

SERVER CGI

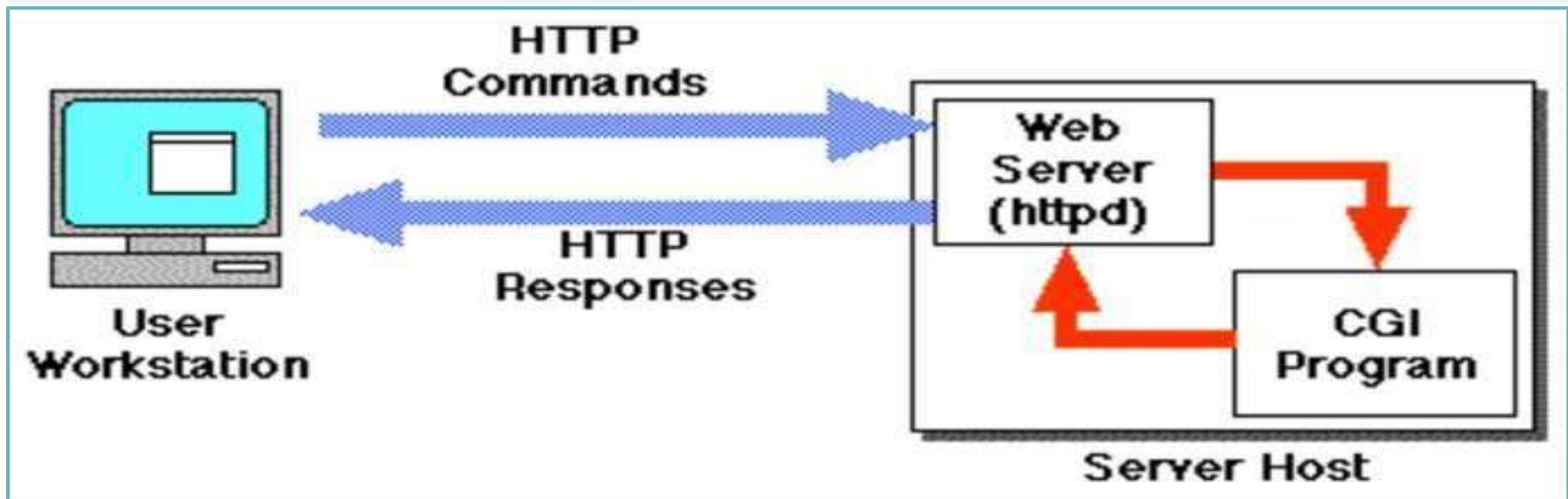
CGI WITH ML

CGI WITH ML

◆ MODEL & WEB 연동

■ CGI(Command Gateway Interface)

- 동적 웹페이지 요청을 CGI 프로그램으로 전달
- CGI는 적절한 프로그램으로 전달 후 결과 생성
- 생성된 결과를 WEB Server로 전달



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◆ MODEL & WEB 연동

■ CGI(Command Gateway Interface)

- 언어, 플랫폼 독립적
- 매우 단순
- 다른 server-side보다 쉽게 수행
- 재사용 가능 CGI 코드 풍부
- 코드 수행 시 특정 라이브러리 필요하지 않기 때문에 매우 가벼움

- 느림
- HTTP 요청마다 새로운 프로세스 생성 → 서버 메모리 많이 사용
- 페이지 로드 사 데이터 캐시 안됨

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■ Http.server 모듈

- 프론트엔드 사이트 구축, 일회성 용도로 웹 서버 기능 필요한 경우 활용
- 명령어로 웹 서버 기능 제공

[http.server](#) — HTTP servers ¶

Source code: [Lib/http/server.py](#)

This module defines classes for implementing HTTP servers.

Warning: [http.server](#) is not recommended for production. It only implements [basic security checks](#).

Availability: not Emscripten, not WASI.

This module does not work or is not available on WebAssembly platforms `wasm32-emsripten` and `wasm32-wasi`. See [WebAssembly platforms](#) for more information.

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■ Http.server 모듈

- 조 건 : 클라이언트 요청 처리 웹 페이지 필요 **index.html**
- 서버 구동 명령어

```
$ python -m http.server 8080
```

```
$ python -m http.server 8080 --bind 127.0.0.1
```

```
(TORCH_NLP38) C:\Users\anece\EXAM_SERVICE_ML> python -m http.server 8080 --bind 127.0.0.1  
Serving HTTP on 127.0.0.1 port 8080 (http://127.0.0.1:8080/) ... 클릭
```

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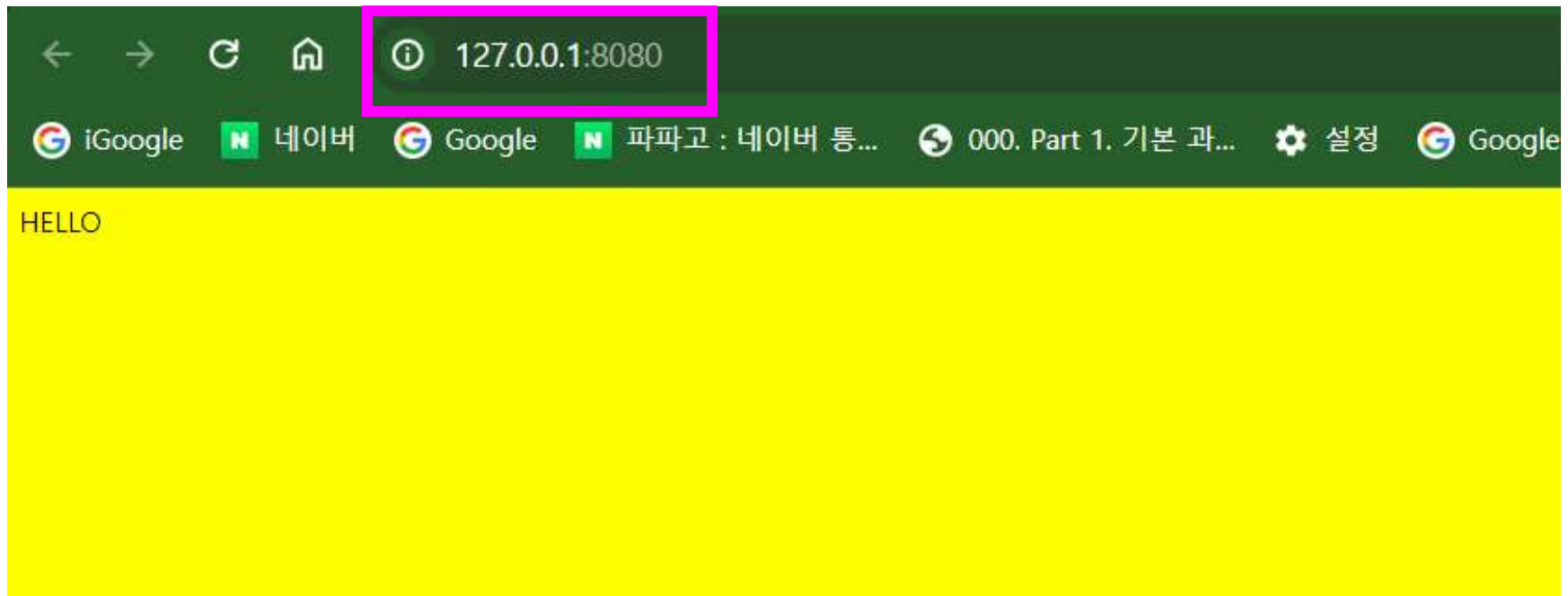
index.html

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-
scale=1.0">
  <title>MY PAGE</title>
</head>
<body bgcolor="yellow">
  HELLO
</body>
</html>
```

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◆ MODEL & WEB 연동

```
(TORCH_NLP38) C:\Users\anece\EXAM_SERVICE_ML> python -m http.server 8080 --bind 127.0.0.1  
Serving HTTP on 127.0.0.1 port 8080 (http://127.0.0.1:8080/) ... 클릭
```



CGI WITH ML

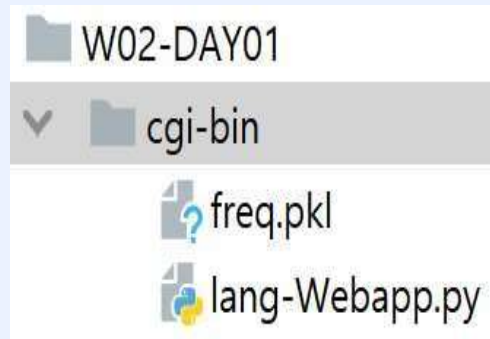
◆ MODEL & WEB 연동

■ Http.server & CGI

- 조 건 : 폴더명 cgi-bin

클라이언트 요청 처리 파이썬 파일 XXX.py

폴더 구조



- 서버 구동 명령어

cgi-bin 바로 위에서 실행

```
$ python -m http.server --cgi 8080 --bind 127.0.0.1
```

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cgi-bin/index.py

```
# HTML 헤더 출력
print("Content-Type: text/html")
print()

# HTML 문서 출력
print(' '<!Doctype html>
<html>
<head>
    <title>WEB1 - Welcome</title>
    <meta charset="utf-8">
</head>
<body>
    <h1><a href="index.html">WEB</a></h1>
    <ol>
        <li><a href="1.html">HTML</a></li>
        <li><a href="2.html">CSS</a></li>
        <li><a href="3.html">JavaScript</a></li>
    </ol>
```

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cgi-bin/index.py

```
<h2>WEB</h2>
<p>The World Wide Web (abbreviated WWW or the Web) is an
information space where documents and other web resources are
identified by Uniform Resource Locators (URLs), interlinked by
hypertext links, and can be accessed via the Internet.[1] English
scientist Tim Berners-Lee invented the World Wide Web in 1989. He
wrote the first web browser computer program in 1990 while employed
at CERN in Switzerland.[2][3] The Web browser was released outside of
CERN in 1991, first to other research institutions starting in
January 1991 and to the general public on the Internet in August 1991.
</p>
</body>
</html>
''' )
```

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◆ MODEL & WEB 연동

```
(TORCH_PY38) C:\Users\anece\EXAM_SERVICE_ML\DAY_02>python -m http.server --cgi 8080 --bind 127.0.0.1
```

Serving HTTP on 127.0.0.1 port 8080 (http://127.0.0.1:8080/) ... **클릭**



The screenshot shows a web browser window with a dark green header. The address bar is highlighted with a pink box and contains the URL `127.0.0.1:8080/cgi-bin/index.py`. Below the address bar, there are several bookmarks including iGoogle, 네이버 (Naver), Google, 파파고 : 네이버 통... (Papago: Naver), 000. Part 1. 기본 과... (000. Part 1. Basic subject...), 설정 (Settings), Google, and ROS. The main content area has a blue heading **WEB** followed by a list of links: 1. [HTML](#), 2. [CSS](#), and 3. [JavaScript](#). Below this list is another bold heading **WEB**, followed by a paragraph of text: "The World Wide Web (abbreviated WWW or the Web) is an information space where documents and other web resources are identified interlinked by hypertext links, and can be accessed via the Internet.[1] English scientist Tim Berners-Lee invented the World Wide Web in 1990 while employed at CERN in Switzerland.[2][3] The Web browser was released outside of CERN in 1991, first to the general public on the Internet in August 1991."

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■ CGI 모듈

- 한글 인코딩 주의!
- cgi-bin 폴더에 파일 존재 해야 함!

`cgi` — Common Gateway Interface support ¶

Source code: [Lib/cgi.py](#)

Support module for Common Gateway Interface (`CGI`) scripts.

This module defines a number of utilities for use by `CGI` scripts written in Python.

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- CGI 모듈 - FieldStorage 클래스
 - 클라이언트 요청으로 받은 form 데이터 저장 목적의 클래스
 - 파이썬의 딕셔너리 자료형 같이 인덱싱 가능
 - 'in ' 멤버 연산자 허용, key : value 형태 허용
 - 단, 빈 문자열들 포함한 데이터 무시
 - >>> 허용 : keep_blank_value keyword parameter 허용

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cgi-bin/index_00.py

```
### ==> 모듈 로딩
import cgi

### ==> Form 입력 데이터 저장 인스턴스 생성
form = cgi.FieldStorage()

### ==> WEB 출력 코드
print('Content-type: text/plain')
print()
print(f'Form:{form}')
```

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cgi-bin/index_01.py

```
### ==> 모듈 로딩
import cgi

### ==> Form 입력 데이터 저장 인스턴스 생성
form = cgi.FieldStorage()

### ==> Form 입력 속성 값 읽기
if 'a' in form and 'b' in form:
    a = form.getvalue('a')
    b = form.getvalue('b')
    result = int(a) * int(b)
else:
    result="No Data"

### ==> WEB 출력 코드
print('Content-type: text/plain')
print()
print(f'Result:{result}')
```


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cgi-bin/index_02.py

```
import cgi, sys, codecs

# WEB 인코딩 설정 -----
sys.stdout=codecs.getwriter('utf-8')(sys.stdout.detach())

# 사용자 정의 함수 -----
def print_page(pageId=""):
    # HTML 헤더 출력
    print("Content-Type: text/html; charset=utf-8")
    print()

    # HTML 문서 출력
    print(f'<!Doctype html>
    <html>
    <head>
        <title>WEB1 - Welcome</title>
        <meta charset="utf-8">
    </head>
```

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◆ MODEL & WEB 연동

cgi-bin/index_02.py

```
<body>
  <h1><a href="index_02.py?id=WEB">WEB</a></h1>
  <ol>
    <li><a href="index_02.py?id=HTML">HTML</a></li>
    <li><a href="index_02.py?id=CSS">CSS</a></li>
    <li><a href="index_02.py?id=JavaScript">JavaScript</a></li>
  </ol>
  <h2>{pageId}</h2>
  <p>The World Wide Web (abbreviated WWW or the Web) is an
information space where documents and other web resources are
identified by Uniform Resource Locators (URLs), interlinked by
hypertext links, and can be accessed via the Internet.[1] English
scientist Tim Berners-Lee invented the World Wide Web in 1989. He
wrote the first web browser computer program in 1990 while employed
at CERN in Switzerland.[2][3] </p>
</body>
</html>
''' )
```

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cgi-bin/index_02.py

```
# WEB 페이지 <Form> -> <INPUT> 리스트 가져오기
form = cgi.FieldStorage()

pageId = form["id"].value

# WEB 출력하기
print_page(pageId)
```