/Nov/2022:14:02:18 +0000] "GET /counter/ HTTP/1.1" 200 97 "-" "Mozilla/5.0 (Windows N
T 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/106.0.0.0 Safari/537.36 Edg/106.0.137
0.52" "-"
172.17.0.1 - - [02/Nov/2022:14:02:18 +0000] "GET /counter/ HTTP/1.1" 200 97 "-" "Mozilla/5.0 (Windows N
T 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/106.0.0.0 Safari/537.36 Edg/106.0.137
0.52" "-"
172.17.0.1 - - [02/Nov/2022:14:02:25 +0000] "GET /counter/ HTTP/1.1" 200 97 "-" "Mozilla/5.0 (Windows N
T 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/106.0.0.0 Safari/537.36 Edg/106.0.137
0.52" "-"
172.17.0.1 - - [02/Nov/2022:14:02:26 +0000] "GET /counter/ HTTP/1.1" 200 97 "-" "Mozilla/5.0 (Windows N
T 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/106.0.0.0 Safari/537.36 Edg/106.0.137
0.52" "-"
172.17.0.1 - - [02/Nov/2022:14:03:41 +0000] "GET /counter/ HTTP/1.1" 200 97 "-" "Mozilla/5.0 (Windows N
T 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/106.0.0.0 Safari/537.36 Edg/106.0.137
0.52" "-"
kiwoong-kim@LAPTOP-UHDQAHEK:~/computer-network/prac8$
```
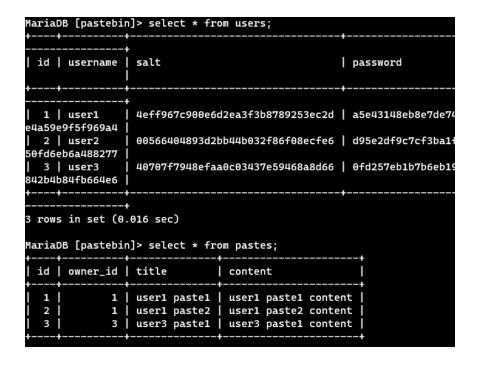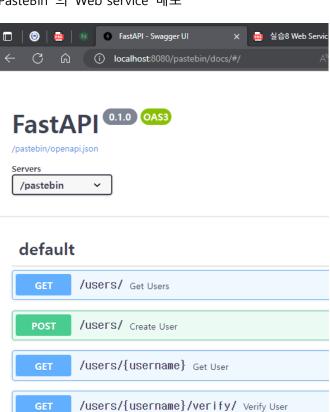
localhost:8080/counter/

index.html

총 방문자: 53

Curl

```
curl -X 'GET' \
  'http://localhost:8080/pastebin/users/?skip=0&limit=100' \
  -H 'accept: application/json'
```

Request URL

```
http://localhost:8080/pastebin/users/?skip=0&limit=100
```

Server response

Code   Details

200

Response body

```
[
  {
    "username": "user1",
    "id": 1,
    "pastes": [
      {
        "title": "user1 paste1",
        "content": "user1 paste1 content",
        "id": 1
      },
      {
        "title": "user1 paste2",
        "content": "user1 paste2 content",
        "id": 2
      }
    ]
  },
  {
    "username": "user2",
    "id": 2,
    "pastes": []
  }
```

Curl

```
curl -X 'POST' \
  'http://localhost:8080/pastebin/users/' \
  -H 'accept: application/json' \
  -H 'Content-Type: application/json' \
  -d '{
  "username": "user3",
  "password": "user3pw"
}'
```

Request URL

```
http://localhost:8080/pastebin/users/
```

Server response

Code   Details

200

Response body

```
{
  "username": "user3",
  "id": 3,
  "pastes": []
}
```

Curl

```
curl -X 'GET' \
  'http://localhost:8080/pastebin/users/user3' \
  -H 'accept: application/json'
```

Request URL

```
http://localhost:8080/pastebin/users/user3
```

Server response

Code   Details

200

Response body

```
{
  "username": "user3",
  "id": 3,
  "pastes": []
}
```

Curl

```
curl -X 'GET' \
  'http://localhost:8080/pastebin/users/user3/verify/?password=user3pw' \
  -H 'accept: application/json'
```

Request URL

```
http://localhost:8080/pastebin/users/user3/verify/?password=user3pw
```

Server response

Code   Details

200

Response body

```
{
  "username": "user3",
  "id": 3,
  "pastes": [],
  "salt": "40707f7948efaa0c03437e59468a8d66"
}
```

Curl

```
curl -X 'POST' \
  'http://localhost:8080/pastebin/users/user3/pastes?password=user3pw' \
  -H 'accept: application/json' \
  -H 'Content-Type: application/json' \
  -d '{
  "title": "user3 paste1",
  "content": "user3 paste1 content"
}'
```

Request URL

```
http://localhost:8080/pastebin/users/user3/pastes?password=user3pw
```

Server response

Code   Details

200

Response body

```
{
  "title": "user3 paste1",
  "content": "user3 paste1 content",
  "id": 3
}
```

Curl

```
curl -X 'GET' \
  'http://localhost:8080/pastebin/users/user3/pastes?skip=0&limit=100' \
  -H 'accept: application/json'
```

Request URL

```
http://localhost:8080/pastebin/users/user3/pastes?skip=0&limit=100
```

Server response

Code   Details

200

Response body

```
[
  {
    "title": "user3 paste1",
    "content": "user3 paste1 content",
    "id": 3
  }
]
```

```
MariaDB [pastebin]> select * from users;
+----+----------+----------------------------------+------------------
----------------+
| id | username | salt                             | password
                |
+----+----------+----------------------------------+------------------
----------------+
|  1 | user1    | 4eff967c900e6d2ea3f3b8789253ec2d | a5e43148eb8e7de74
e4a59e9f5f969a4 |
|  2 | user2    | 00566404893d2bb44b032f86f08ecfe6 | d95e2df9c7cf3ba1f
50fd6eb6a488277 |
|  3 | user3    | 40707f7948efaa0c03437e59468a8d66 | 0fd257eb1b7b6eb19
842b4b84fb664e6 |
+----+----------+----------------------------------+------------------
----------------+
3 rows in set (0.016 sec)

MariaDB [pastebin]> select * from pastes;
+----+----------+--------------+----------------------+
| id | owner_id | title        | content              |
+----+----------+--------------+----------------------+
|  1 |        1 | user1 paste1 | user1 paste1 content |
|  2 |        1 | user1 paste2 | user1 paste2 content |
|  3 |        3 | user3 paste1 | user3 paste1 content |
+----+----------+--------------+----------------------+
```

PasteBin 의 Web service 배포

FastAPI 0.1.0 OAS3

/pastebin/openapi.json

Servers

/pastebin ▾

default

GET /users/ Get Users

POST /users/ Create User

GET /users/{username} Get User

GET /users/{username}/verify/ Verify User

GET /users/{username}/pastes Get Pastes

POST /users/{username}/pastes Create Paste

Nginx reverse proxy 설정

```
server {
    listen 8080;

    location = /pastebin/ {
        proxy_pass http://mynginx:8889/openapi.json;
        proxy_set_header X-Real-IP $remote_addr;
        proxy_set_header Host $host;
        proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;
    }

    location /pastebin/ {
        proxy_pass http://mynginx:8889/;
        proxy_set_header X-Real-IP $remote_addr;
        proxy_set_header Host $host;
        proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;
    }

    location = /pastebin/docs/ {
        proxy_pass http://mynginx:8889/docs;
        proxy_set_header X-Real-IP $remote_addr;
        proxy_set_header Host $host;
        proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;
    }
}
```

```
kiwoong-kim@LAPTOP-UHDQAHEK:~/computer-network/prac8$ docker run --name mynginx -p 8080:8080 -v /home/
kiwoong-kim/computer-network/app/nginx.conf:/etc/nginx/nginx.conf --add-host mynginx:host-gateway -d n
ginx
e7ccc6cbfa41cc3a33e2c0b3ec3818085ffeea2c2935382a87407e1453910b5d
```

```
kiwoong-kim@LAPTOP-UHDQAHEK:~/computer-network$ uvicorn --reload --port 8889 --root-path '/pastebin' a
pp.main:app
```

Nginx 로그

```
kiwoong-kim@LAPTOP-UHDQAHEK:~$ docker logs mynginx
/docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform configuration
/docker-entrypoint.sh: Looking for shell scripts in /docker-entrypoint.d/
/docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on-ipv6-by-default.sh
10-listen-on-ipv6-by-default.sh: info: Getting the checksum of /etc/nginx/conf.d/default.conf
10-listen-on-ipv6-by-default.sh: info: Enabled listen on IPv6 in /etc/nginx/conf.d/default.conf
/docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-on-templates.sh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/30-tune-worker-processes.sh
/docker-entrypoint.sh: Configuration complete; ready for start up
2022/11/05 09:37:56 [notice] 1#1: using the "epoll" event method
2022/11/05 09:37:56 [notice] 1#1: nginx/1.23.1
2022/11/05 09:37:56 [notice] 1#1: built by gcc 10.2.1 20210110 (Debian 10.2.1-6)
2022/11/05 09:37:56 [notice] 1#1: OS: Linux 5.4.72-microsoft-standard-WSL2
2022/11/05 09:37:56 [notice] 1#1: getrlimit(RLIMIT_NOFILE): 1048576:1048576
2022/11/05 09:37:56 [notice] 1#1: start worker processes
2022/11/05 09:37:56 [notice] 1#1: start worker process 31
2022/11/05 09:37:56 [notice] 1#1: start worker process 32
2022/11/05 09:37:56 [notice] 1#1: start worker process 33
2022/11/05 09:37:56 [notice] 1#1: start worker process 34
172.17.0.1 - - [05/Nov/2022:09:37:56 +0000] "GET /pastebin/docs/ HTTP/1.1" 200 949 "-" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/106.0.0.0 Safari/537.36 Edg/106.0
.1370.52" "-"
172.17.0.1 - - [05/Nov/2022:09:37:57 +0000] "GET /pastebin/openapi.json HTTP/1.1" 200 5469 "http://localhost:8080/pastebin/docs/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Geck
o) Chrome/106.0.0.0 Safari/537.36 Edg/106.0.1370.52" "-"
172.17.0.1 - - [05/Nov/2022:09:40:17 +0000] "POST /pastebin/users/ HTTP/1.1" 200 39 "http://localhost:8080/pastebin/docs/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chro

172.17.0.1 - - [05/Nov/2022:09:44:35 +0000] "GET /pastebin/users/?skip=0&limit=100 HTTP/1.1" 200 145 "http://localhost:8080/pastebin/docs/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML,

172.17.0.1 - - [05/Nov/2022:09:46:20 +0000] "GET /pastebin/users/user2 HTTP/1.1" 200 39 "http://localhost:8080/pastebin/docs/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko)

172.17.0.1 - - [05/Nov/2022:09:57:21 +0000] "GET /pastebin/users/verify/?password=user2pw HTTP/1.1" 404 27 "http://localhost:8080/pastebin/docs/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/53

172.17.0.1 - - [05/Nov/2022:10:02:46 +0000] "GET /pastebin/users/user2/verify/?password=user2pw HTTP/1.1" 200 81 "http://localhost:8080/pastebin/docs/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/53

172.17.0.1 - - [05/Nov/2022:10:09:26 +0000] "GET /pastebin/users/user1/pastes?skip=0&limit=100 HTTP/1.1" 200 66 "http://localhost:8080/pastebin/docs/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537

172.17.0.1 - - [05/Nov/2022:10:12:54 +0000] "POST /pastebin/users/user1/pastes?password=user1pw HTTP/1.1" 200 64 "http://localhost:8080/pastebin/docs/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/53

172.17.0.1 - - [05/Nov/2022:10:13:01 +0000] "GET /pastebin/users/user1/pastes?skip=0&limit=100 HTTP/1.1" 200 131 "http://localhost:8080/pastebin/docs/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/53
```