HACK YALE

< INTRO TO WEB DEVELOPMENT />

WWW.HACKYALE.COM

HACK YALE

< FRONT END />

Week 0

WHAT IS THE WEB?

Course Outline

Weeks 0-3

- Introduction to Computers
- What is the web and how does it work?
- Creating simple web pages
- Learning HTML

Weeks 4-6

- Styling web pages with CSS
- A splash of JavaScript to bring our websites to life

Things To Remember

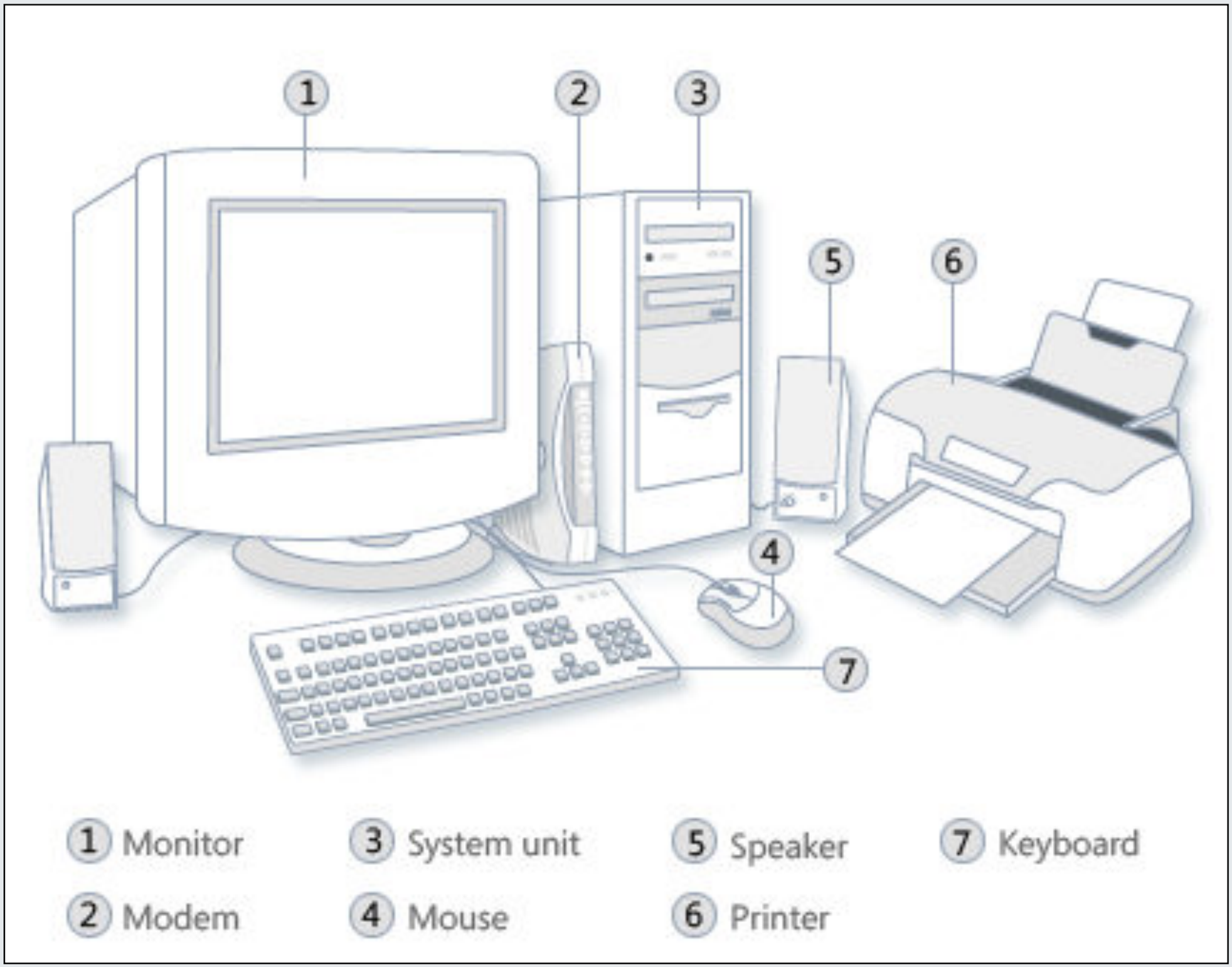
1. Attendance is expected. Many people would love to have your spot.

2. Most people here have absolutely no experience. You're not expected to know anything coming in. So please ask questions!

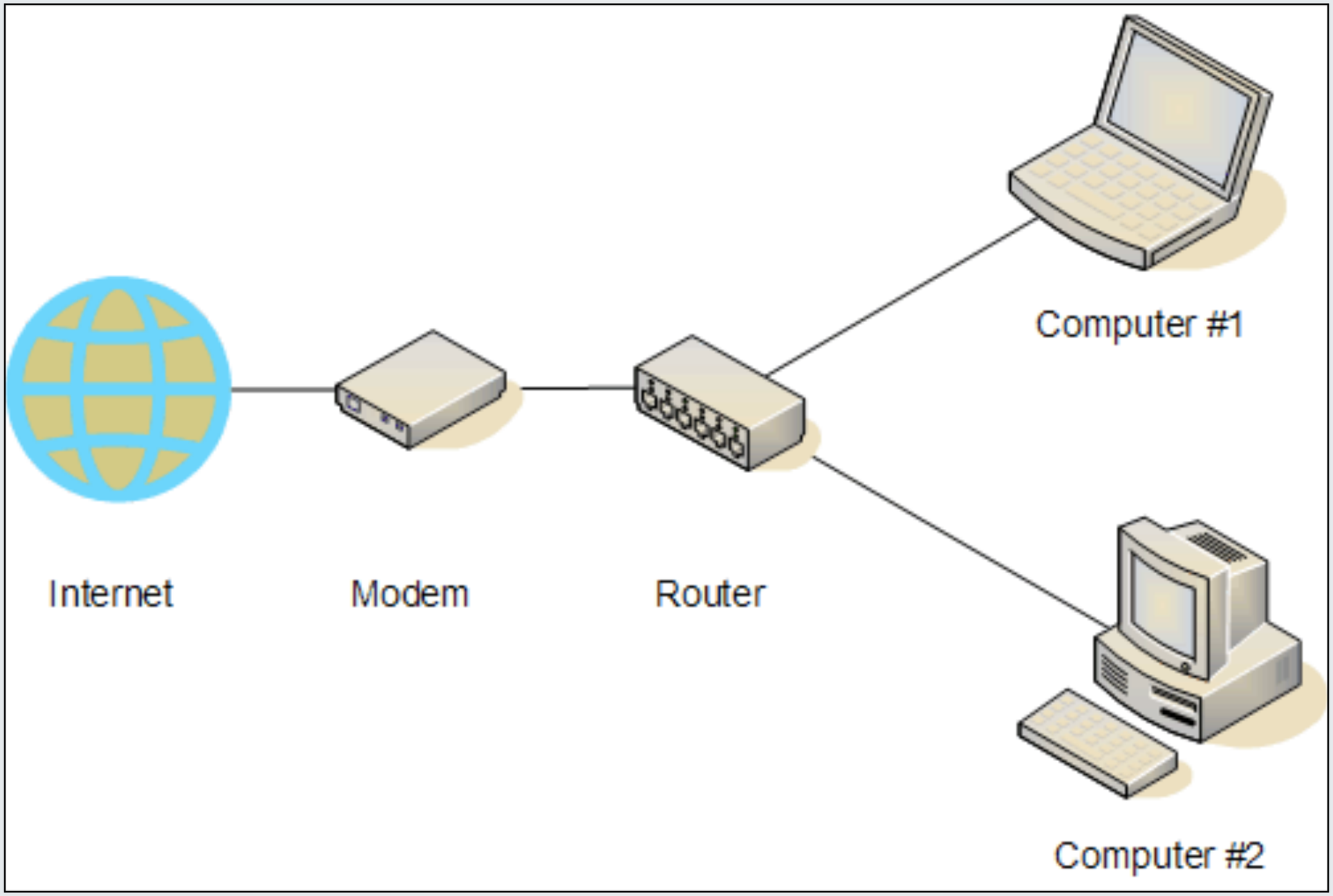
3. Computer Science is about concepts, not memorization.

OVERVIEW OF COMPUTERS AND THE WEB

HACK YALE


1
2
3
4
5
6
7
1 Monitor
2 Modem
3 System unit
4 Mouse
5 Speaker
6 Printer
7 Keyboard

HACK YALE


Computer #1
Internet
Modem
Router
Computer #2

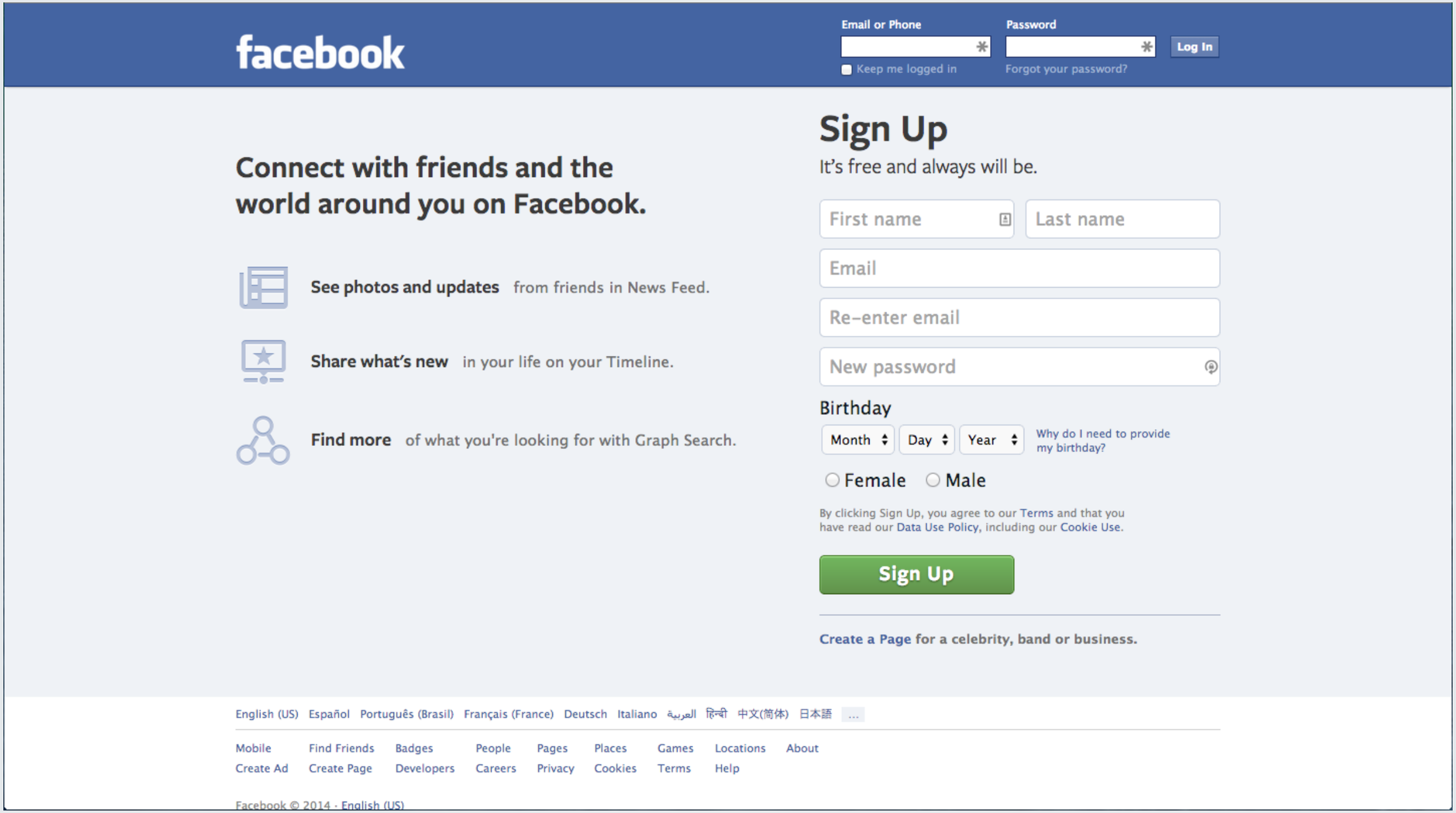
What does the data look like?

```
<!DOCTYPE html>
<html lang="en" id="facebook" class="no_js">
<head><meta charset="utf-8" /><script>function envFlush(a){function b(c){for(var d in a)c[d]=a[d];}if(window.requireLazy){window.requireLazy(['Env'],b);}else{Env=window.Env||
{};b(Env);}}envFlush({"ajaxpipe_token":"AXjoV5dIkR9f1S9O","lhsh":"eAQG8BslL","khsh":"0`sj`e`rm`s-0fdu^gshdoer-0gc^eurf-3gc^eurf;1;enbtldou;fduDmdldourCxO`ld-
2YLMIuuqSdptdru;qsnunuxqd;rdoe"});</script><script>CavalryLogger=false;</script><noscript><meta http-equiv="refresh" content="0; URL=/?_fb_noscript=1" /></noscript><meta
name="referrer" content="default" id="meta_referrer" /><title id="pageTitle">Welcome to Facebook - Log In, Sign Up or Learn More</title><meta property="og:site_name"
content="Facebook" /><meta property="og:url" content="https://www.facebook.com/" /><meta property="og:image" content="https://www.facebook.com/images/fb_icon_325x325.png" /><meta
property="og:locale" content="en_US" /><link rel="canonical" href="https://www.facebook.com/" /><link rel="alternate" media="only screen and (max-width: 640px)"
href="https://www.facebook.com/" /><link rel="alternate" media="handheld" href="https://www.facebook.com/" /><link rel="alternate" hreflang="x-default"
href="https://www.facebook.com/" /><link rel="alternate" hreflang="en" href="https://www.facebook.com/" /><link rel="alternate" hreflang="es" href="https://es-la.facebook.com/" />
<link rel="alternate" hreflang="es-es" href="https://es-es.facebook.com/" /><link rel="alternate" hreflang="fr" href="https://fr-fr.facebook.com/" /><link rel="alternate"
hreflang="fr-ca" href="https://fr-ca.facebook.com/" /><link rel="alternate" hreflang="id" href="https://id-id.facebook.com/" /><link rel="alternate" hreflang="it"
href="https://it-it.facebook.com/" /><link rel="alternate" hreflang="ko" href="https://ko-kr.facebook.com/" /><link rel="alternate" hreflang="th" href="https://th-
th.facebook.com/" /><link rel="alternate" hreflang="vi" href="https://vi-vn.facebook.com/" /><meta name="description" content="Facebook is a social utility that connects people
with friends and others who work, study and live around them. People use Facebook to keep up with..." /><meta name="robots" content="noodp,noydir" /><noscript><meta http-equiv="X-
Frame-Options" content="DENY" /></noscript><link rel="shortcut icon" href="https://fbstatic-a.akamaihd.net/rsrc.php/yl/r/H3nktOa7ZMg.ico" />
    <link type="text/css" rel="stylesheet" href="https://fbstatic-a.akamaihd.net/rsrc.php/v2/yy/r/yP0Xgce7o58.css" />
    <link type="text/css" rel="stylesheet" href="https://fbstatic-a.akamaihd.net/rsrc.php/v2/yF/r/5u_tGrCjZ5K.css" />
    <link type="text/css" rel="stylesheet" href="https://fbstatic-a.akamaihd.net/rsrc.php/v2/yL/r/x3bsMJyVkPp.css" />
    <link type="text/css" rel="stylesheet" href="https://fbstatic-a.akamaihd.net/rsrc.php/v2/yW/r/26nrM3TxlGE.css" />
    <link type="text/css" rel="stylesheet" href="https://fbstatic-a.akamaihd.net/rsrc.php/v2/ye/r/G9kD3xNwOoW.css" />
    <link type="text/css" rel="stylesheet" href="https://fbstatic-a.akamaihd.net/rsrc.php/v2/yK/r/GrlAspIdlCx.css" />

    <script src="https://fbstatic-a.akamaihd.net/rsrc.php/v2/yH/r/31su2FHB37D.js" crossorigin="anonymous"></script>
<script>(require("ServerJSDefine")).handleDefines([["URLFragmentPreludeConfig",[],{"incorporateQuicklingFragment":true,"hashtagRedirect":true},137],["BootloaderConfig",[],{},329],
["CurrentUserInitialData",[],{"USER_ID":"0","ACCOUNT_ID":"0"},270],["SiteData",[],
{"revision":1412053,"tier":"","push_phase":"V3","pkg_cohort":"EXP1:DEFAULT","vip":"31.13.71.128"},317],["CurrentCommunityInitialData",[],{},490],["DTSGInitialData",[],{},258],
["ISB",[],{},330],["LSD",[],{"token":"AVrmtxXn"},323],["BanzaiConfig",[],{"EXPIRY":86400000,"MAX_SIZE":10000,"MAX_WAIT":150000,"RESTORE_WAIT":150000,"blacklist":
["time_spent"],"gks":
{"boosted_pagelikes":true,"boosted_website":true,"boosted_posts":true,"jslogger":true,"miny_compression":true,"pages_client_logging":true,"time_spent_bit_array":true,"time_spent_d
ebug":true,"useraction":true,"videos":true,"visibility_tracking":true,"vitals":true}},7],["AsyncRequestConfig",[],{"retryOnNetworkError":"1"},328],["FbtLogger",[],
{"logger":null},288],["FbtQTOverrides",[],{"overrides":{"8b0c31a270a324f26d2417a358106611":"Replacement QT String!"}},551],["EagleEyeConfig",[],
{"seed":"0W7n","sessionStorage":1},294],["TrackingConfig",[],{"domain":"https:\/\/pixel.facebook.com"},325],["ErrorSignalConfig",[],
{"uri":"https:\/\/error.facebook.com\/common\/scribe_endpoint.php"},319],["InitialServerTime",[],{"serverTime":1410632754000},204],["UFIConstants",[],{"UFIActionType":
{"COMMENT_LIKE":"fa-type:comment-like","COMMENT_SET_SPAM":"fa-type:mark-spam","DELETE_COMMENT":"fa-type:delete-comment","DISABLE_COMMENTS":"fa-type:disable-
comments","LIVE_DELETE_COMMENT":"fa-type:live-delete-comment","LIKE_ACTION":"fa-type:like","SUBSCRIBE_ACTION":"fa-type:subscribe","REMOVE_PREVIEW":"fa-type:remove-
preview","MARK_COMMENT_SPAM":"fa-type:mark-spam","CONFIRM_COMMENT_REMOVAL":"fa-type:confirm-remove","TRANSLATE_COMMENT":"fa-type:translate-comment","COMMENT_LIKECOUNT_UPDATE":"fa-
type:comment-likecount-update","ADD_COMMENT_ACTION":"fa-type:add-comment"},"UFICommentOrderingMode":
{"CHRONOLOGICAL":"chronological","RANKED_THREADED":"ranked_threaded","TOPLEVEL":"toplevel","RECENT_ACTIVITY":"recent_activity","FEATURED":"featured","UNSUPPORTED":"unsupported"},"
UFIFeedbackSourceType":
{"PROFILE":0,"NEWS_FEED":1,"OBJECT":2,"MOBILE":3,"EMAIL":4,"PROFILE_APPROVAL":10,"TICKER":12,"NONE":13,"INTERN":14,"ADS":15,"EVENT_GOING_FLYOUT":16,"PHOTOS_SNOWLIFT":17,"NOTIFICAT
ION_FLYOUT":18,"LOCAL_FEED":19},"UFIPayloadSourceType":
{"UNKNOWN":0,"INITIAL_SERVER":1,"LIVE_SEND":2,"USER_ACTION":3,"ENDPOINT_LIKE":10,"ENDPOINT_COMMENT_LIKE":11,"ENDPOINT_ADD_COMMENT":12,"ENDPOINT_EDIT_COMMENT":13,"ENDPOINT_DELETE_C
OMMENT":14,"ENDPOINT_COMMENT_SPAM":16,"ENDPOINT_REMOVE_PREVIEW":17,"ENDPOINT_ID_COMMENT_FETCH":18,"ENDPOINT_COMMENT_FETCH":19,"ENDPOINT_TRANSLATE_COMMENT":20,"ENDPOINT_BAN":21,"EN
DPOINT_SUBSCRIBE":22,"ENDPOINT_COMMENT_LIKECOUNT_UPDATE":23,"ENDPOINT_DISABLE_COMMENTS":24,"ENDPOINT_ACTOR_CHANGE":25},"UFIStatus":
{"DELETED":"status:deleted","SPAM":"status:spam","SPAM_DISPLAY":"status:spam-display","LIVE_DELETED":"status:live-deleted","FAILED_ADD":"status:failed-
add","FAILED_EDIT":"status:failed-edit","PENDING_EDIT":"status:pending-
edit"},"attachmentTruncationLength":80,"commentTruncationLength":420,"commentTruncationMaxLines":3,"commentTruncationPercent":0.6,"commentURLTruncationLength":60,"defaultPageSize"
:50,"infiniteScrollRangeForQANDAPermalinks":1000,"minCommentsForOrderingModeSelector":2,"unavailableCommentKey":"unavailable_comment_key"},240],["ImmediateActiveSecondsConfig",[],
{"sampling_rate":0},423]]);new (require("ServerJS"))().handle({"require":[["markJSEnabled"],["lowerDomain"],["URLFragmentPrelude"],["Primer"],["Bootloader"]]});</script></head>
<body class="fbIndex UIPage_LoggedOut _2gsg webkit chrome mac Locale_en_US" dir="ltr"><div class="_li"><div id="pagelet_bluebar"><div id="blueBarDOMInspector" class="_21mm"><div
id="blueBarNAXAnchor" class="_4f7n _xxp"><div><div class="loggedout_menubar_container"><div class="clearfix loggedout_menubar"><a class="lfloat _ohe" href="/" title="Go to
Facebook Home"><i class="fb_logo img sp_W-hxJRCtHHc sx_7a884a"><u>Facebook logo</u></i></a><div class="menu_login_container rfloat _ohf"><form id="login_form"
```

HACK YALE

What do we actually see?



HACK YALE

The magic tools that do this

not so magical

Web Browsers

Web Browsers

Web browsers transform the data they receive into a *graphical user interface* (GUI).

Browsers have two main components:

1. A large display pane for the web page
2. An address bar to go to another website

Web Addresses (URLs)

A web address, or *uniform resource locator* (URL) is used to identify a resource on the web.

http://www.yale.edu/about/index.html

Web Addresses (URLs)

A web address, or *uniform resource locator* (URL) is used to identify a resource on the web.

http://www.yale.edu/about/index.html

The scheme, or protocol, defines how to obtain the resource on the web. More on this later.

Web Addresses (URLs)

A web address, or *uniform resource locator* (URL) is used to identify a resource on the web.

http://www.yale.edu/about/index.html

The *domain name* refers to the host machine of this web resource.

A video: https://www.youtube.com/watch?v=0N7ripK5uGM

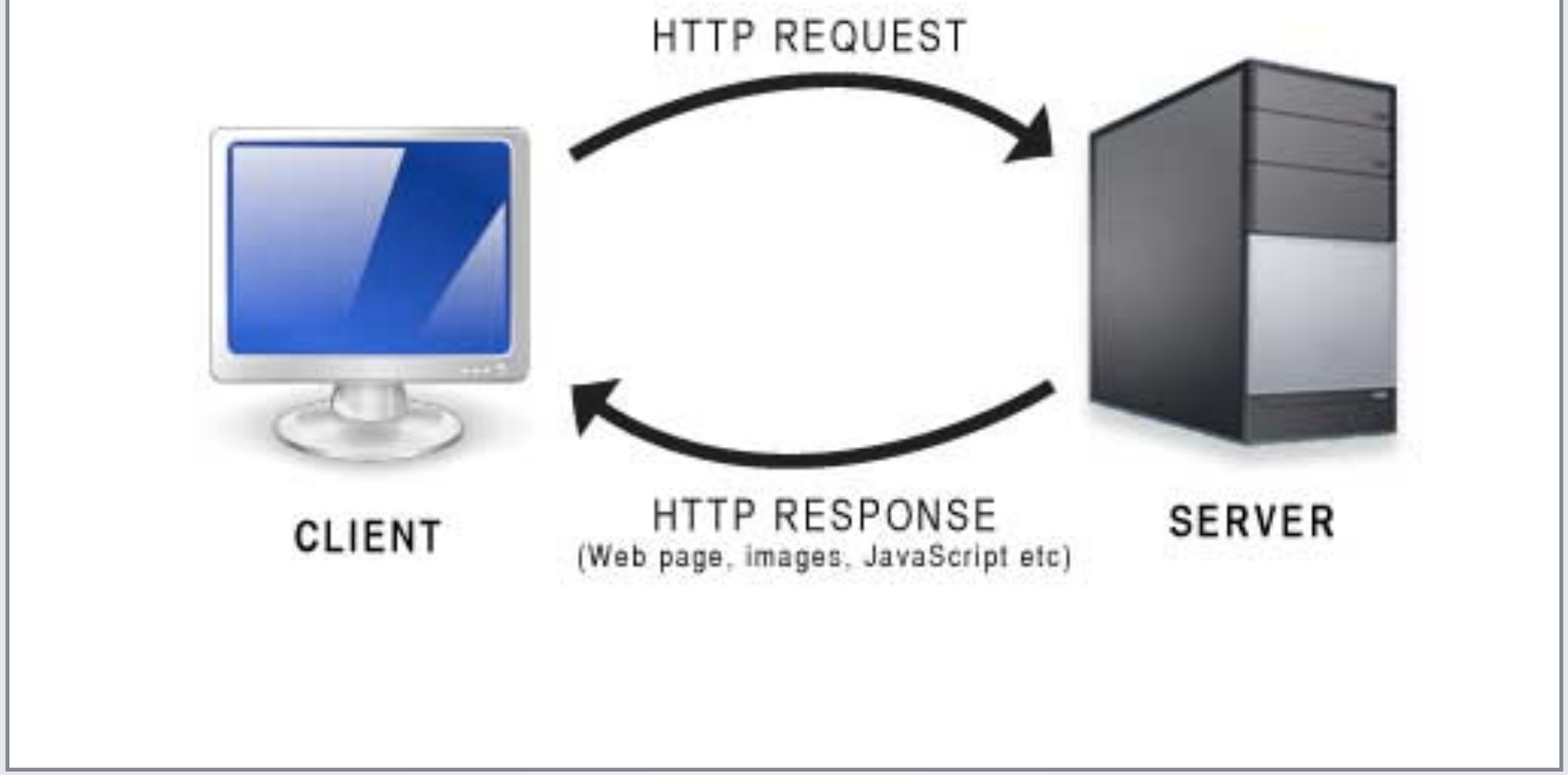
Web Addresses (URLs)

A web address, or *uniform resource locator* (URL) is used to identify a resource on the web.

http://www.yale.edu/about/index.html

The *path* specifies the path to the resource on the host machine.

The path is sent as part of the request to that host machine so the host knows what data to send back.


HTTP REQUEST
CLIENT
HTTP RESPONSE
(Web page, images, JavaScript etc)
SERVER

Hypertext Transfer Protocol

HTTP defines a standard format for communication of data via the internet.

The client sends data to the server or asks for data from the server via an **HTTP request**.

The server reports back to the client the result of the request via an **HTTP response**.

HTTP Requests

Parts of an HTTP request:

1. The request method
2. The URL
3. Protocol version (usually HTTP/1.0)
4. Header (meta-data)
5. Body (data)

HTTP Requests

Example: You want to request a file: http://www.somehost.com/path/file.html

The first line of the HTTP request would look like this:

```
GET /path/file.html HTTP/1.0
```

Request Methods

```
GET /path/file.html HTTP/1.0
```

Four main HTTP request methods:

1. GET
2. POST
3. PUT
4. DELETE

Request Methods

```
GET /path/file.html HTTP/1.0
```

Path of the resource on this host

Request Methods

```
GET /path/file.html HTTP/1.0
```

HTTP version number

HTTP Requests

Following the first line are the header and body of the request.

The header includes *metadata* about the request (e.g. the user who sent it and the program making the request).

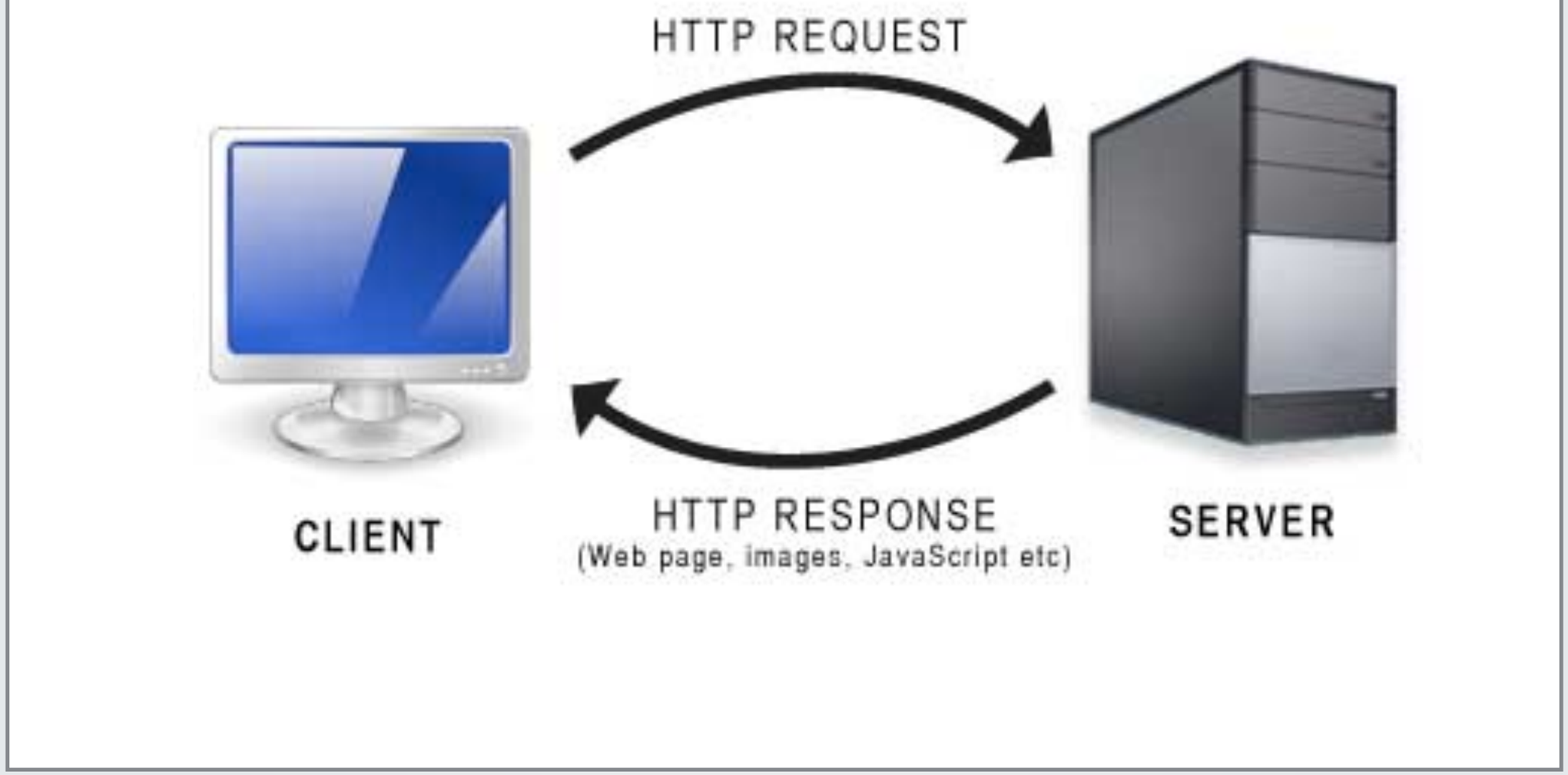
```
GET /path/file.html HTTP/1.0
From: user@example.com
User-Agent: Chrome/37.0.2049.0
```

HTTP Requests

The request body includes any data to be sent with the request.

This is only applicable for action requests (POST, PUT) that send information to the server.

Example: when you fill out a form to sign in, the username and password you enter get passed as the sign-in request's body.


HTTP REQUEST
CLIENT
HTTP RESPONSE
(Web page, images, JavaScript etc)
SERVER

HTTP Responses

An HTTP response follows a similar format. The header contains metadata and the body contains the data we want.

```
HTTP/1.0 200 OK
Date: Fri, 31 Dec 1999
23:59:59 GMT
Content-Type: text/html
Content-Length: 1354
```

HTTP Responses

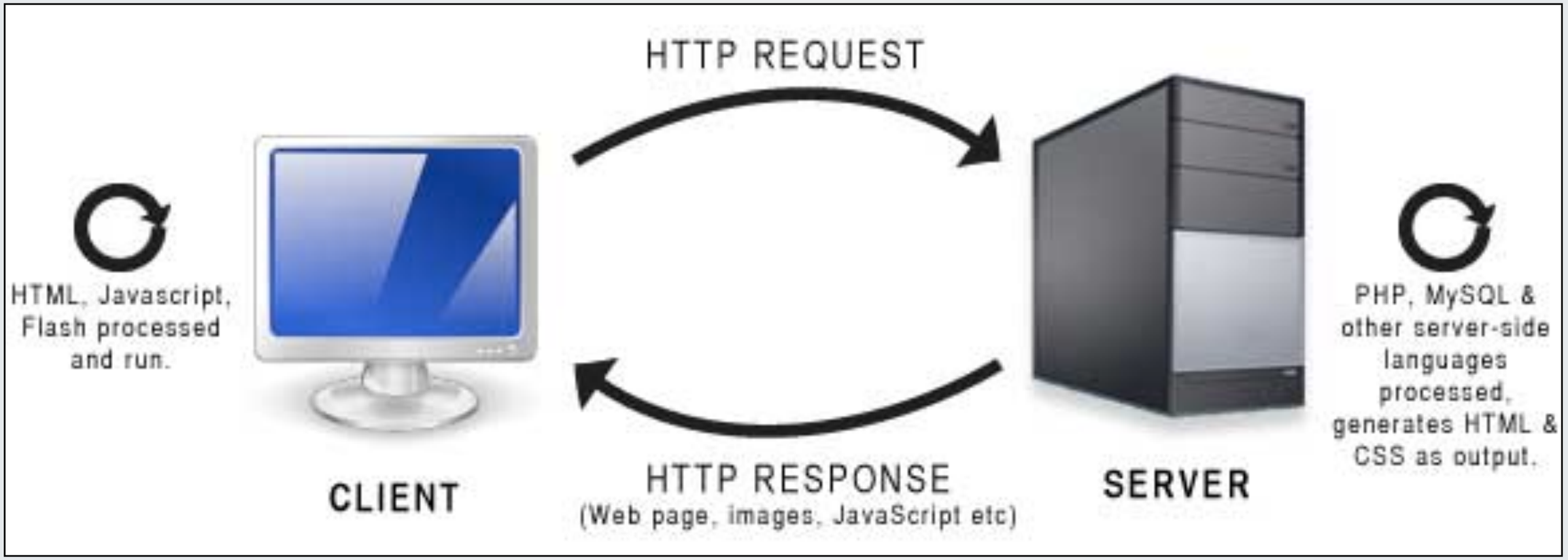
HTTP Responses are all tagged with *status codes* that indicate something about the nature of the response.

1xx - The message is just informational
2xx - The request was successful
3xx - Redirects you to another URL
4xx - Something went wrong on your end
5xx - Something went wrong on their end

HTTP Responses

The HTTP response body contains all the data that the browser should interpret and display.

The browser can figure out what type of content it is based on the content-type field in the header, so it knows how to render it.


HTTP REQUEST
HTML, Javascript, Flash processed and run.
CLIENT
HTTP RESPONSE
(Web page, images, JavaScript etc)
SERVER
PHP, MySQL & other server-side languages processed, generates HTML & CSS as output.

Homework

Homework has been posted on the course website: https://github.com/hackyale/Web-Development-101

The first assignment can be found under assignments/week_0.md

HACK YALE

< INTRO TO WEB DEVELOPMENT />

WWW.HACKYALE.COM