ERASMUS+

Enriching lives, opening minds

WEB-TECHNOLOGIES

www.confucius.by

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WEB-тэхналогіі WEB-technologies WEB-технологии

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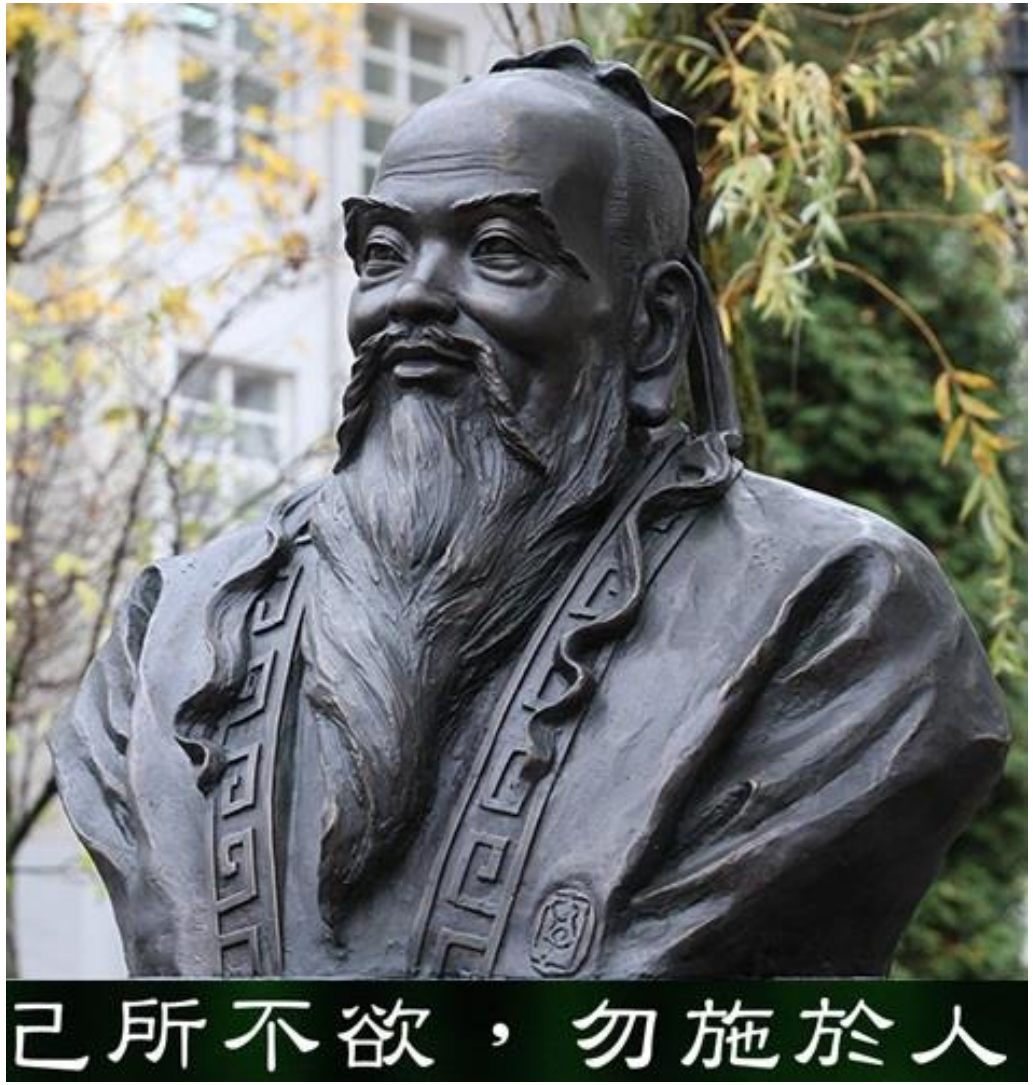
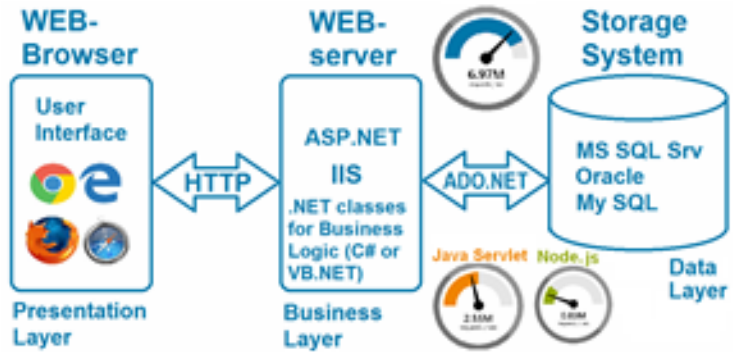



ink +
think



Front End
HTML/ CSS/ Java Script и DOM
BackEnd
ASP.NET
IIS
ADO.NET

DHCP (~~eogl~~ Dynamic Host Confi-guration Protocol)

tracert – tracerout (in Apple) www.geotraceroute.com

172 . 16 . 254 . 1

10101100.00010000.11111110.00000001

8 bits

32 bits (4 bytes)

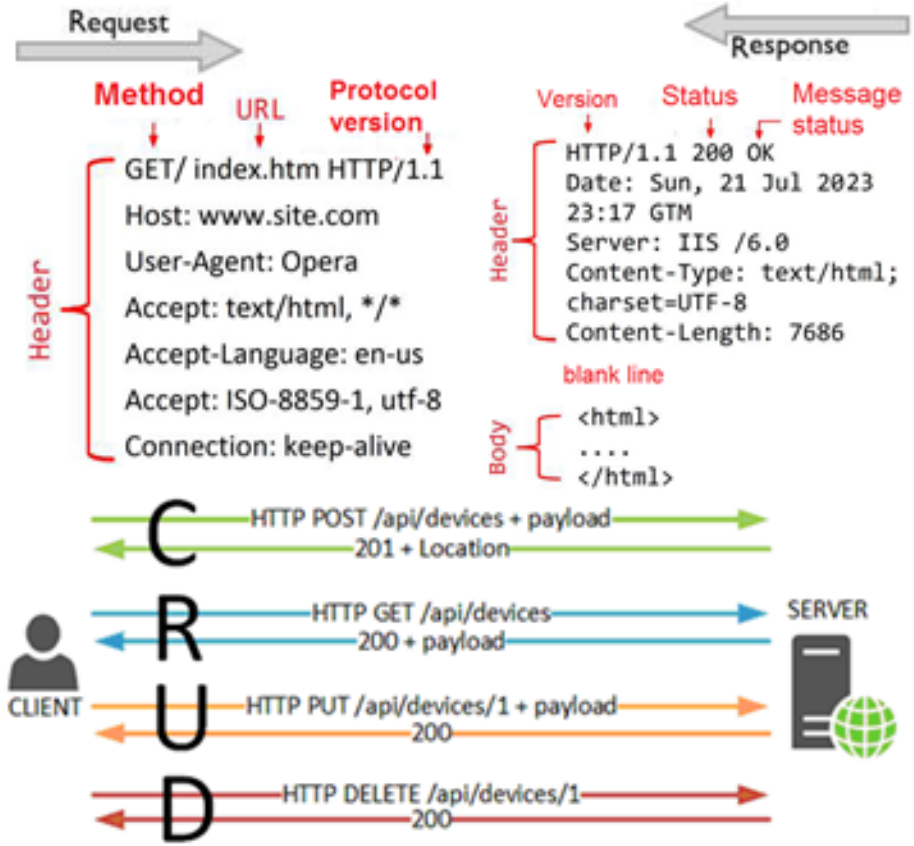
4 billion addresses – **4.294.967.296**

DNS – clearer address.

195.50.7.122 – sbmt.by, sbmt.bsu.by sb.bsu.by

+375 (17) 222 80 10 - TATIANA A. TKALICH

+375 (29) 254 07 92 - ANDREY O. YAROSHEVICH



- GET — getting a resource
- POST — resource creation
- PUT — resource update
- DELETE — deleting a resource

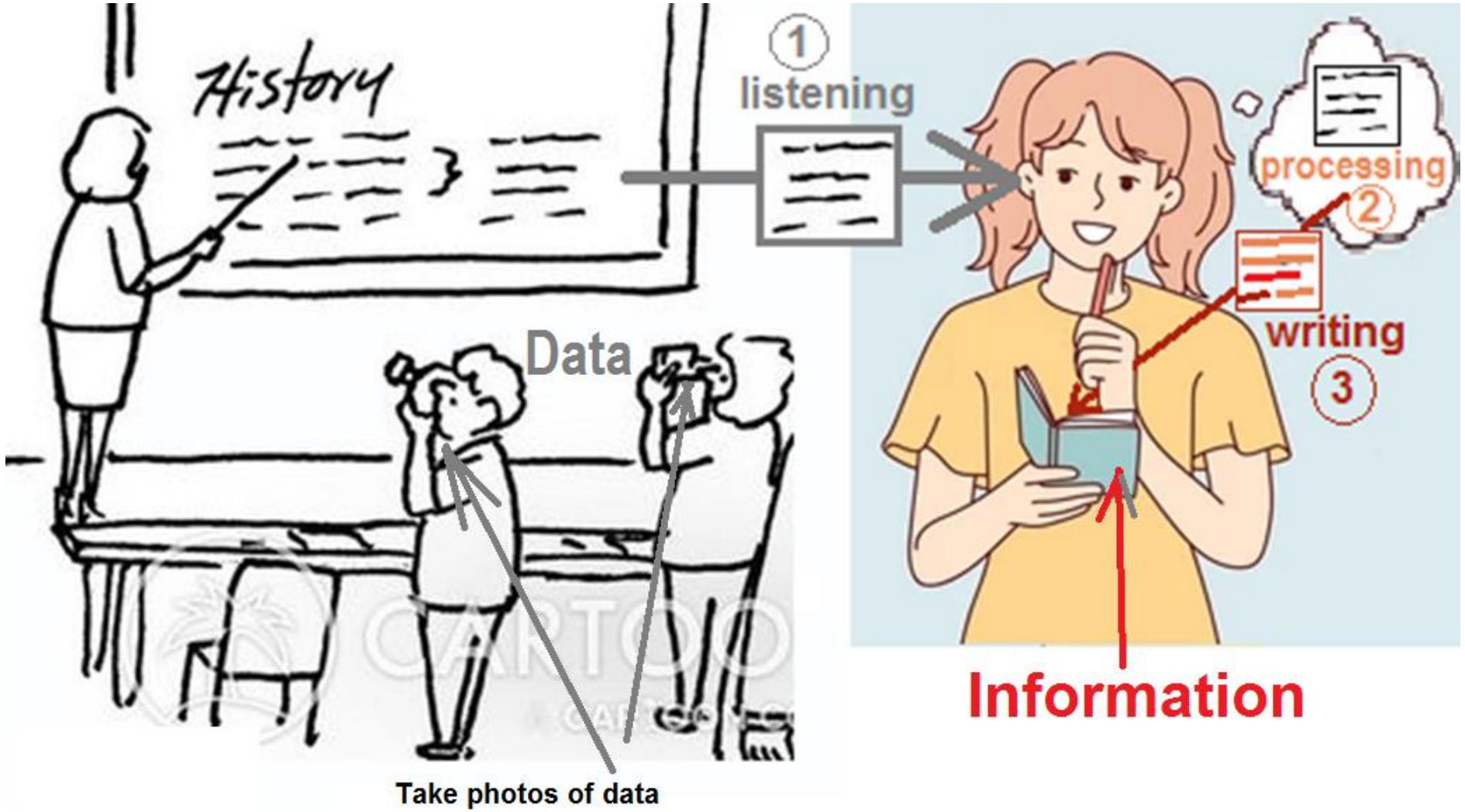
Methods		Request		Response	
		URL	Request body	Status	Response body
1	GET	Yes	No	Yes	Yes
2	PUT	Yes	Yes	Yes	No
3	POST	Yes	Yes	Yes	Yes
4	DELETE	Yes	No	Yes	No

You get the most out of lecture

by doing some-thing such as taking notes

If you can

Data vs Information



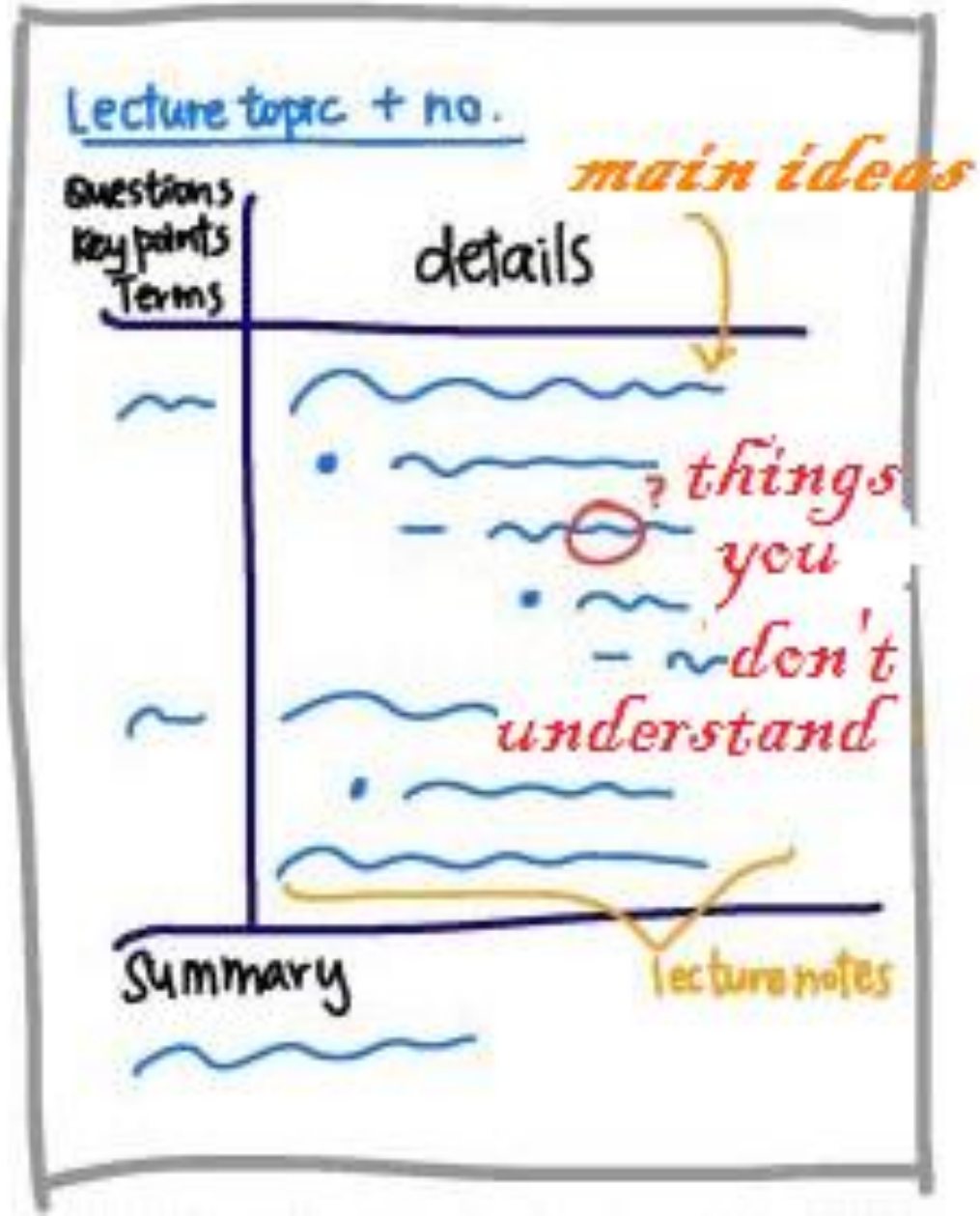
DIFFERENCE BETWEEN DATA AND INFORMATION

DATA

Data is raw, unorganized facts that need to be processed. Data can be something simple and seemingly random and useless until it is organized.

INFORMATION

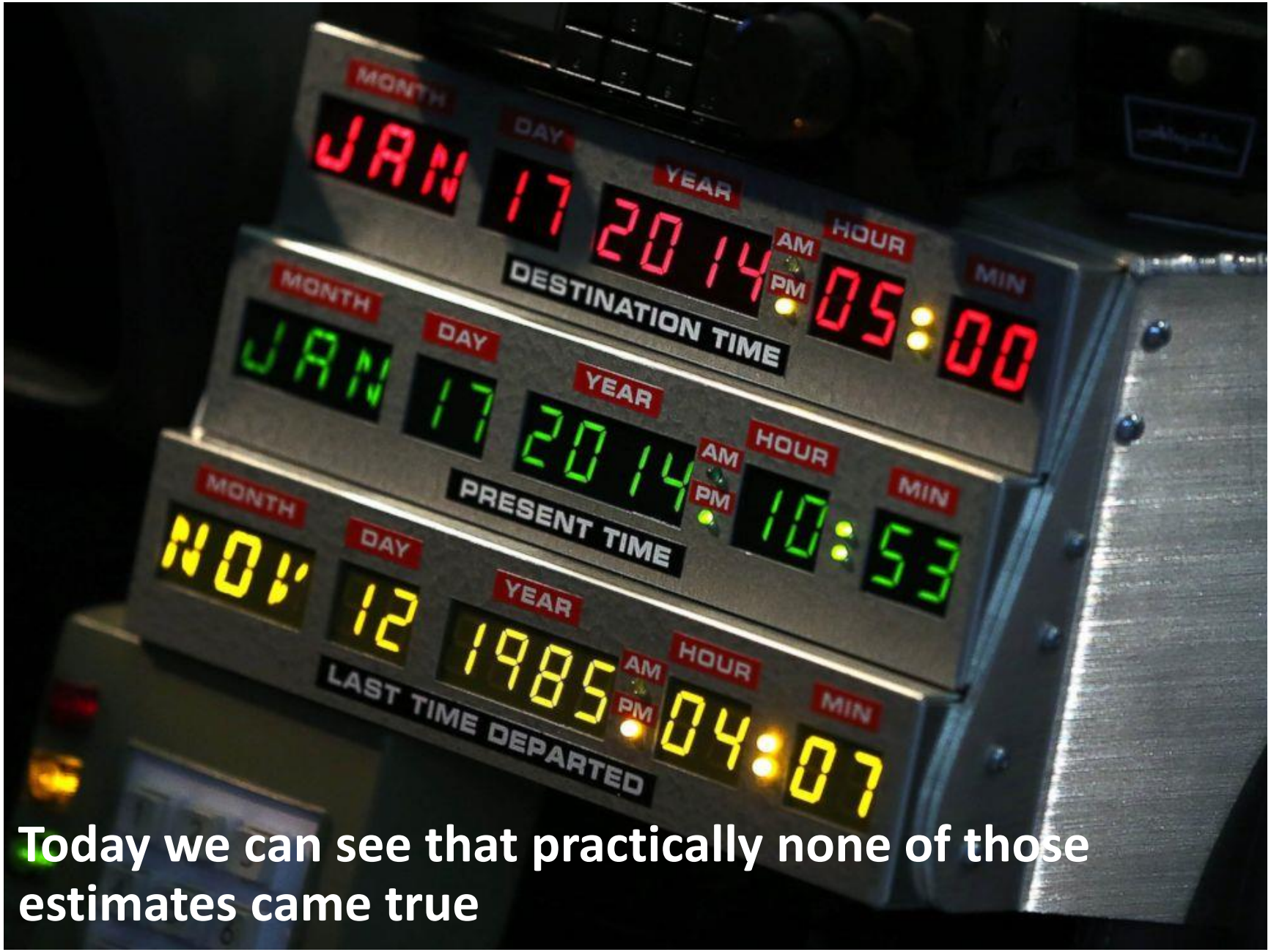
When data is processed, organized, structured or presented in a given context so as to make it useful, it is called information.



"Instead of taking notes, can I just purchase a transcript of today's lesson?"


When I was a student and learned to work on large mainframe computers (PC’s were rare back then)

the movie Back To The Future, Part II was released, where the characters got to 2015



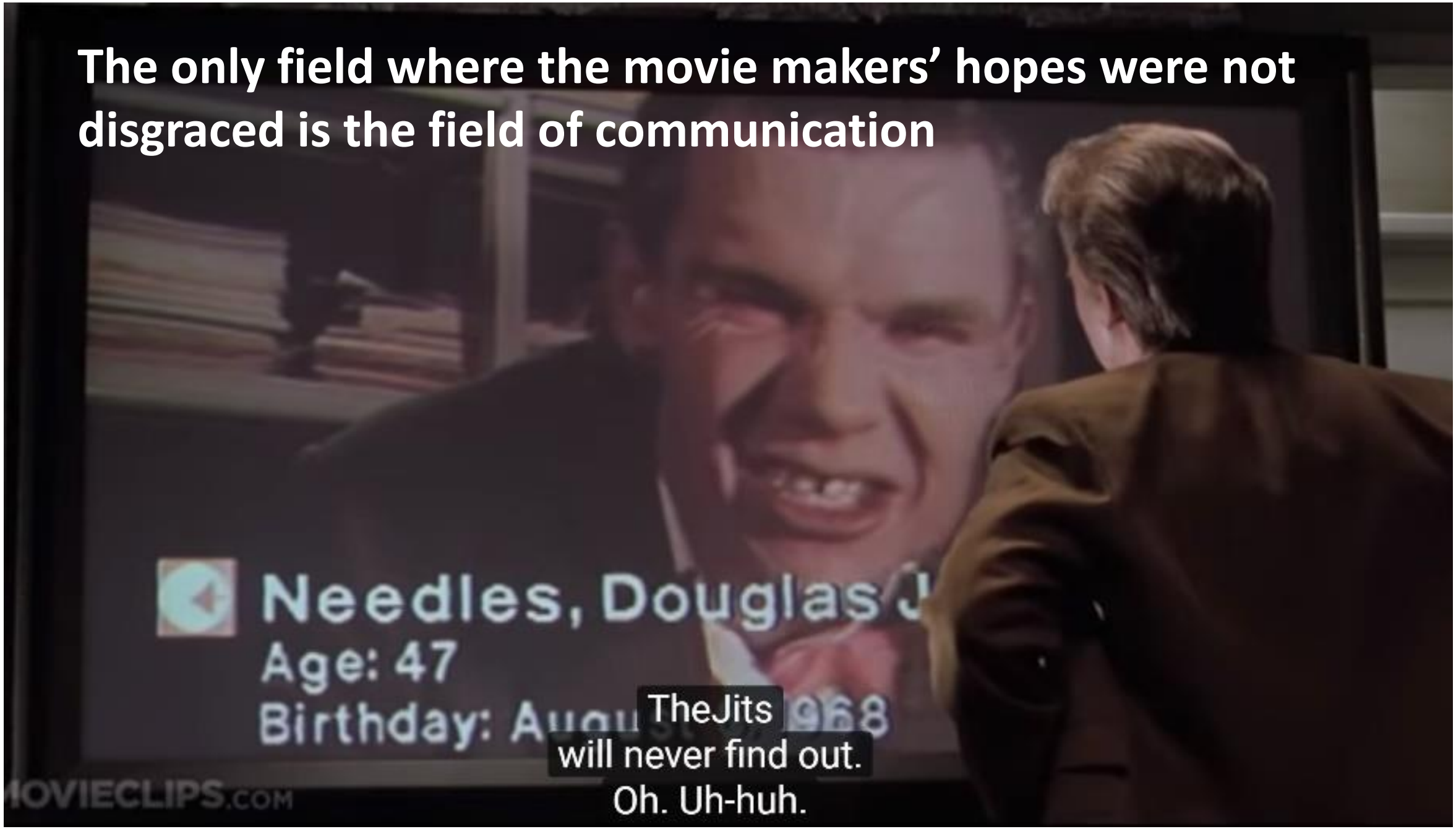
Today we can see that practically none of those estimates came true

People do not fly with hover boards

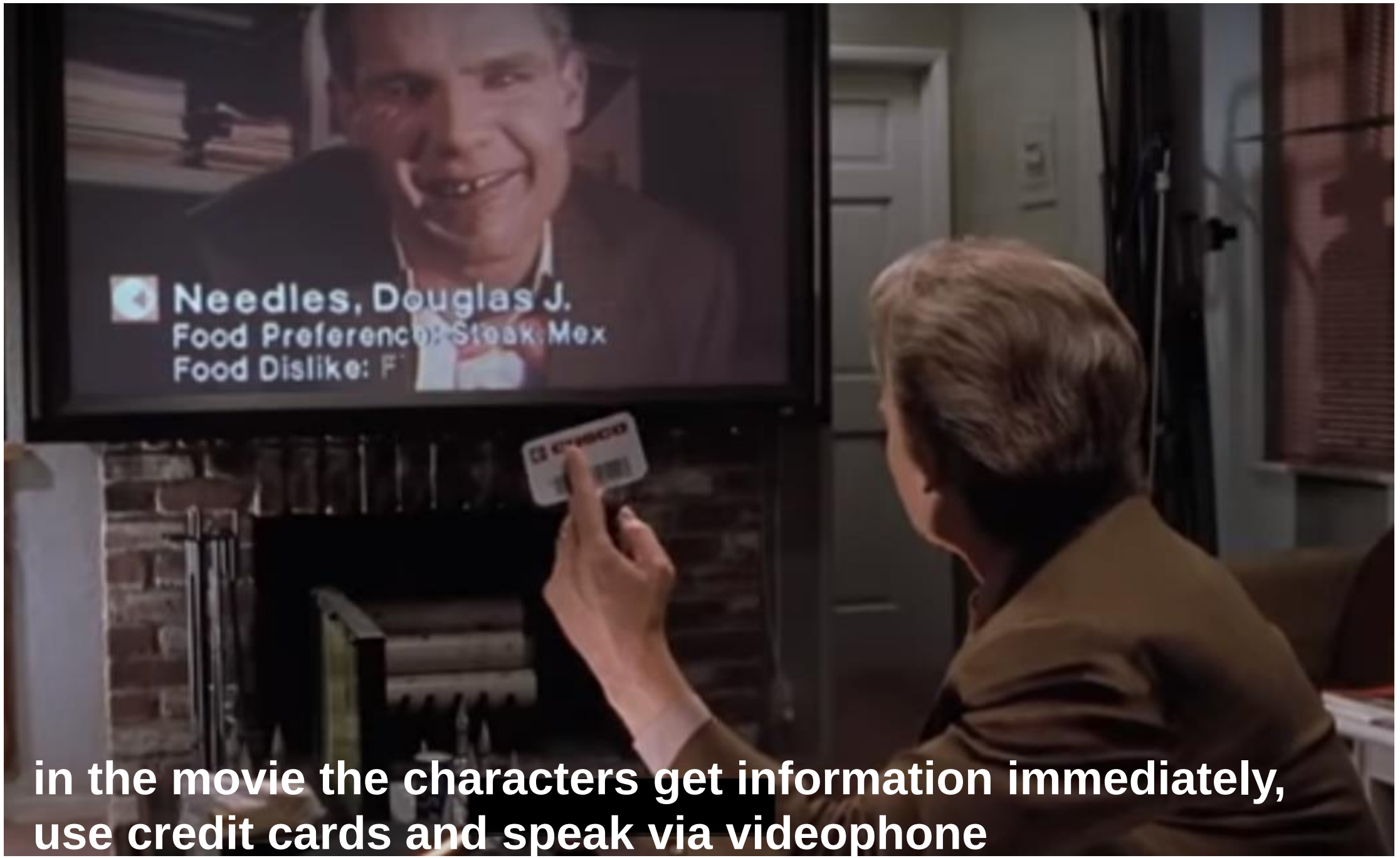

there are no flying cars (we drive cars with internal combustion engines
just as in the times of Henry Ford)


Housewives still cook on kitchen stoves

The only field where the movie makers' hopes were not disgraced is the field of communication

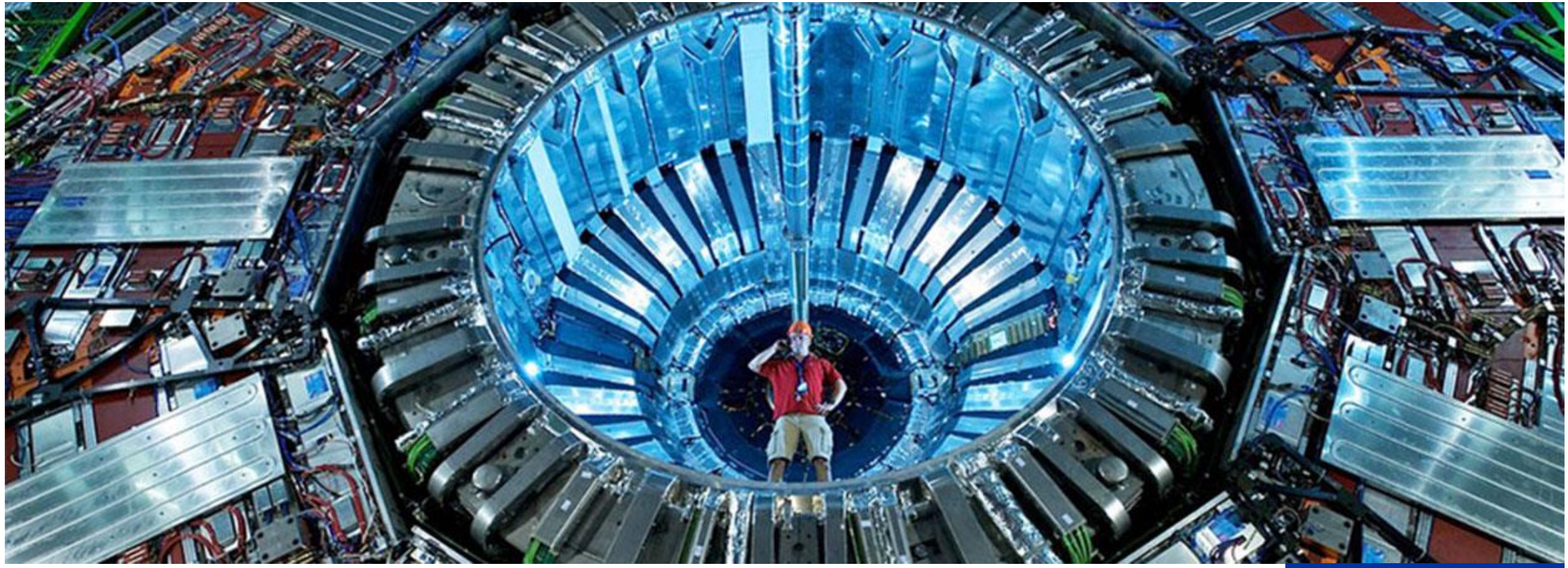


https://youtu.be/Q0VGRlEJewA



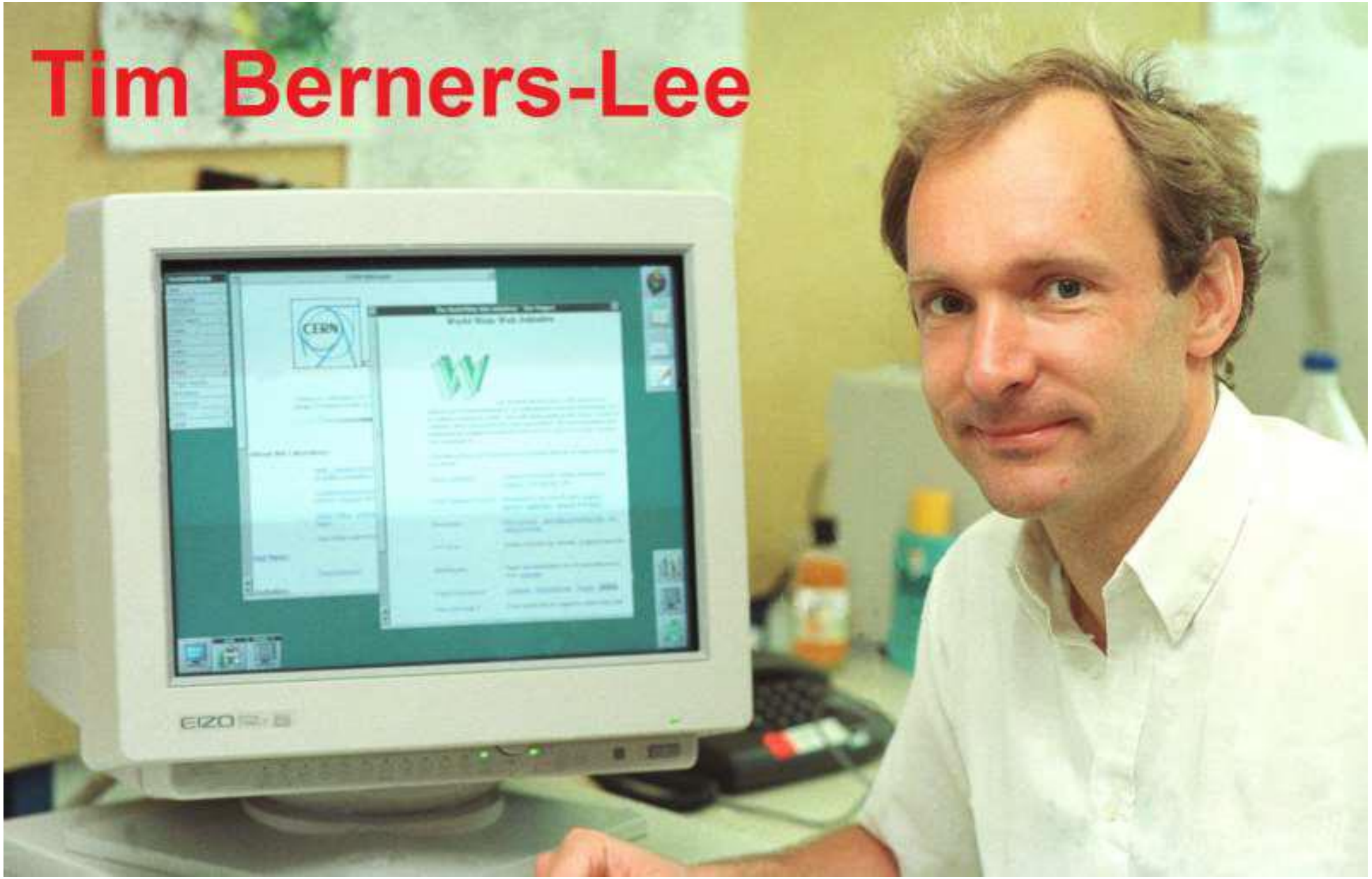
in the movie the characters get information immediately, use credit cards and speak via videophone


and this estimate came true in 2015



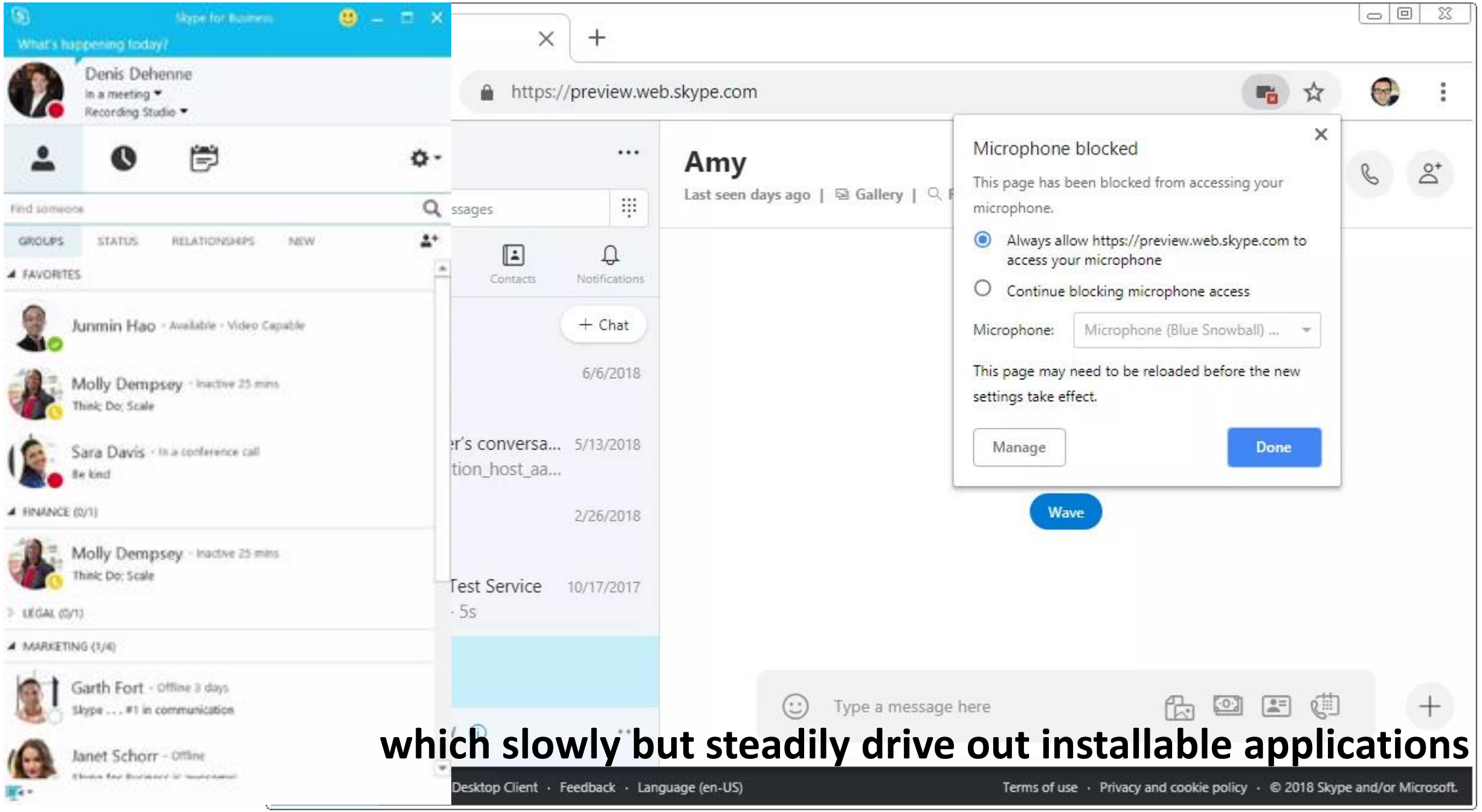
The World-Wide Web technologies which were originally designed in CERN

(European Organization for Nuclear Research)



as a means
of delivering
documents
from one
scientific
establish-
ment
to another
one

are now used as a platform for complex interactive applications

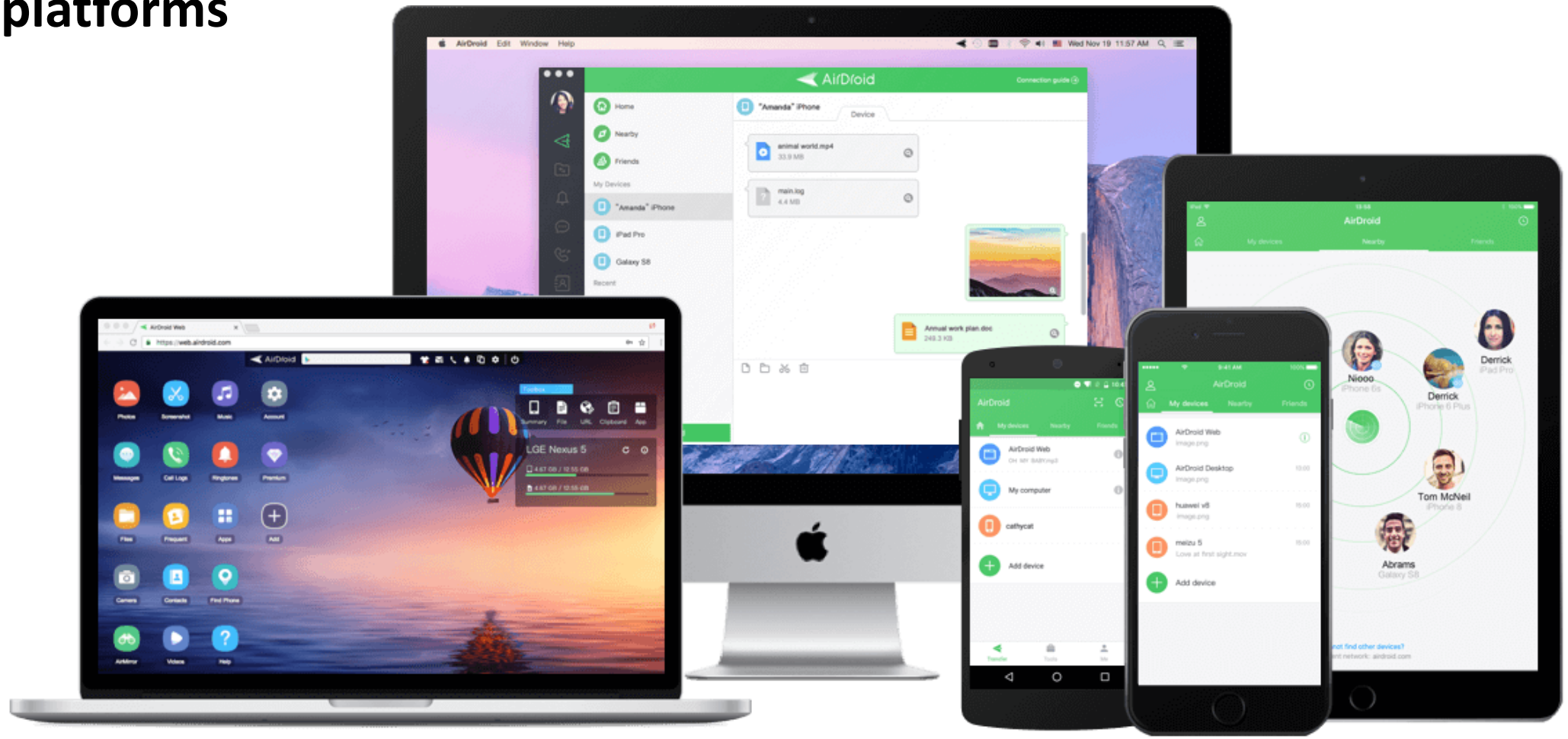


which slowly but steadily drive out installable applications

WEB applications have: + anytime access from different devices,

+ automatic updating

+ a possibility of integration of different applications written for different platforms



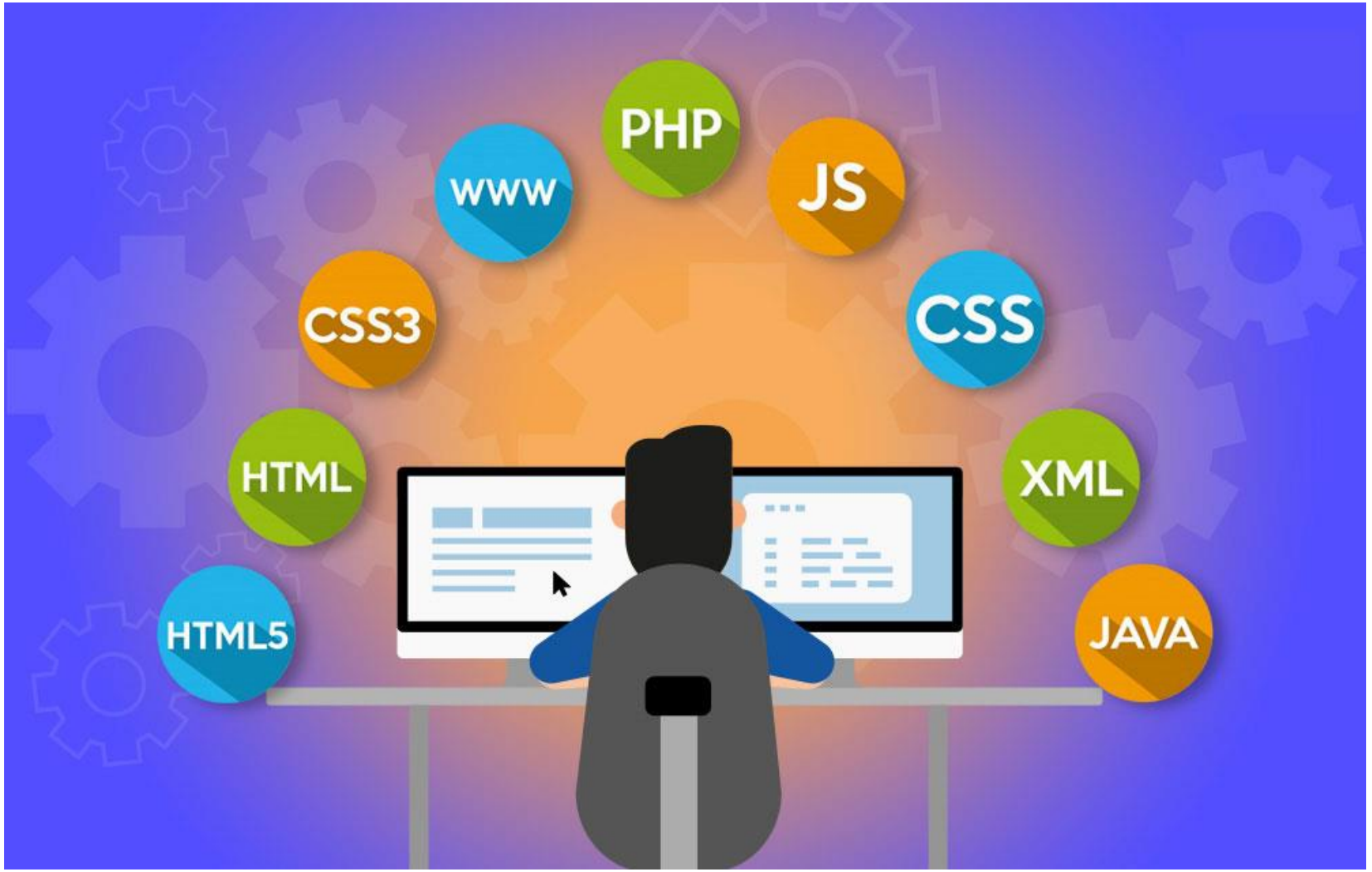
This course introduces to these different WEB technologies and gives experience in creating WEB applications.

Students learn theoretically and get practical skills in

- markup languages,
- scripting languages,
- network protocols,
- graphics and video-images,
- event-driven programming,
- object oriented programming,
- databases.

That is, those technologies which allow constructing modern WEB applications.

There is a difficulty with selecting technologies of WEB programming, because this is the field where changes happen most rapidly.



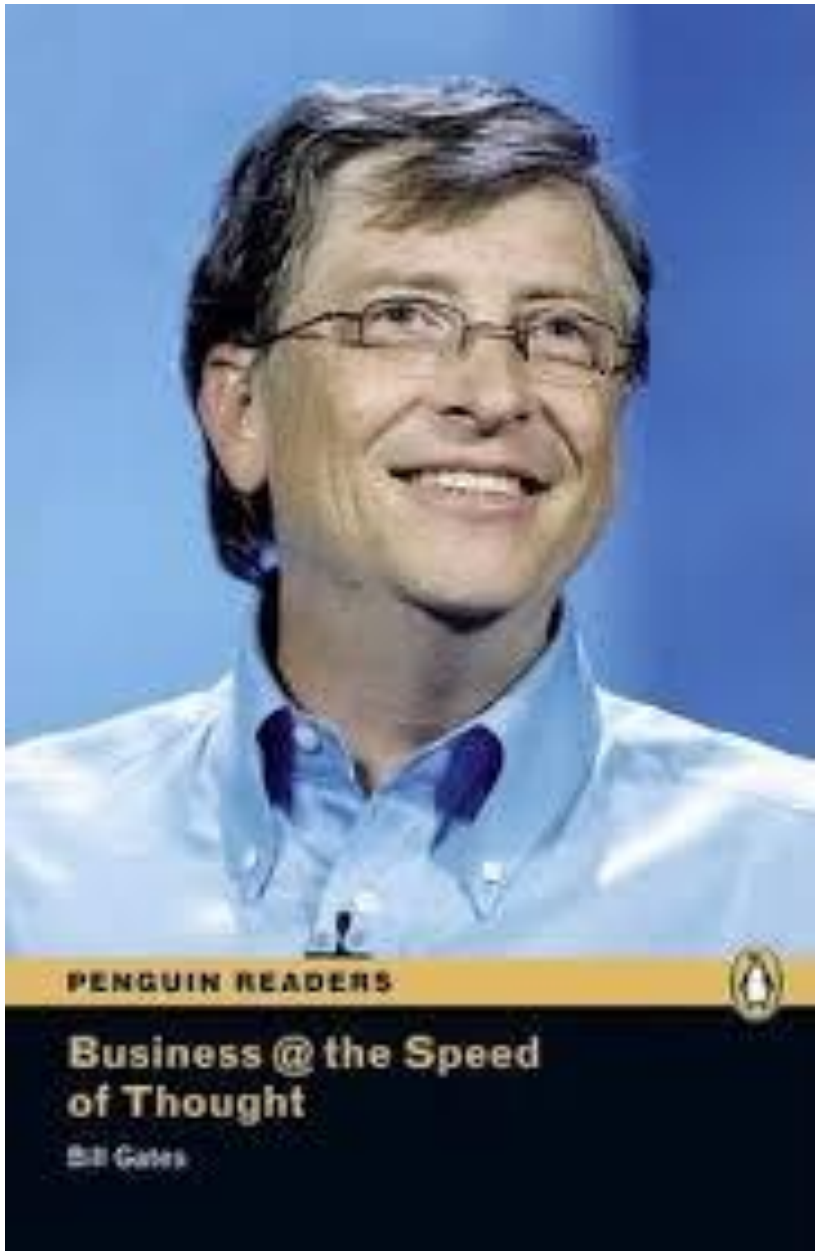
In his book Bill Gates told that Micosoft updates these technologies almost completely once every 3 years.

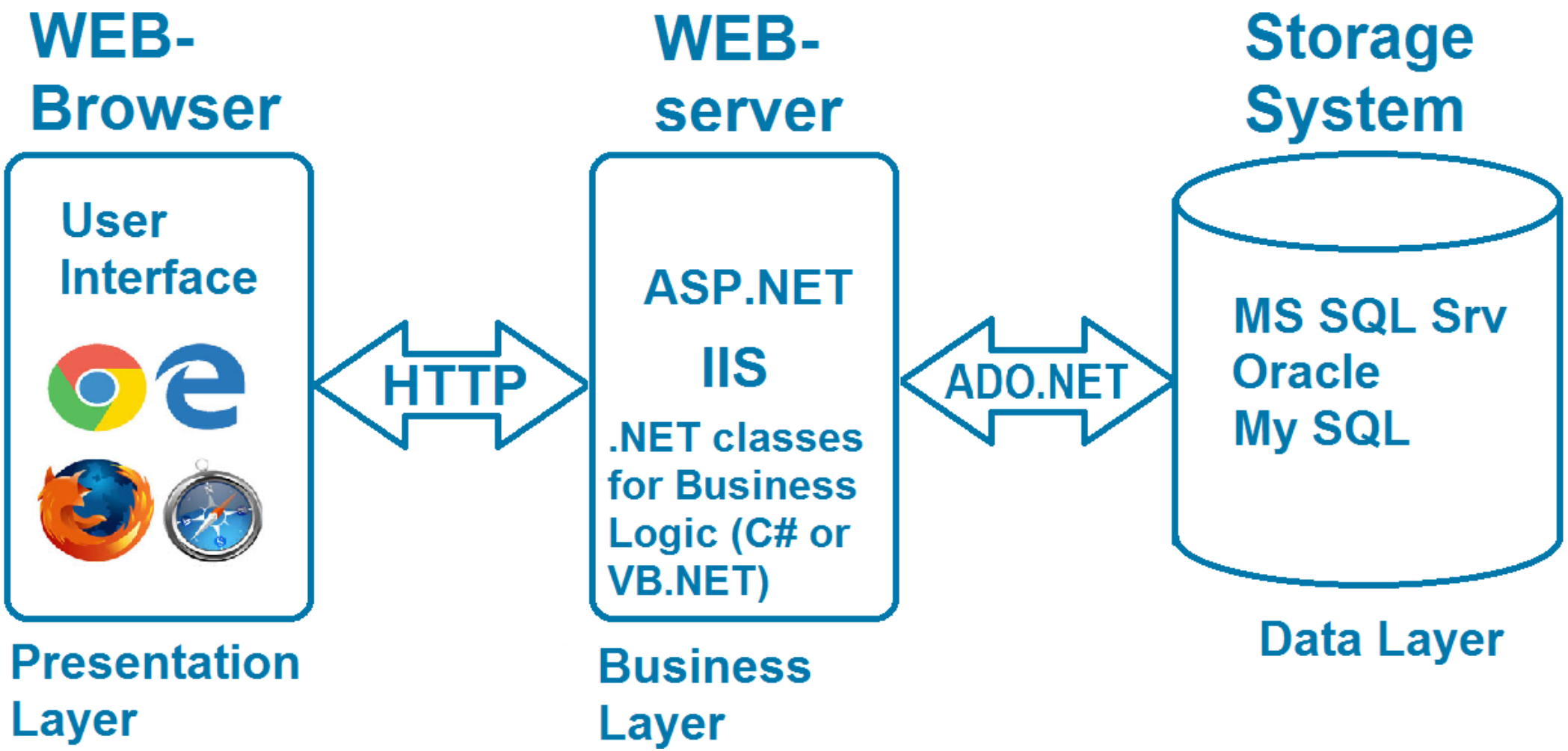
And the course has to be updated very often –

those technologies

which are mainstream today

may lose their positions within a year.



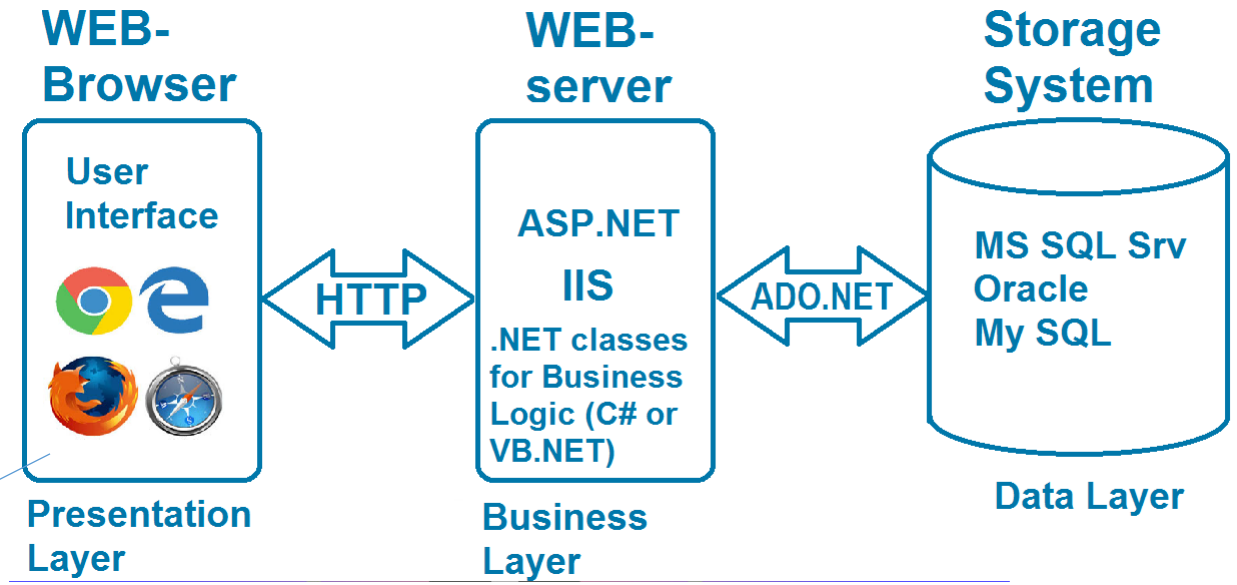


However something remains relatively stable – programming concepts and application architecture

The architecture of a WEB application usually includes the following component parts:

Application interface

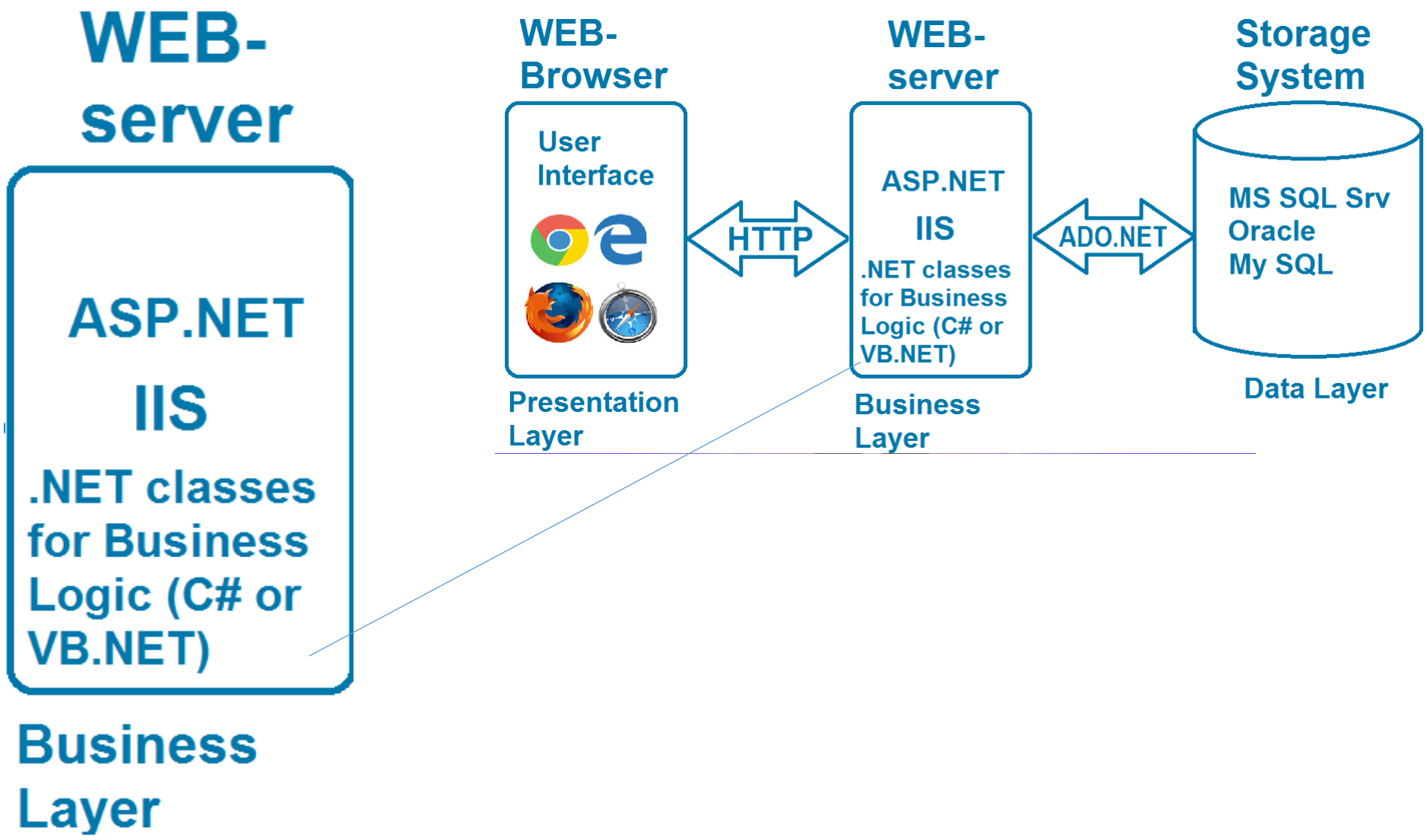
in a Web Browser (Front End)



Business Layer

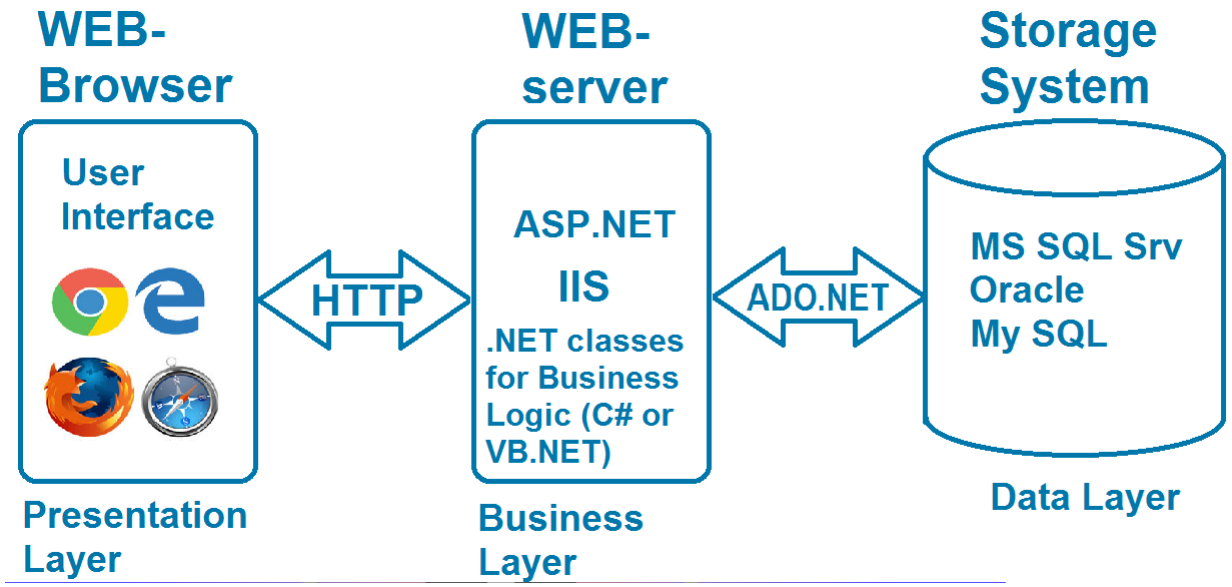
server end

(Back End)



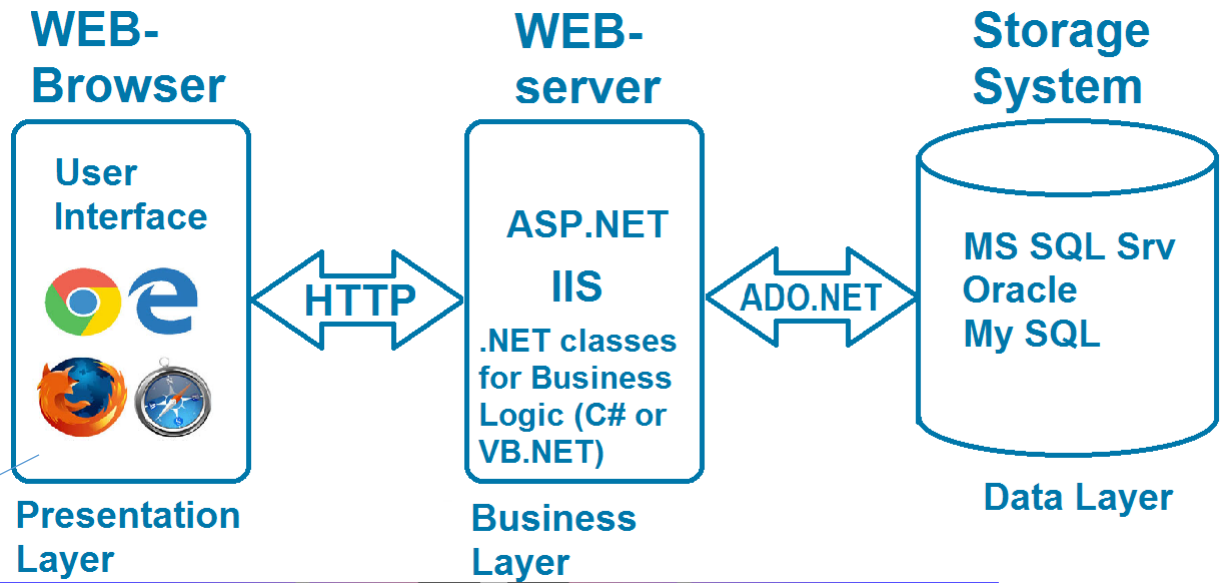
data storage system

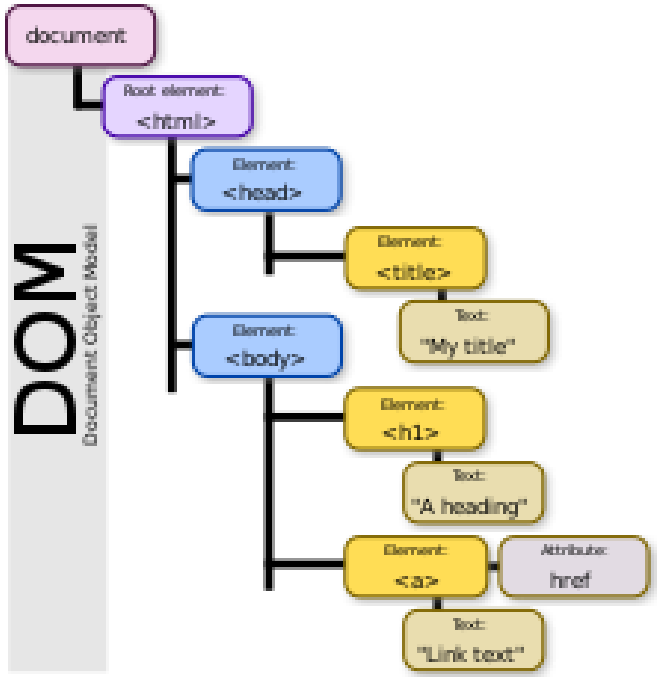
(Data Storage)



At the interface level are studied :

- HTML/CSS/ JavaScript
- Document object Model (DOM)
- Single page applications (Angular JS and (or) Vue.JS frameworks)



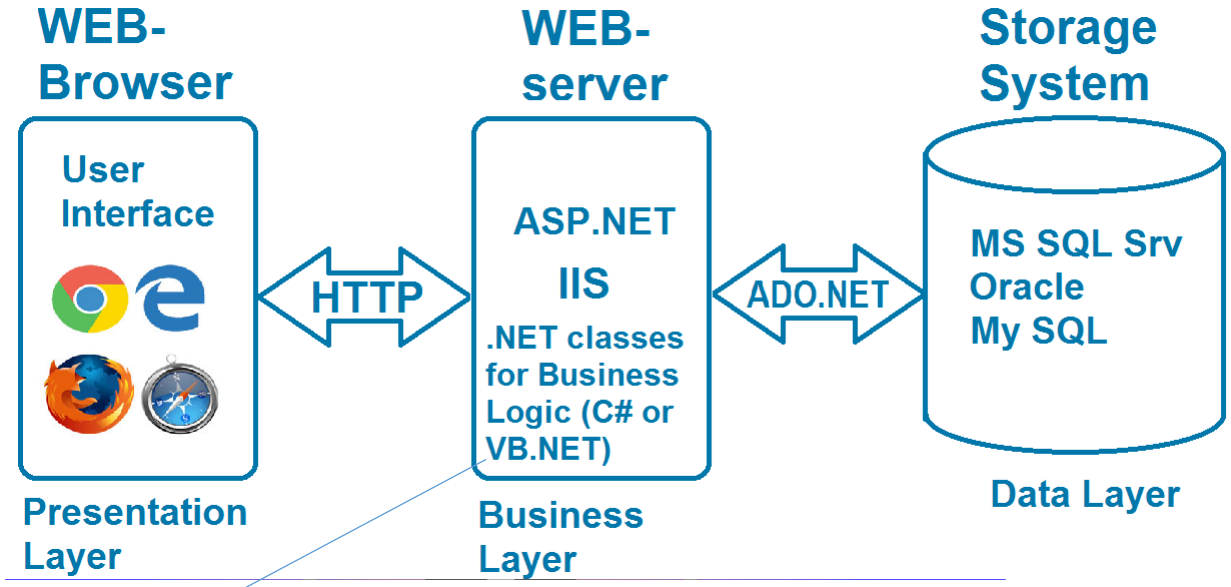


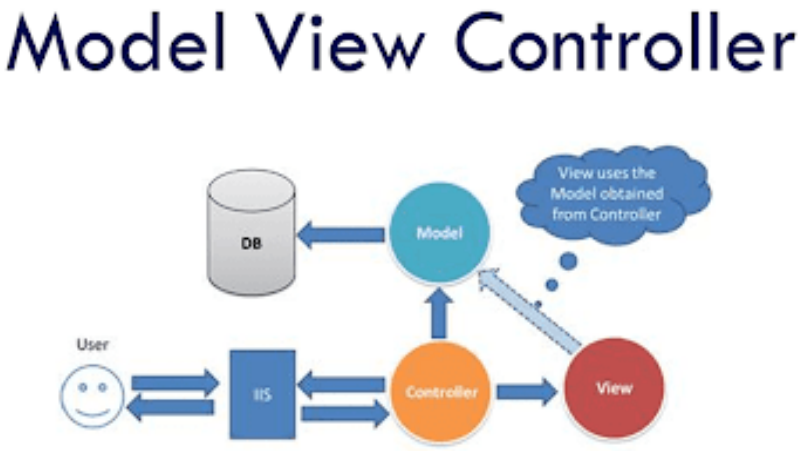
At the

server level (Business Layer)

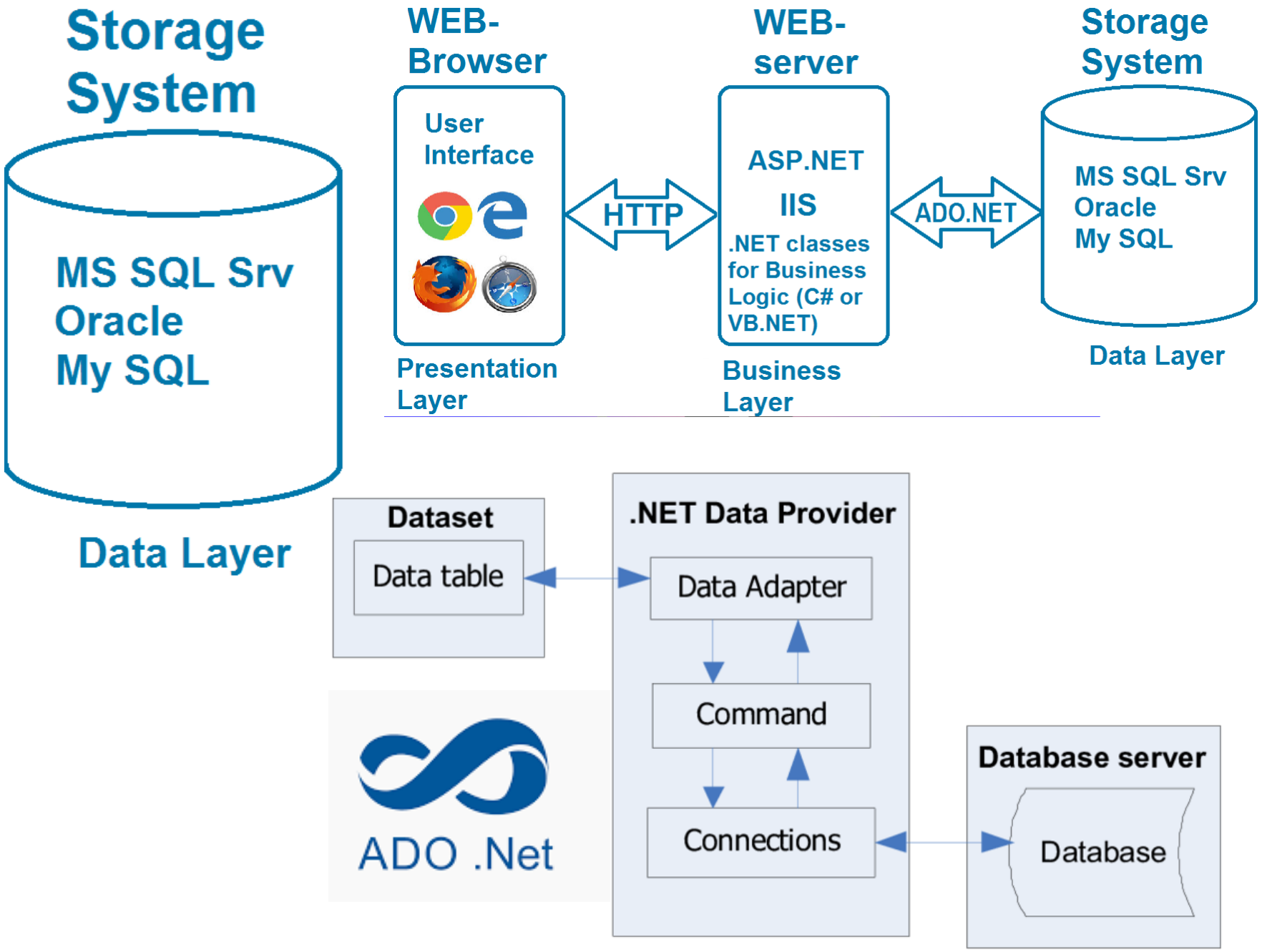
is studied

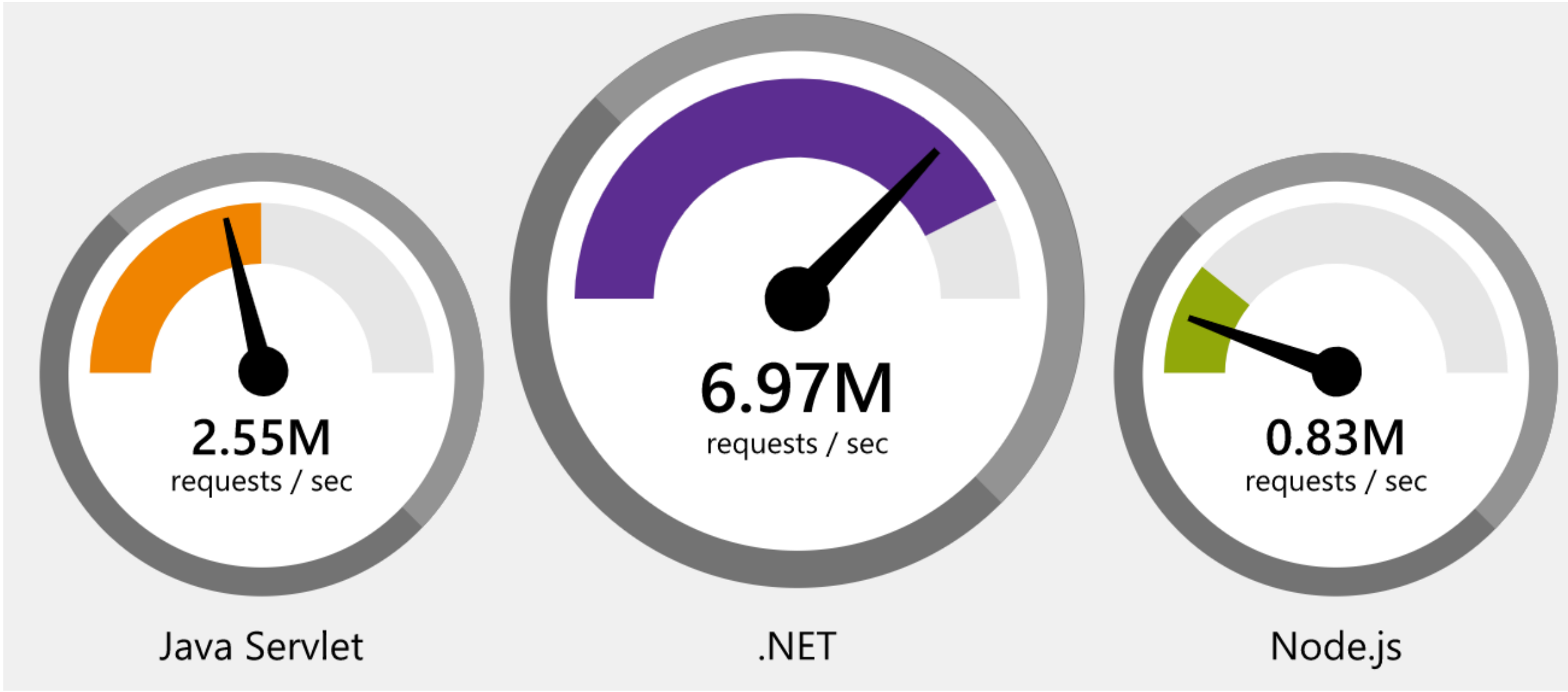
- **The ASP.NET technology based on C# and VB.NET**
- **Model View Controller**





At the data level (Data Layer) is studied the ADO.NET technology for inter-operating with databases





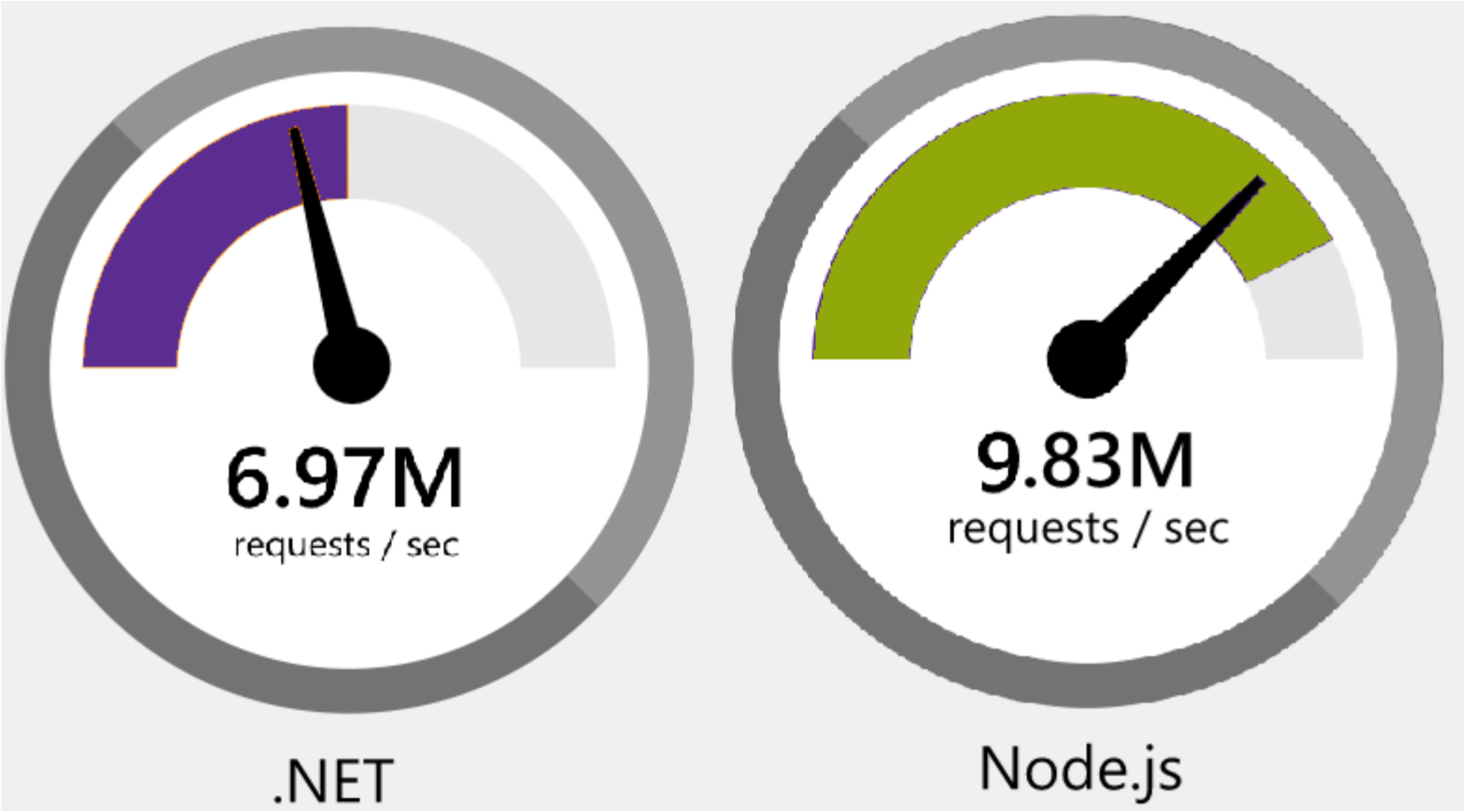
Such a selection is conditioned by the fact that today ASP.NET performs faster than any popular WEB framework.

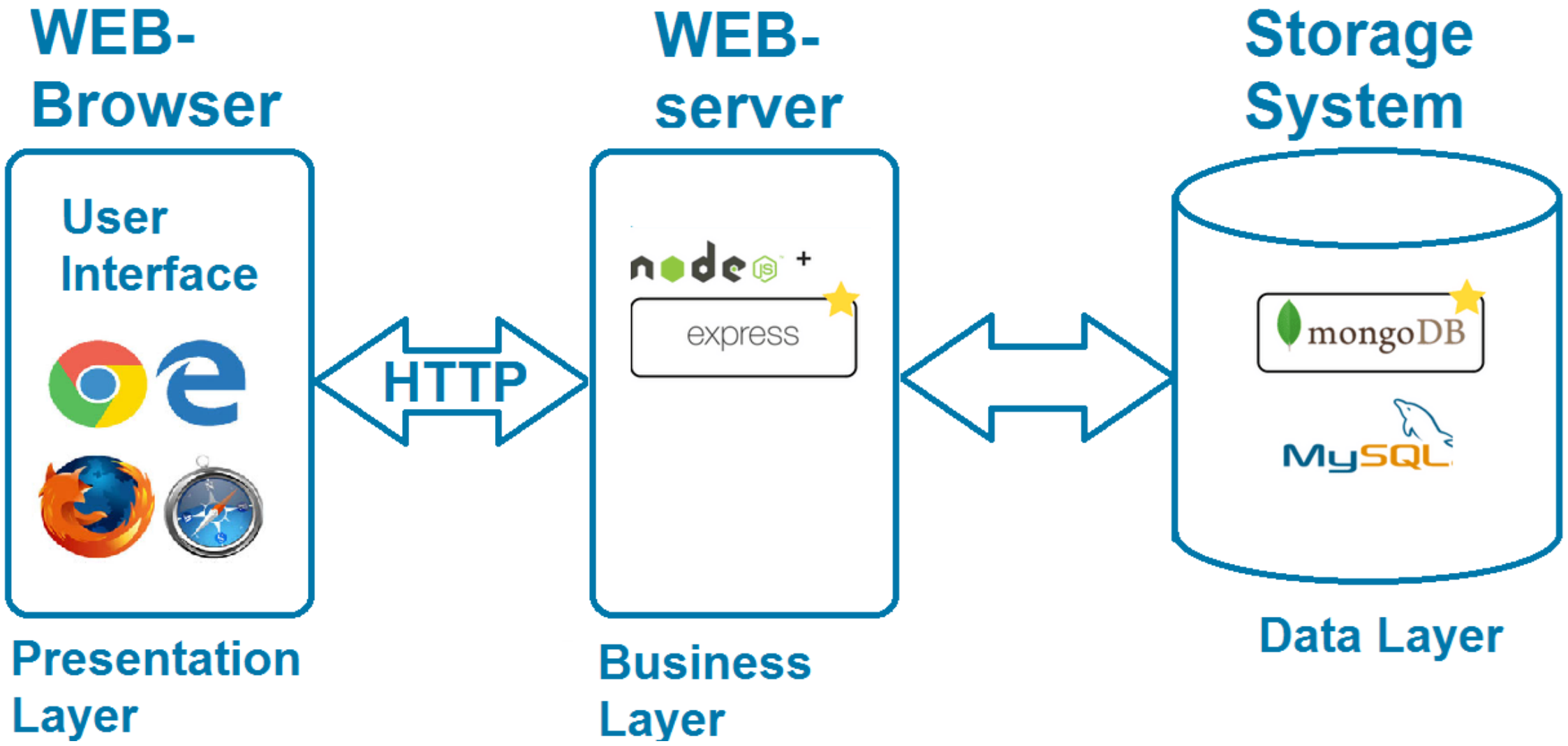
If the situation changes in a year or two

and

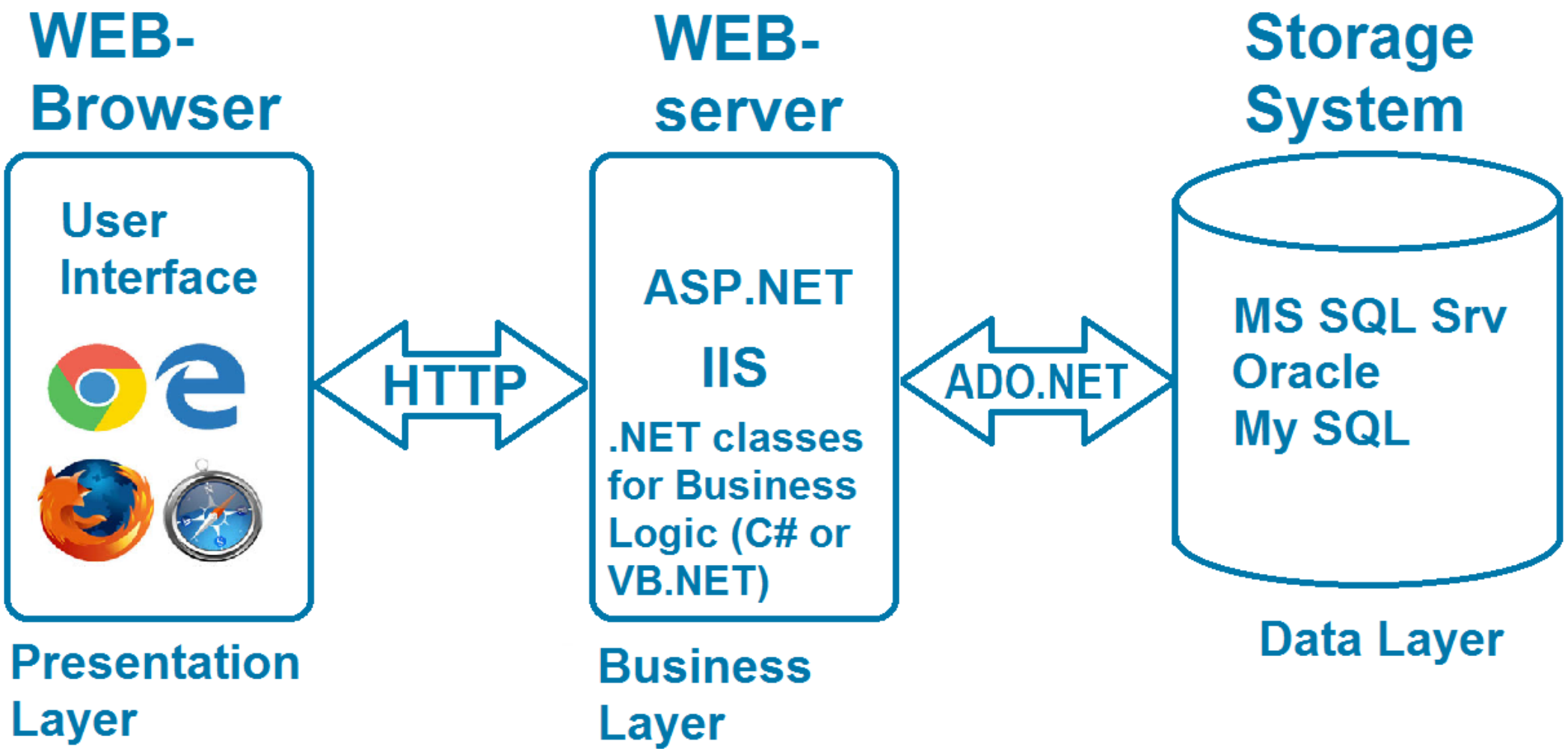
Node.js outperforms ASP.NET

in speed or popularity





Then we will possibly learn Node.js at the server level.



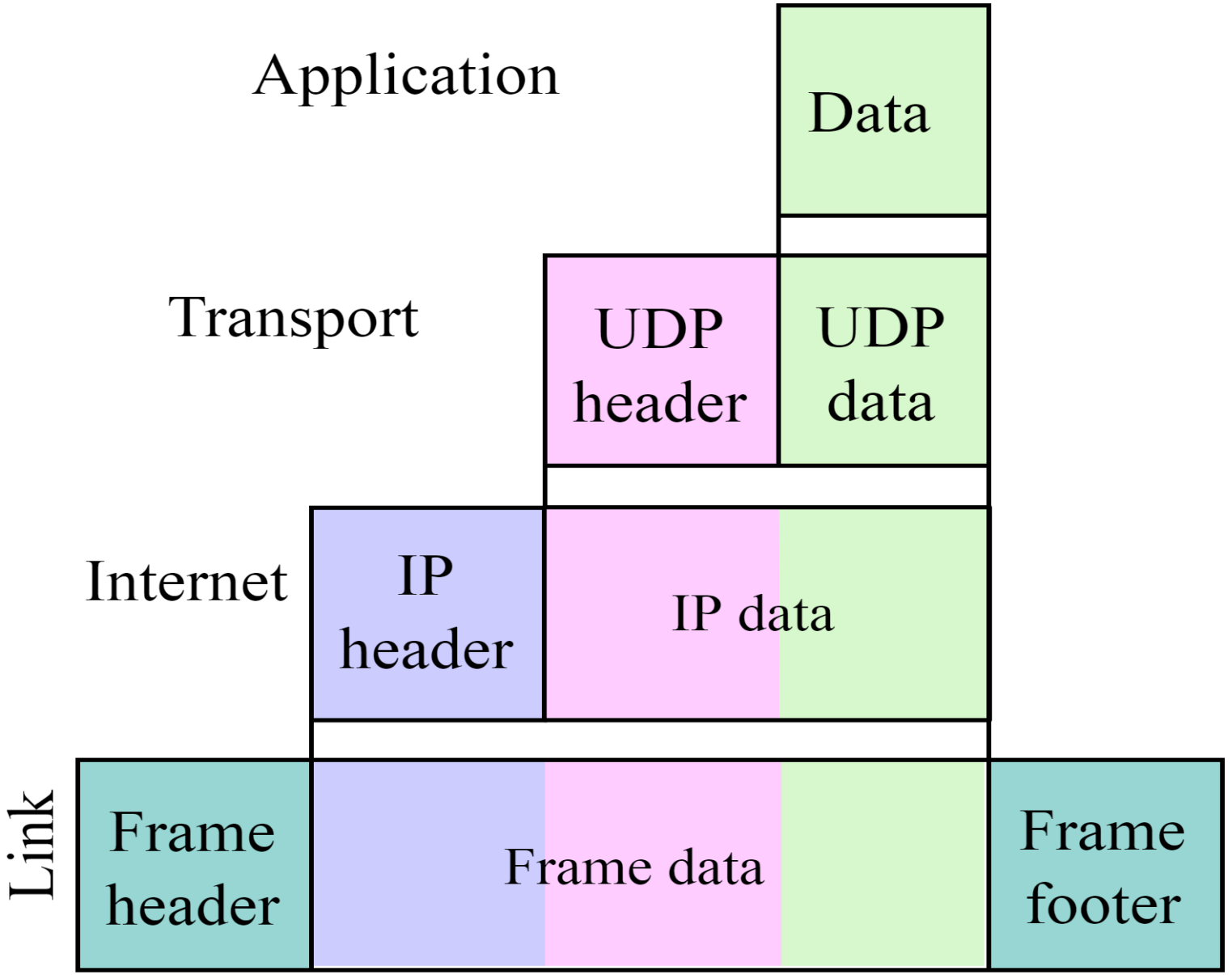
But in the meantime we present you the thing which we find the best and the most useful for students for today.

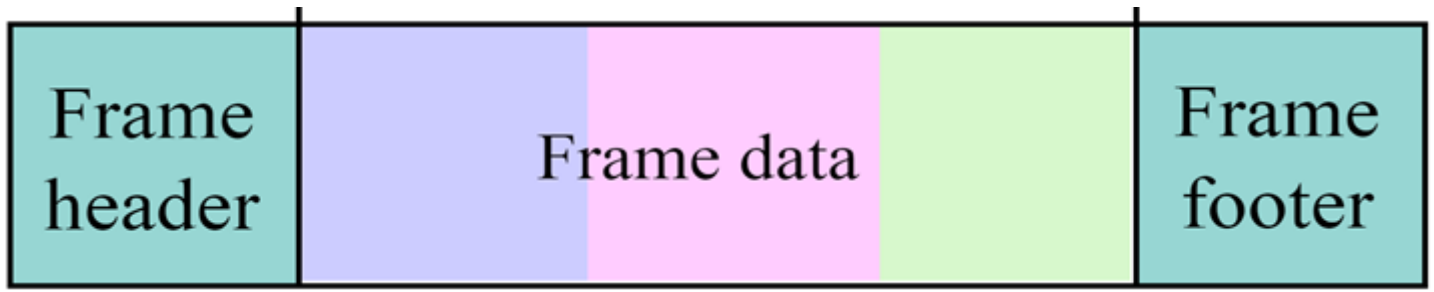
DHCP

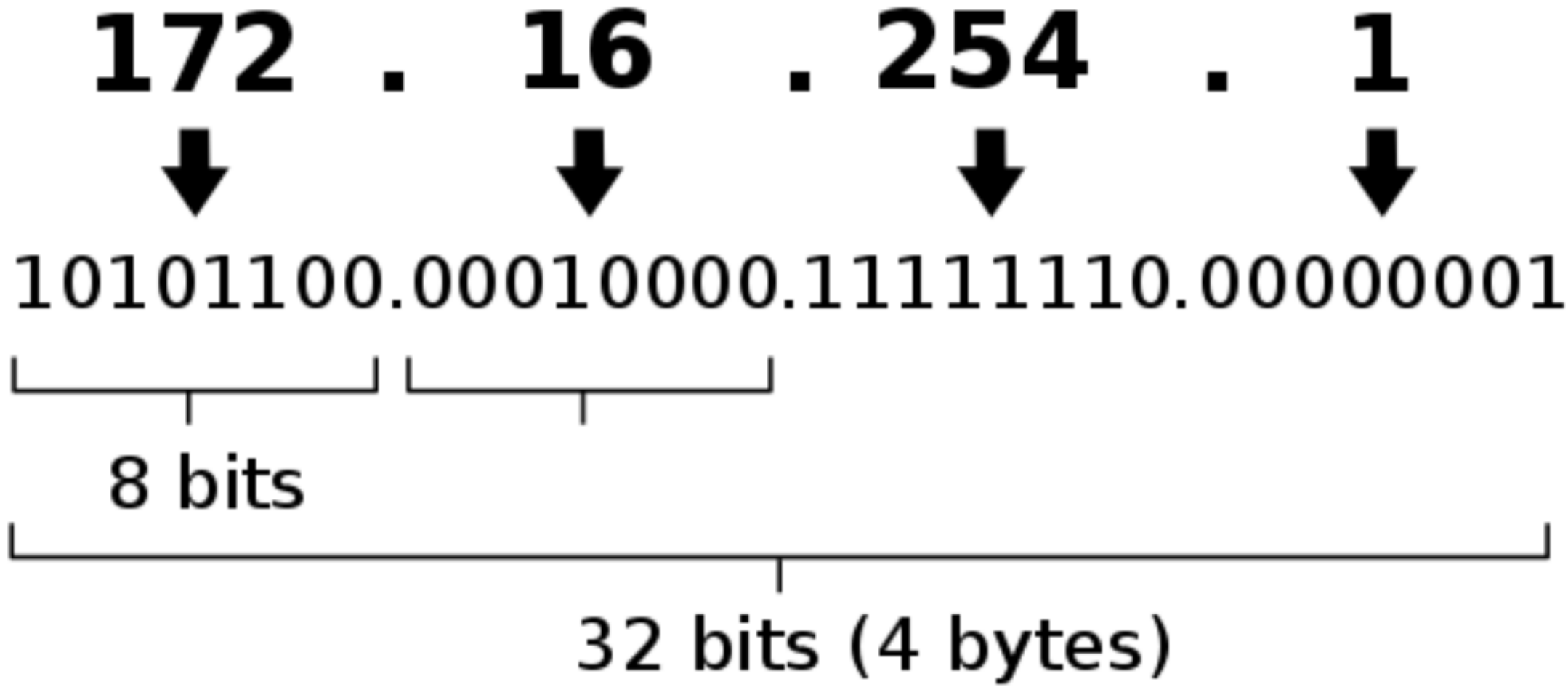
- **DHCP** (Dynamic Host Configuration Protocol)

TCP/IP

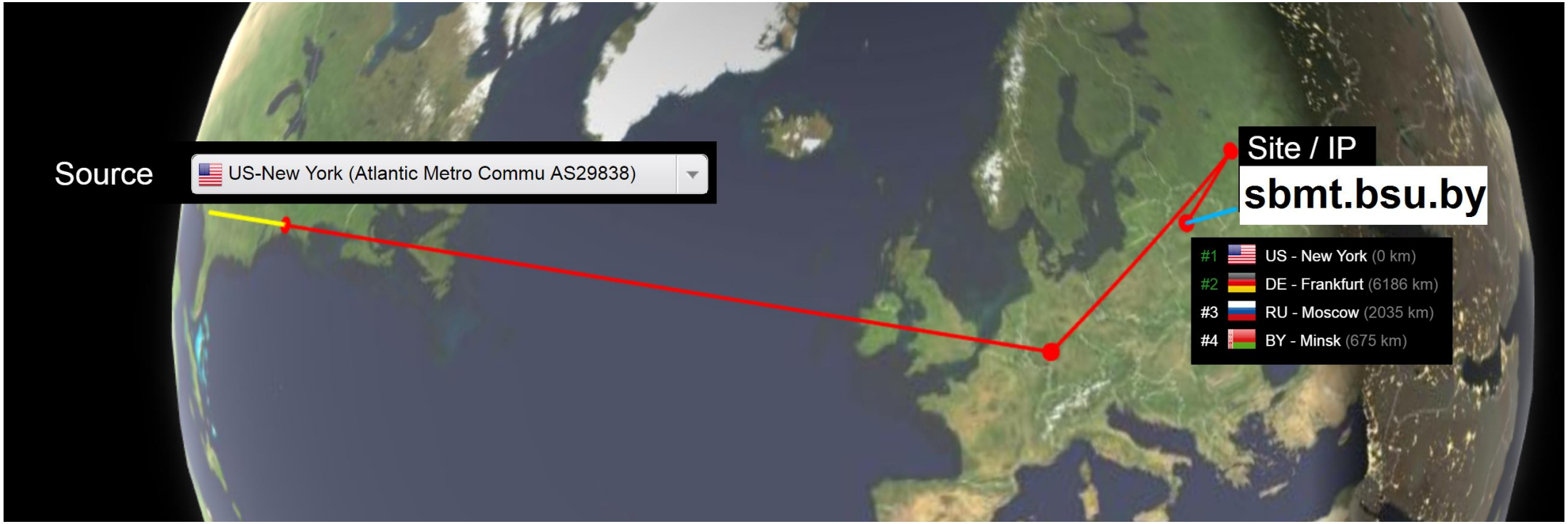
TCP/IP - set of standards and rules defining how data is transmitted by network.




Frame header
Frame data
Frame footer


172 . 16 . 254 . 1
10101100.00010000.11111110.00000001
8 bits
32 bits (4 bytes)

https://asp.net.by/EN/Error_in_film.mp4


Source
US-New York (Atlantic Metro Commu AS29838)
Site / IP
sbmt.bsu.by
#1 US - New York (0 km)
#2 DE - Frankfurt (6186 km)
#3 RU - Moscow (2035 km)
#4 BY - Minsk (675 km)

Animated map reveals the 550,000 miles of cable hidden under the ocean that power the internet

https://www.youtube.com/watch?v=DKHZKTRyzeg

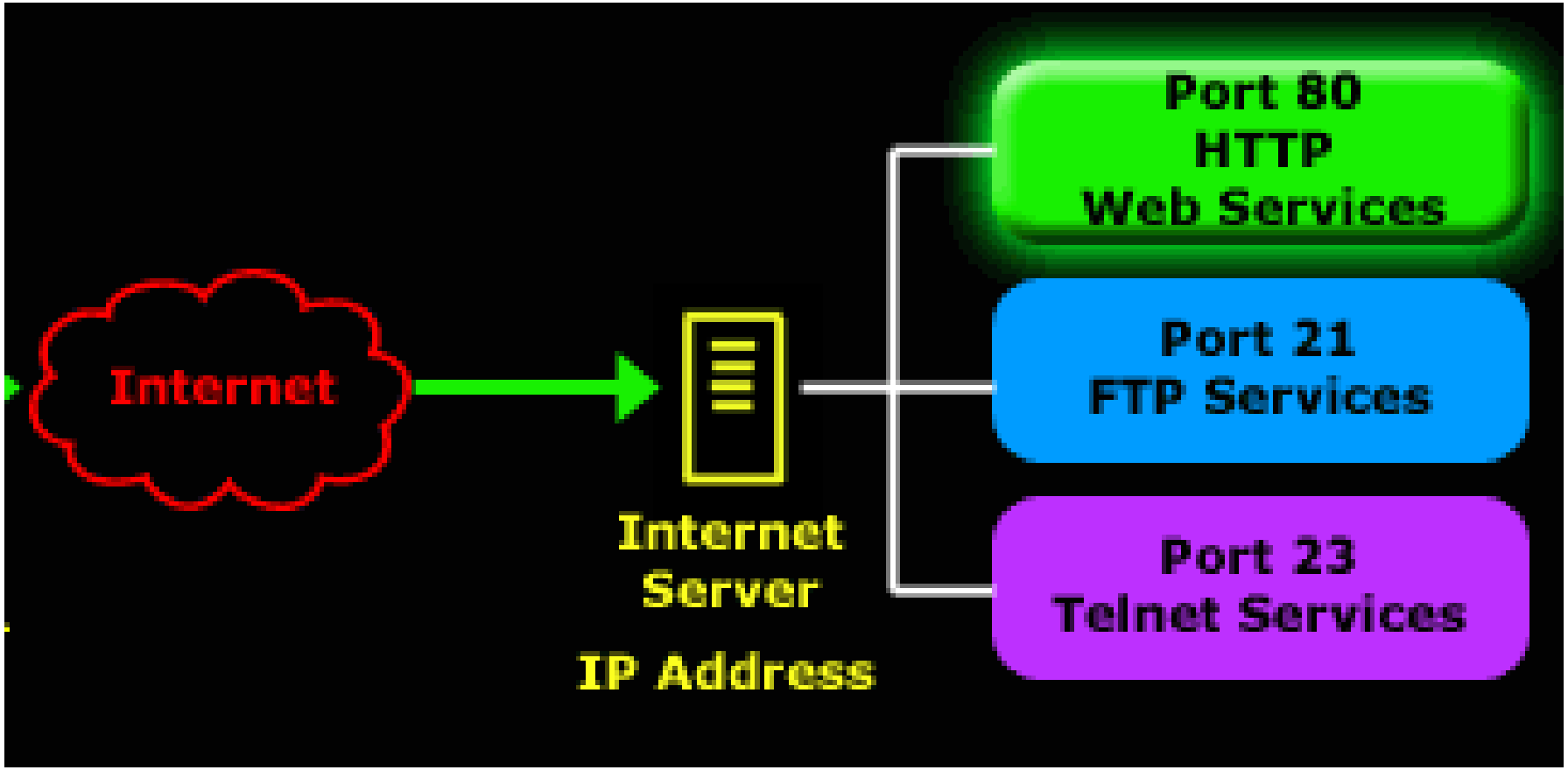
Inside the Extreme Life of Divers Repairing Billion $ Underwater Cables

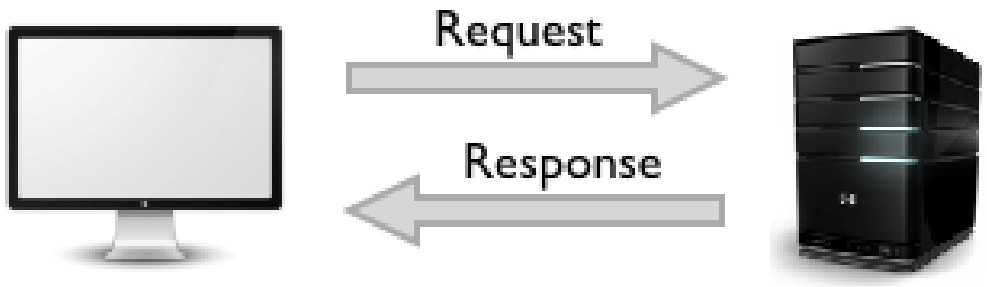
https://www.youtube.com/watch?v=l1knCR6xAzo

Ports

- HTTP port **80**,
- HTTPS — port

  443.
- FTP— port **21**.
- SMTP — port **25**
- SMTP — port **23**





HTTP request structure

Method URL Protocol version

```
GET/ index.htm HTTP/1.1
Host: www.site.com
User-Agent: Opera
Accept: text/html, */*
Accept-Language: en-us
Accept: ISO-8859-1, utf-8
Connection: keep-alive
```

Header

Empty line

Body (optional)

HTTP response structure

Version Status Message status

```
HTTP/1.1 200 OK
Date: Sun, 21 Jul 2019
23:17 GTM
Server: IIS /6.0
Content-Type: text/html;
charset=UTF-8
Content-Length: 7686
```

Header

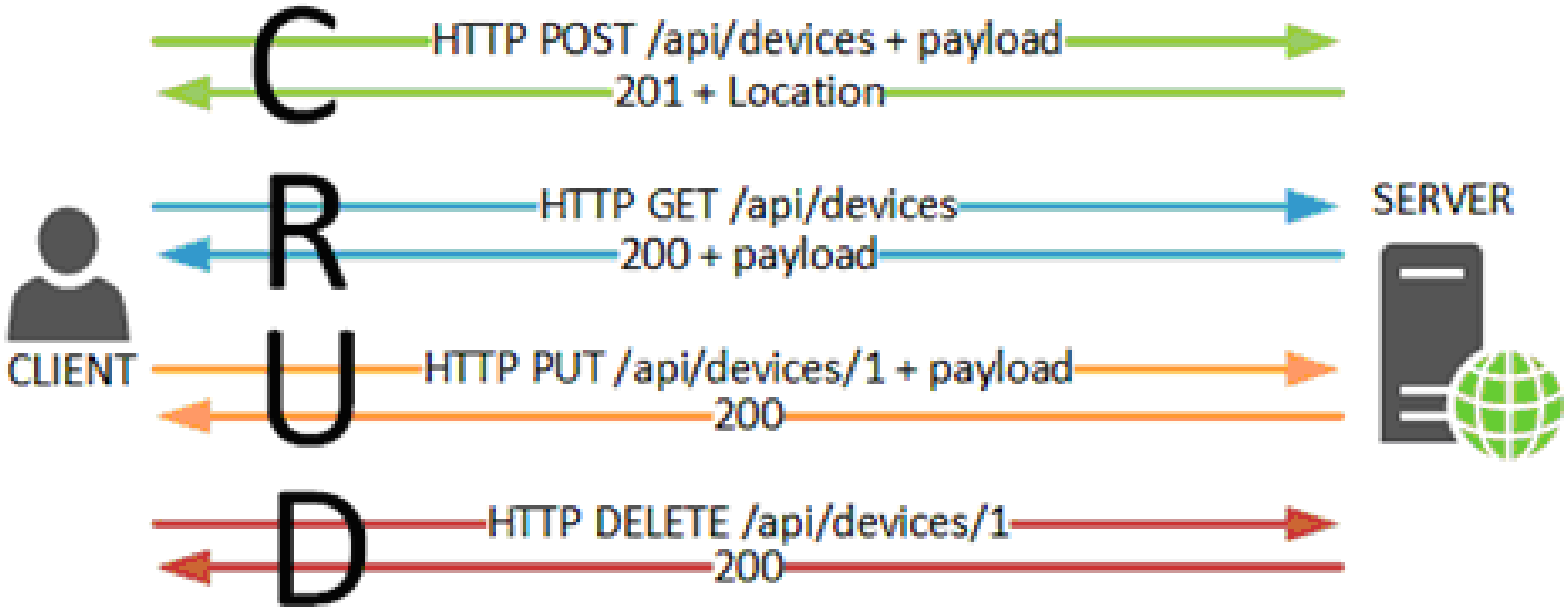
Blank line

```
<html>
....
</html>
```

Body

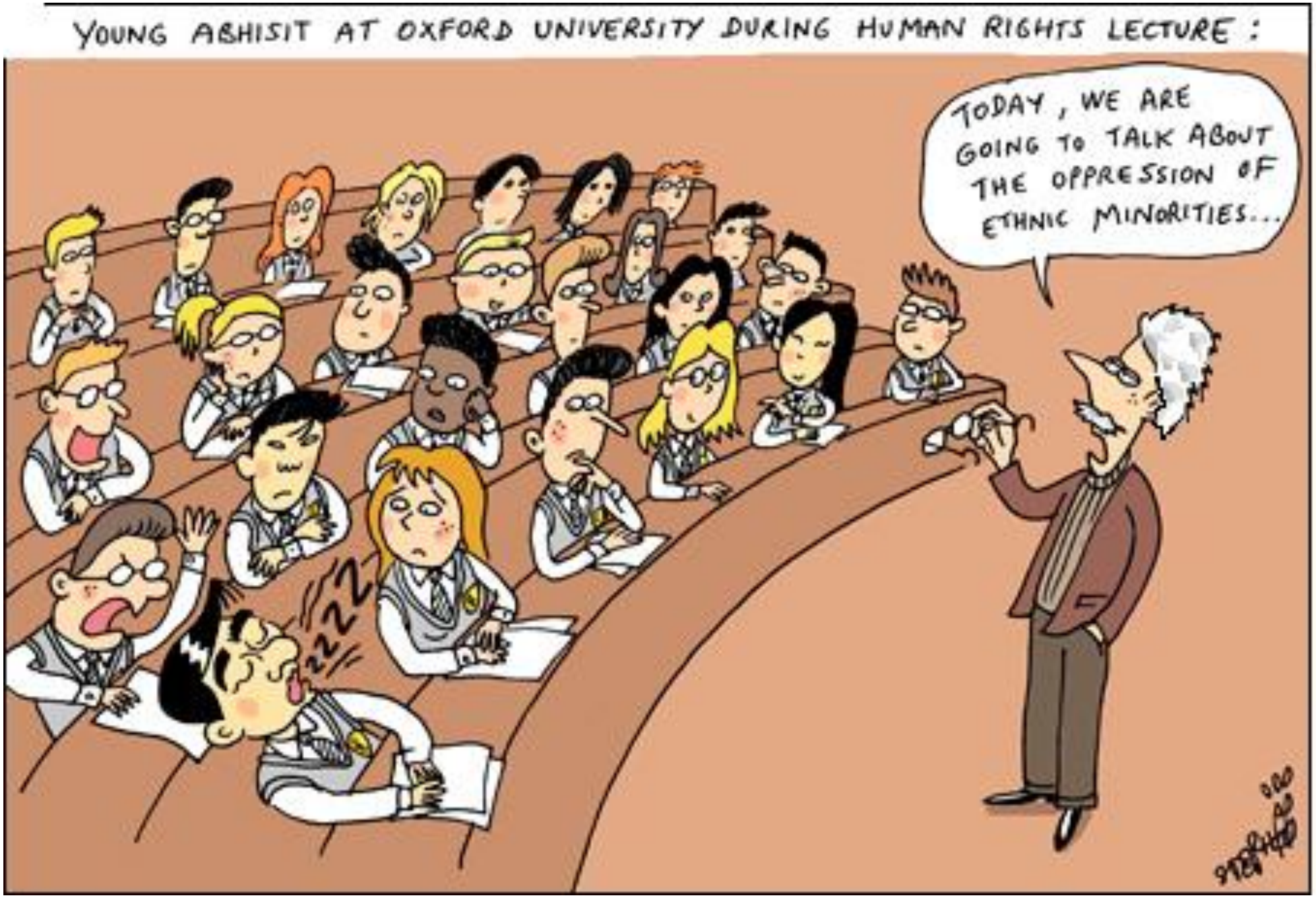
Status codes

- **1xx**: Informational Messages
- **100** continue, which means that the client is still sending the rest of the request.
- **2xx**: Success Messages
- **200** OK
- If the client received the code from the 2xx series, then the request was successful..
- **3xx**: Redirection
- **301** Moved Permanently: The resource can now be found at a different URL.
- **4xx**: Client Errors
- **404** Not Found. Resource not found on server..
- **401** Unauthorized: Authentication is required to complete a request. Information is passed through the Authorization header..
- **403** Forbidden: The server did not open access to the resource.
- **5xx**: Server Errors
- **500** Internal Server Error.
- **503** Service Unavailable: this can happen if an error occurred on the server or it is overloaded.



- GET — getting a resource
- POST — resource creation
- PUT — resource update
- DELETE — deleting a resource

Methods		Request		Response	
		URL	Request body	Status	Response body
1	**GET**	Yes	No	Yes	Yes
2	**PUT**	Yes	Yes	Yes	No
3	**POST**	Yes	Yes	Yes	Yes
4	**DELETE**	Yes	No	Yes	No


YOUNG ABHISIT AT OXFORD UNIVERSITY DURING HUMAN RIGHTS LECTURE :
TODAY, WE ARE GOING TO TALK ABOUT THE OPPRESSION OF ETHNIC MINORITIES...
ZZZZ