Fastcampus Sprint - Programming

Day 3. Network

Do it your self!

Numguess

- 1부터 100까지 정수 중 하나를 `answer` 라는 변수에 할당
- 사용자로 부터 임의의 값 하나를 받아 `guess` 라는 변수에 할당
- `answer` 와 `guess` 를 비교하여 정답여부를 출력

numguess

```python
import random


answer = random.randint(1,100)
print(answer)
```

numguess

```
username = input("Hi there, What's your name?? ")
guess = eval(input("Hi, "+ username + "guess the number: "))

if guess == answer:
        print("Correct! The answer was ", str(answer))
else:
        print("That's not what I wanted!! The answer was ", str(answer))
```

Iteration

For, while

```
for 변수 in (리스트 or 문자열):
        실행문1
    ...
```

```
for i in ["python", "java", "golang"]:
        print(i)
```

For, while

```
sum = 0
for i in range(1,11):
        sum += i
    sum = sum + i
        print(sum)
```

For, while

```
while 조건:
        실행문1
        ...
```

```
while name != "foo bar":
        name = input("What's your name? ")
        print("Hi, " + name + "So, where is foo bar?")
```

```
while 1:
        print("Hello world!")
```

Iterations with Conditional Statements

Fizzbuzz

1부터 100까지 **반복하면서,**

3의 배수 = "Fizz"
5의 배수 = "Buzz"
15의 배수 = "FizzBuzz"
나머지 = 그 숫자

Fizzbuzz

```
num = eval(input("type the number: "))

for i in range(1, num + 1):
        if i % 15 == 0:
                print("fizzbuzz")
        elif i % 3 == 0:
                print("fizz")
        elif i % 5 == 0:
                print("buzz")
        else:
                print(i)
```

Refactoring numguess

```
import random


answer = random.randint(1,100)
username = input("Hi there, What's your name?? ")

while True:
        guess = eval(input("Hi "+ username + ", guess the number: "))

        if guess == answer:
                print("Correct! The answer was ", str(answer))
                break
        else:
                print("That's not what I wanted!! Try again!!")
```

give a hint!!

```
import random


answer = random.randint(1,100)
username = input("Hi there, What's your name?? ")

while True:
    guess = eval(input("Hi, "+ username + "guess the number: "))

    if guess == answer:
        print("Correct! The answer was ", str(answer))
        break
    elif guess > answer:
        print("Too high!! Try again!!")
    elif guess < answer:
        print("Too Low!! Try again!!")
```

```python
import random


answer = random.randint(1,100)
username = input("Hi there, What's your name?? ")
trial = 5
while trial:
    guess = eval(input("Hi, "+ username + ". guess the number: "))

    if guess == answer:
        print("Correct! The answer was ", str(answer))
        break
    elif guess > answer:
        trial -= 1
        print("Too high!! Try again!!(%d times left)" % (trial))
    elif guess < answer:
        trial -= 1
        print("Too Low!! Try again!!(%d times left)" % (trial))
    if trial == 0:
        print("You are Wrong! The answer was ", str(answer))
```

Index

- 네트워크란?

Network

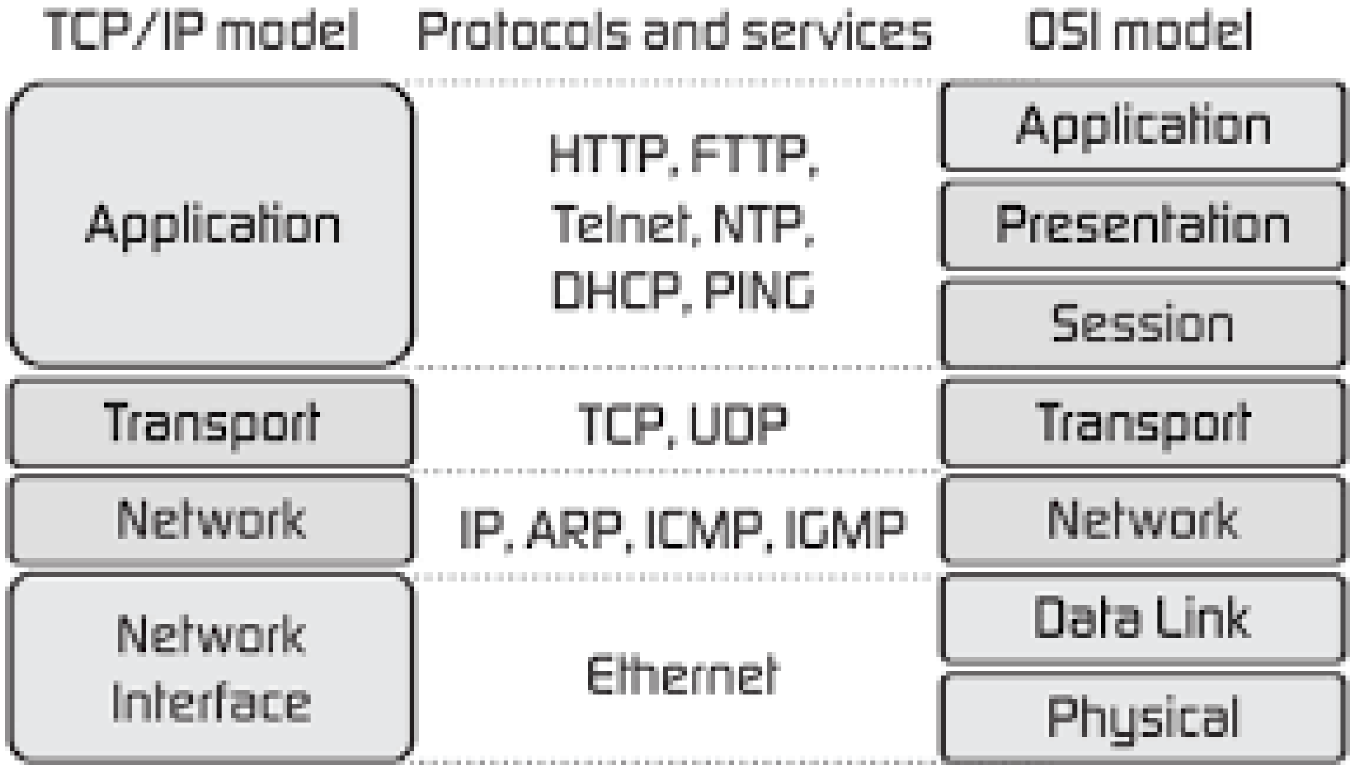
A computer network or data network is a telecommunications network which allows nodes to share resources.

--> 컴퓨터간 리소스를 공유 가능하게 만드는 통신망

Ethernet

- 전세계의 사무실이나 가정에서 일반적으로 사용되는 유선 LAN에서 가장 많이 활용되는 기술 규격
- ether == 에테르 == 빛의 매질
- IEEE 802.3 규약 기반
- OSI 7 Layer에서 Data-link Layer 에 위치

OSI 7 layer



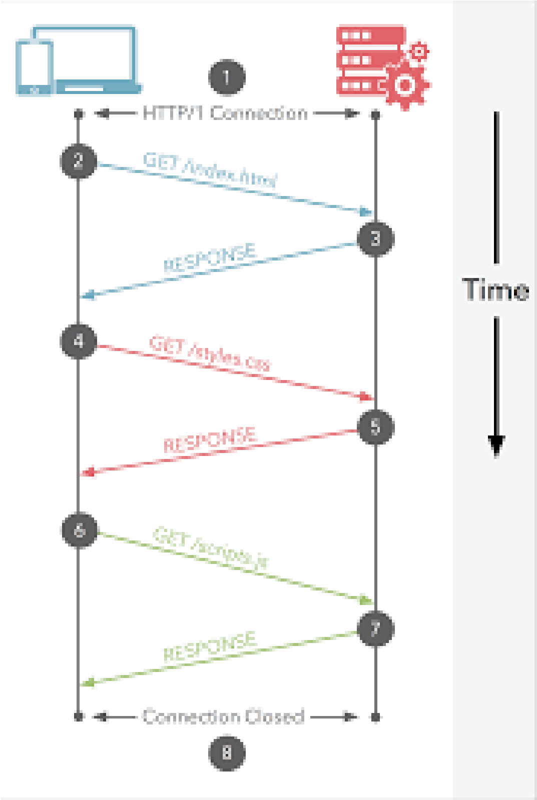
TCP/IP model	Protocols and services	OSI model
Application	HTTP, FTTP, Telnet, NTP, DHCP, PING	Application
		Presentation
		Session
Transport	TCP, UDP	Transport
Network	IP, ARP, ICMP, IGMP	Network
Network Interface	Ethernet	Data Link
		Physical

Internet

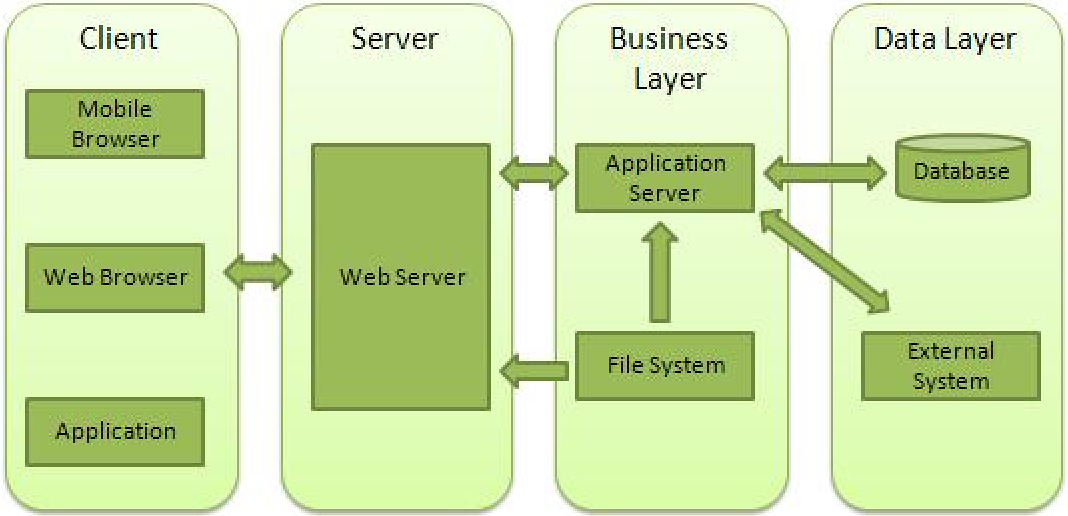
TCP/IP를 활용하여 정보를 주고 받는 통신 네트워크(www)

WWW(World Wide Web) == hypertext transfer through TCP/IP

Request & Response



Web Architecture



웹 개발 패턴의 변화

```html
<html>
<head></head>
<body>
<h1>Static Header</h1>
<div>Static Contents</div>
</body>
</html>
```

- 1991 ~ 1999: Sir Timothy John "Tim" Berners-Lee가 하이퍼텍스트 기반의 프로젝트를 제안한 이후 정적인 컨텐츠들을 중심으로 한 웹 기술이 발달

웹 개발 패턴의 변화

```
<html>
<head></head>
<body>
<h1>{% Dynamic Header %}</h1>
<div>{% Dynamic Contents %}</div>
</body>
</html>
```

- 1999 ~ 2009: Linux, Apache, Mysql, Php 중심의 동적인 서버, 정적인 클라이언트 모델이 지속됨

웹 개발 패턴의 변화

```
<html>
<head>
<script src="https://unpkg.com/vue"></script>
</head>
<body>
<h1>{{ header }}</h1>
<div id="app">
  {{ message }}
</div>
<script>
var app = new Vue({
  el: '#app',
  data: {
    message: '안녕하세요 Vue!'
  }
})
</script>
</body>
</html>
```

- 2010 ~ 현재: javaScript!! (Dynamic Web Client)

HTML

- HyperText Markup Language

HTML

```
<!doctype html>
```

HTML

```
<!doctype html>
<html>
 <head></head>
 <body></body>
</html>
```

HTML

```html
<head>
 <meta charset="utf-8">
 <meta name="viewport"
 content="width=device-width, initial-scale=1.0">
 <title></title>
</head>
```

HTML

```
<body>
 <div id="main-wrapper">
 <h1 class="article-title"></h1>
 <p>This is <span>Home</span>.</p>
 <a href="#" target="_blank">hypertext</a>
 <img src="#">
 </div>
</body>
```

HTML - Semantic Element

```html
<header>
 <nav></nav>
</header>

<section>
 <article></article>
</section>

<aside></aside>
<footer></footer>
```

CSS

- Cascading Style Sheet
- 웹 문서의 스타일링을 위한 스타일시트

CSS basic style

```
body {
        background-color: gray;
}
```

CSS Selector

id, class, just tags

```css
#some-id {color:#ff0000;}

.some-class {color:#00ff00;}

body {background-color:#dddddd;}
```

group selector

```css
h1, h2, h3, h4, h5, h6 {font-family:Helvetica;}
```

child selector

```css
body > h1 {align:center;}
```

attribute selector

```css
p[title='introduce'] {font-family:Helvetica;}
```

javaScript

- 객체 기반의 스크립트 프로그래밍 언어
- 웹페이지의 동적인 제어 목적
- Netscape의 Brendan Eich가 모카(Mocha)를 개발
- LiveScript -> javaScript로 개명

JS DOM API

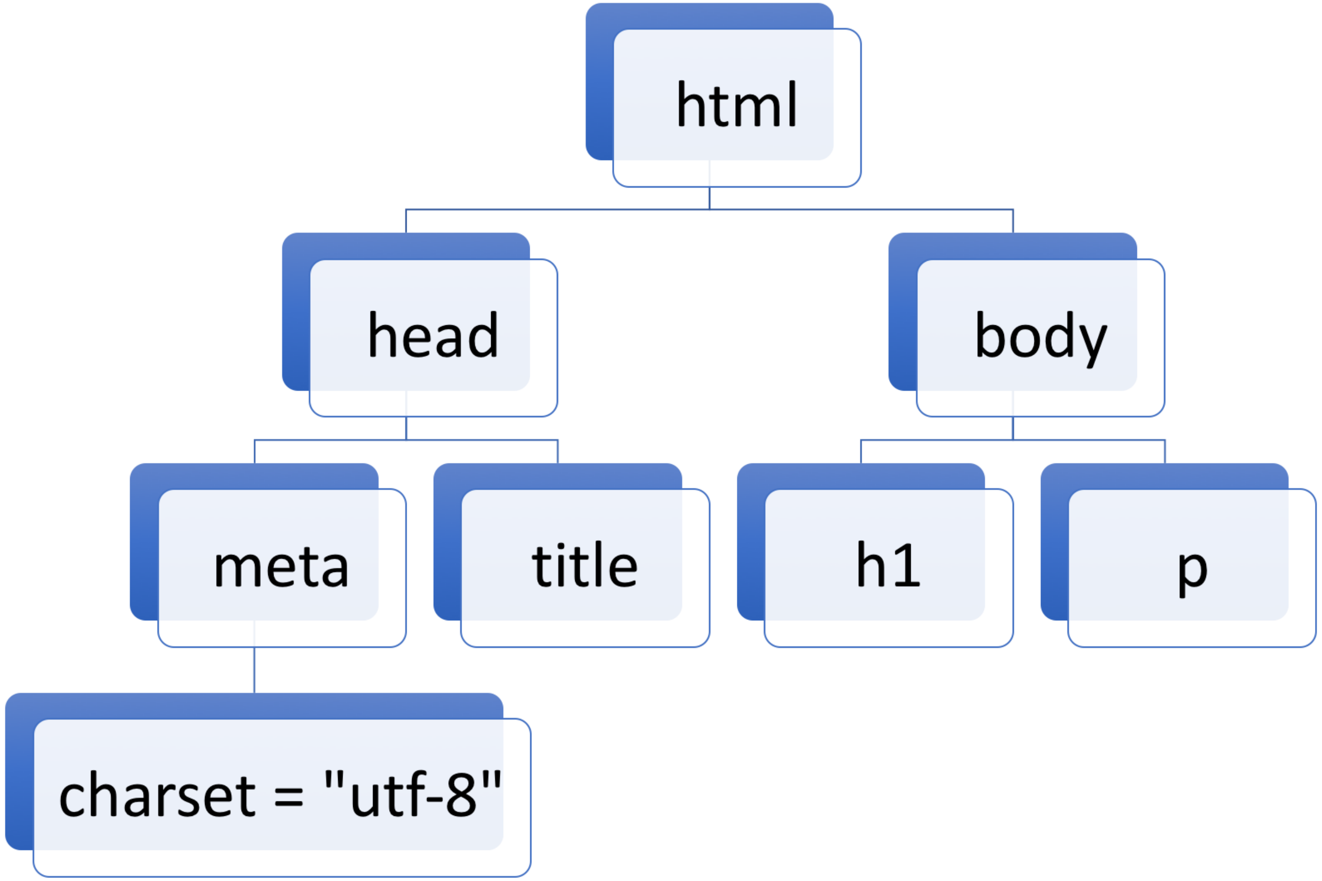
- DOM: Document Object Model
- HTML 문서를 분석하여 구조화

DOM

- Document Object Model

```
<!doctype html>
<html>
 <head>
  <meta charset="utf-8">
  <title>My page</title>
 </head>
 <body>
  <h1>Home</h1>
  <p>Hello there!</p>
 </body>
</html>
```

DOM


html

head

body

meta

title

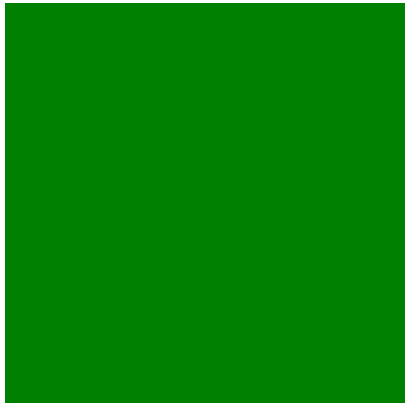
h1

p

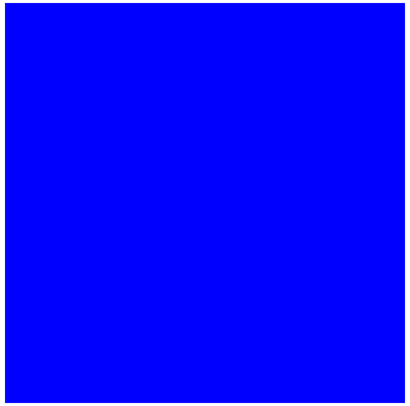
charset = "utf-8"

Static Web site - 1

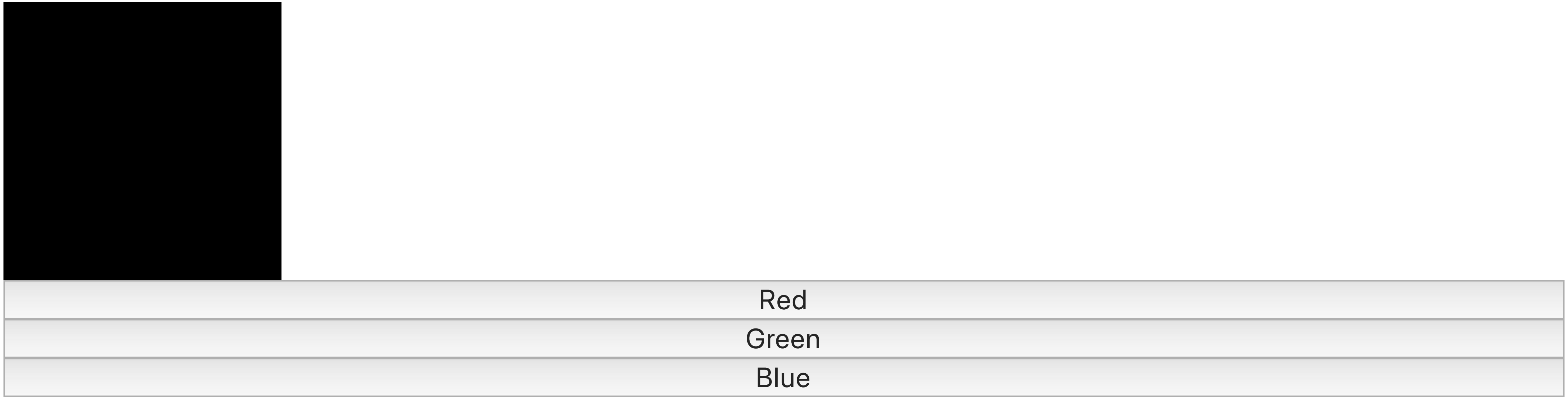
Static Web site - 2



Static Web site - 3



Dynamic Web site



Java != javaScript

Java	vs	javaScript
Sun	개발	Brendan Eich
JVM	구동방식	Script Engine(Browser)
C	영향	C
붕어	Like	붕어빵

XPath

- XML Path Language
- XML 문서의 요소와 속성을 통해 특정한 요소로 접근할 수 있도록 도와줌

Basic XPath

```html
<body>
 <div id="site-wrapper">
  <h1 class="main-title">Page Title</h1>
  <div>
   <p class="paragraph">
    I am
    <span>a</span>
    boy.
   </p>
   <a href="#">Hypertext</a>
  </div>
 </div>
</body>
```

Basic XPath

`h1` : nodename
`/html` : root node
`//div` : select from current node
`.` : current node
`..` : parent node
`@` : attribute

Basic XPath

```
//body/div/p
```

```
//*[@id="site-wrapper"]/div/a
```

```
//*[@class="paragraph"]/text()
```