

# Internet and browser

HTML course: Lesson 1



# Lesson Plan

1

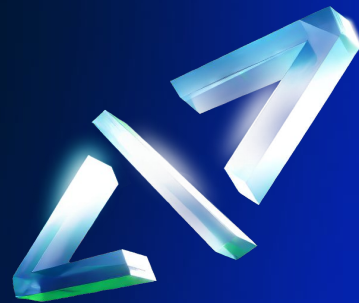
How the Internet works

2

What happens when you type an URL in the browser address bar?

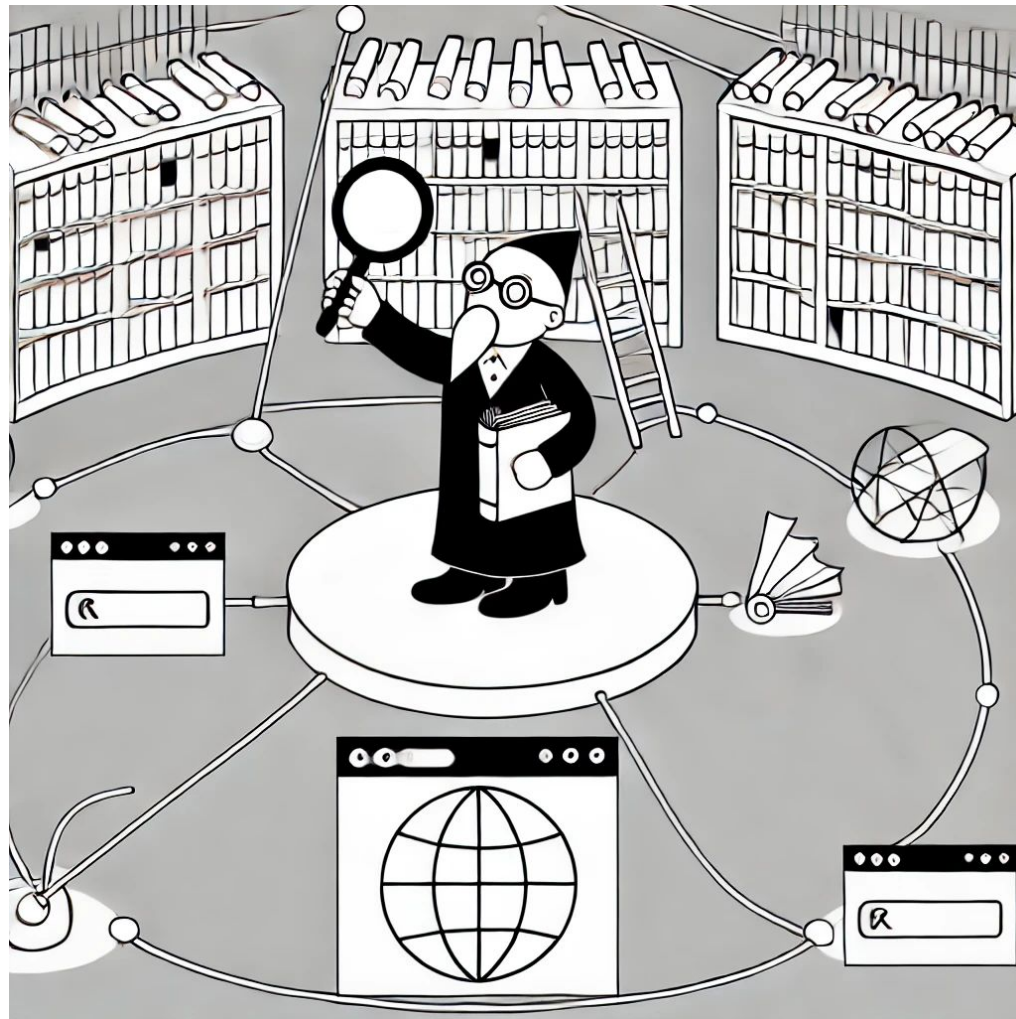
3

How a website is rendered in a browser



# How the Internet Works

**Browser**



*Website*

*Pages*

# Terminology



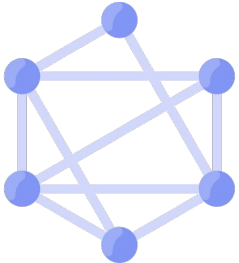
**Computers and Servers**



**Cables**



**Routers  
and Switches**



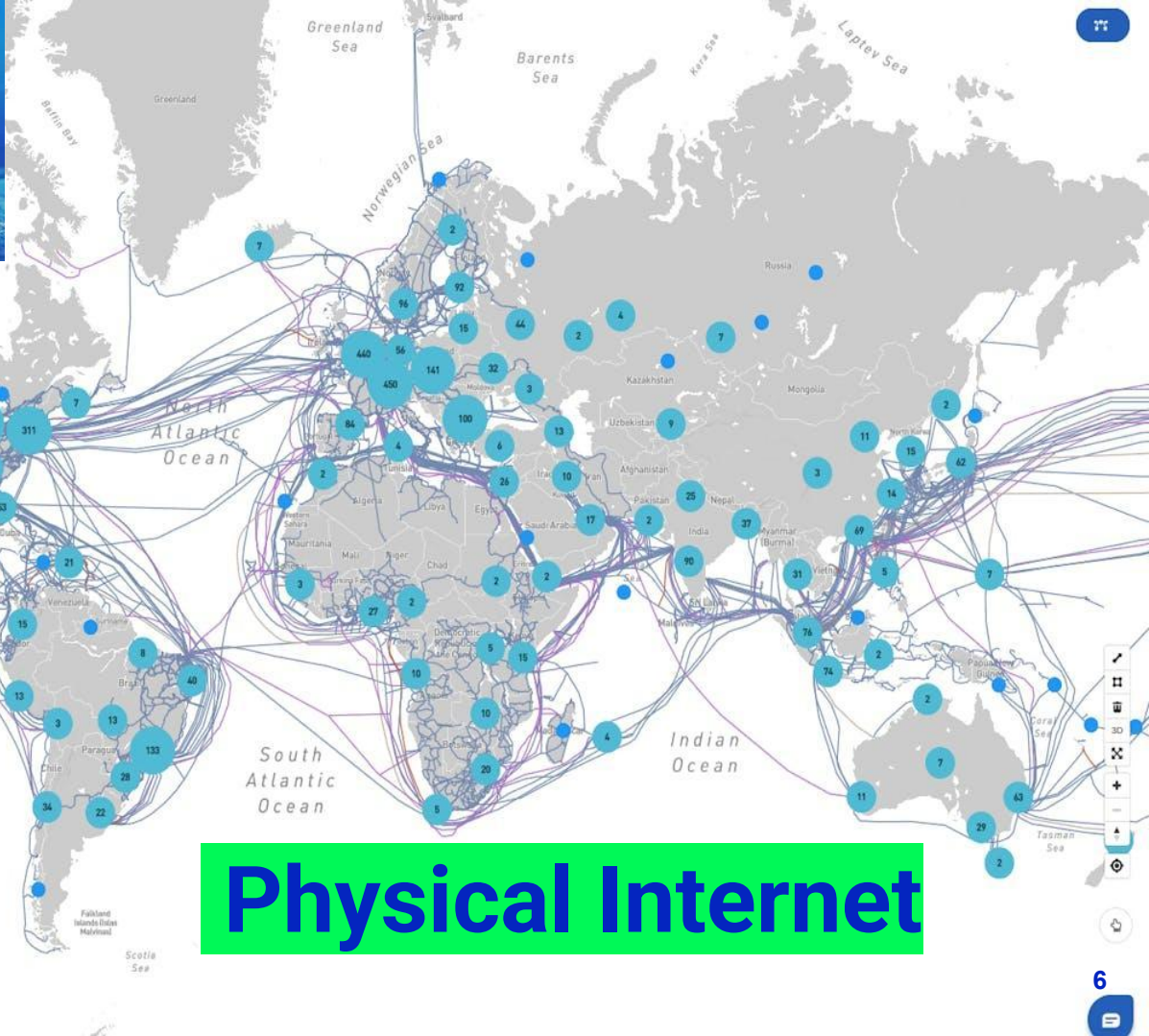
**Network Nodes**



**Internet Service  
Providers**



**Data Centers**

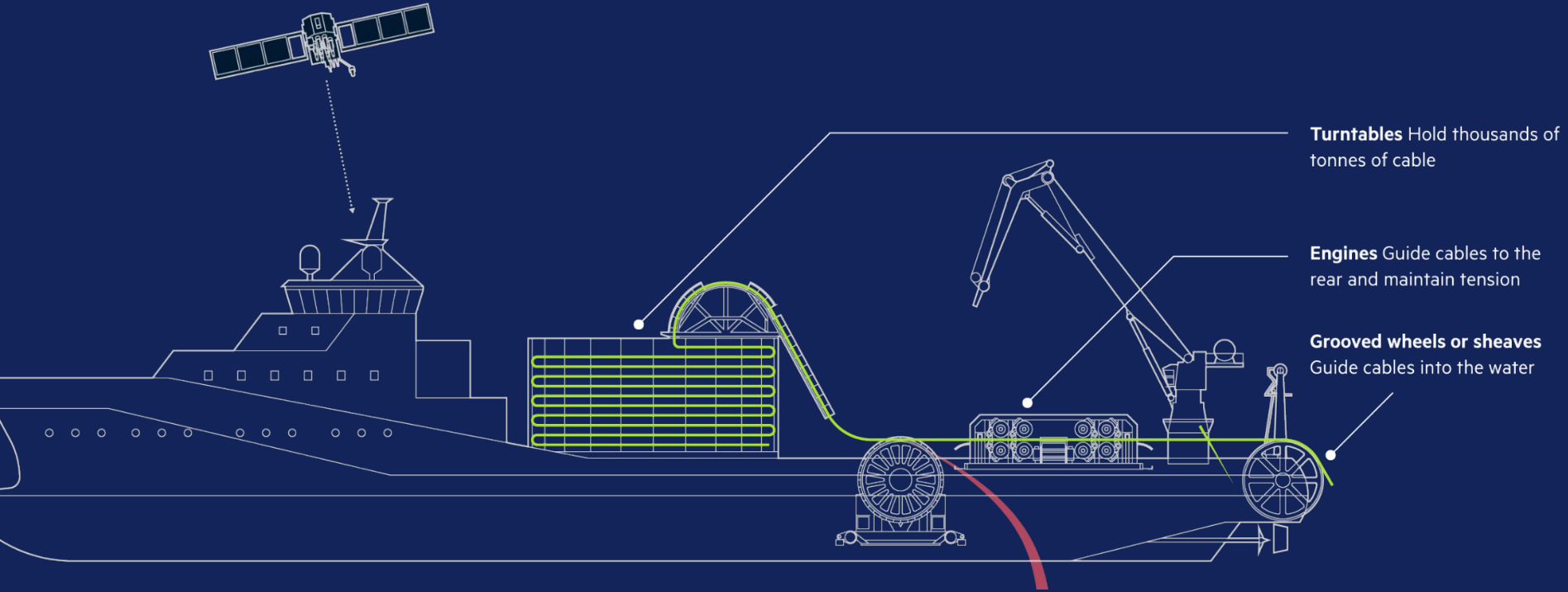


## 6





**GPS satellites** Work with the ship's thrusters to keep it in an exact position





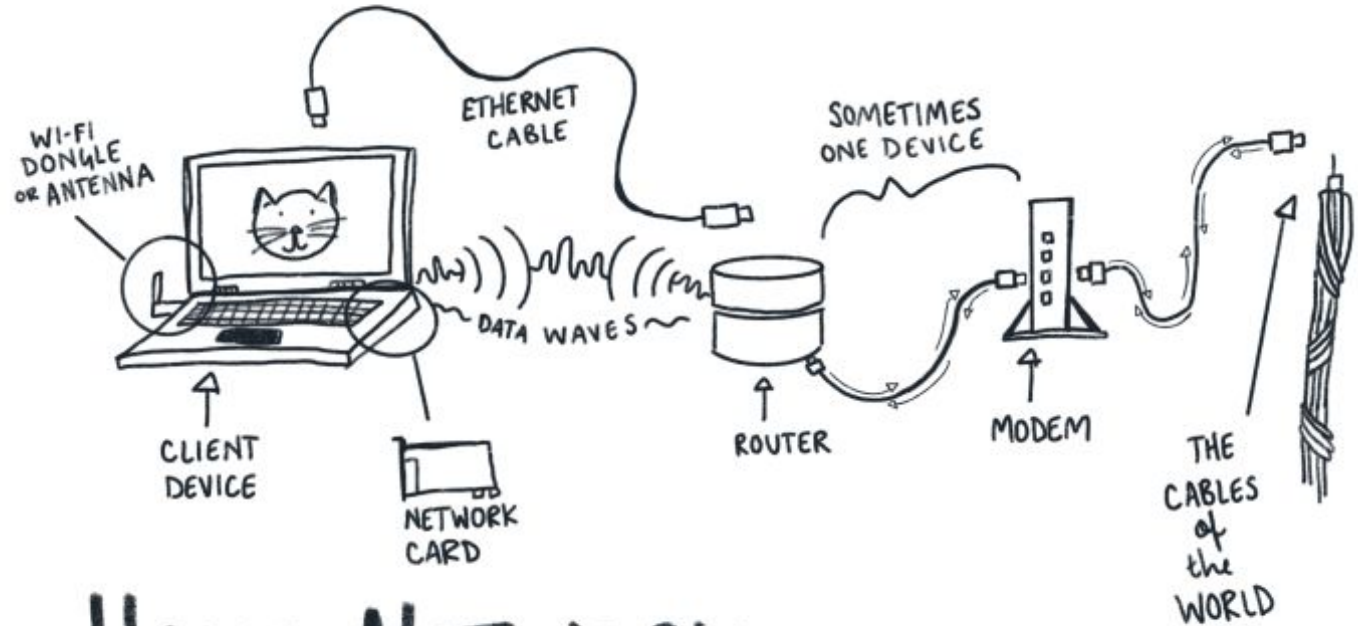
# Beginning the Journey

01. Computer

02. Router

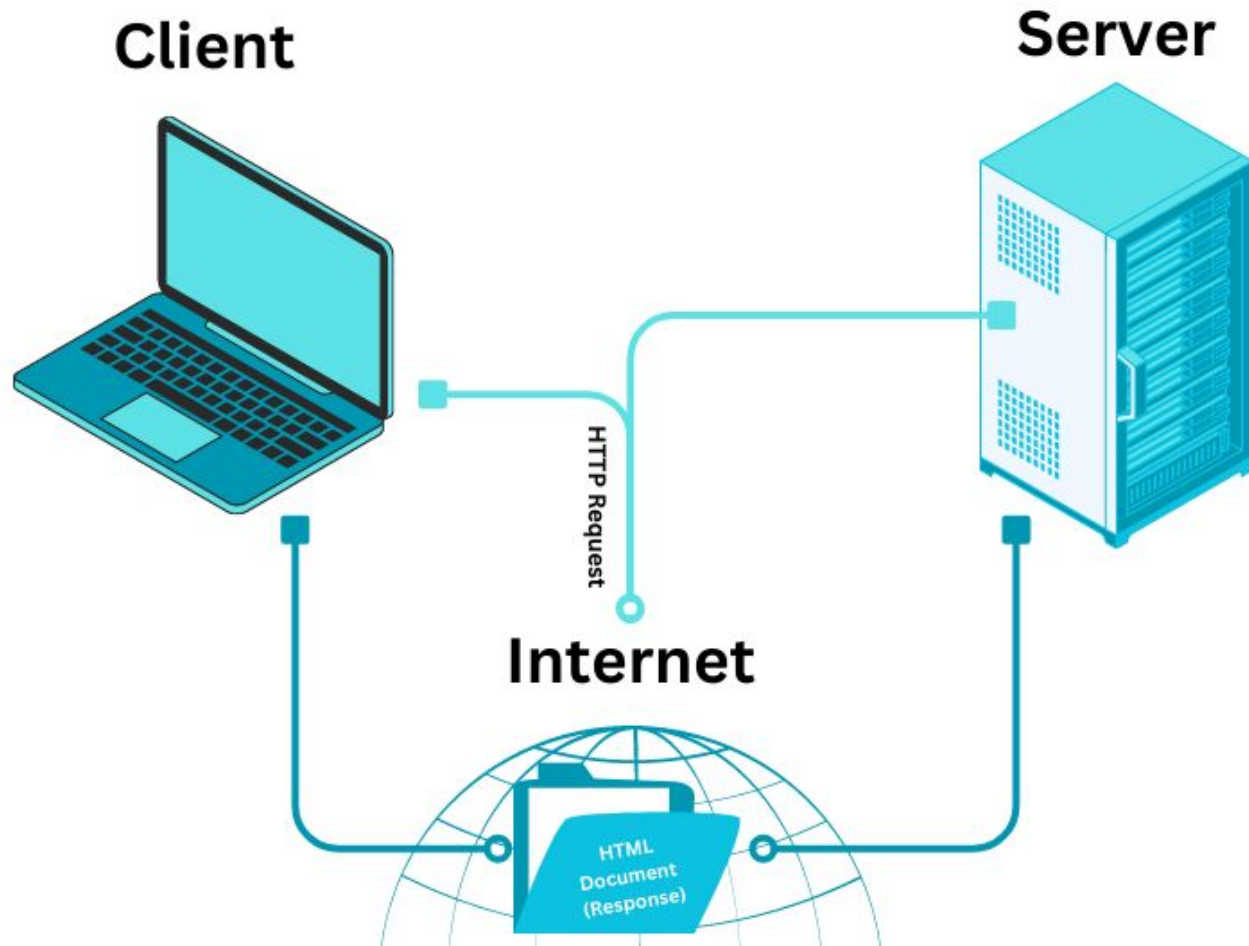
03. Modem

04. Cables

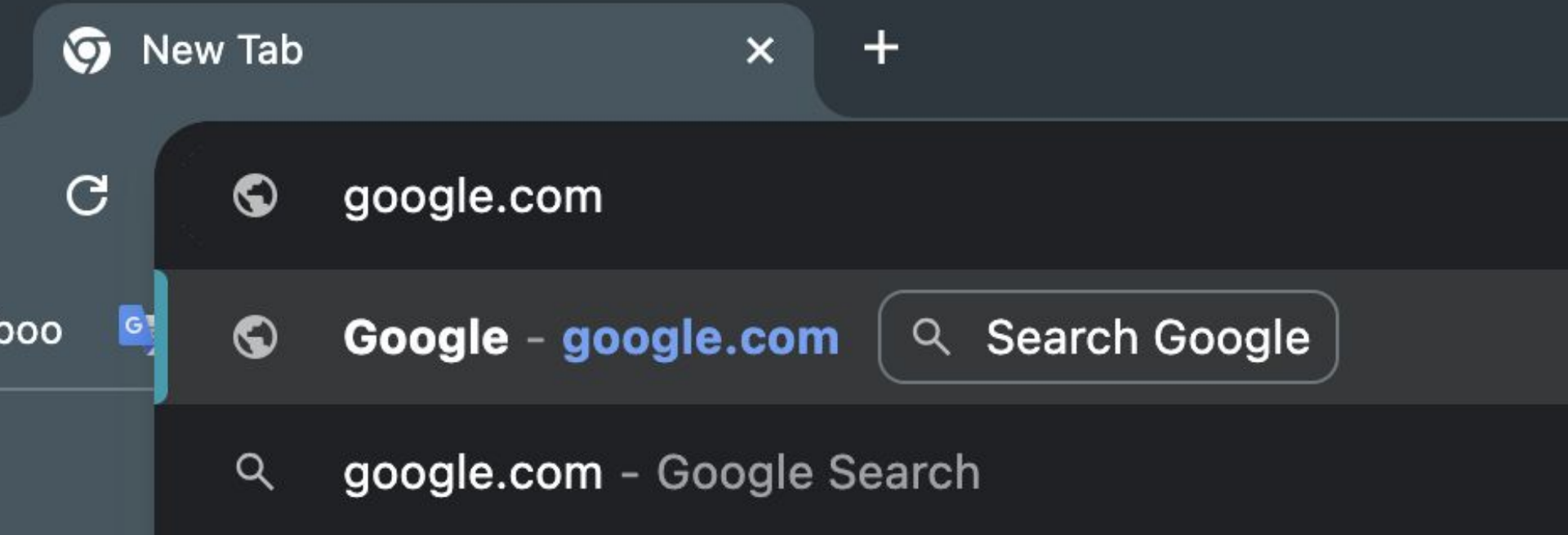


## HOME NETWORK CONNECTIONS

PHYSICAL LAYER



# What happens when you type an **URL** in the browser **address bar**?



# IP –

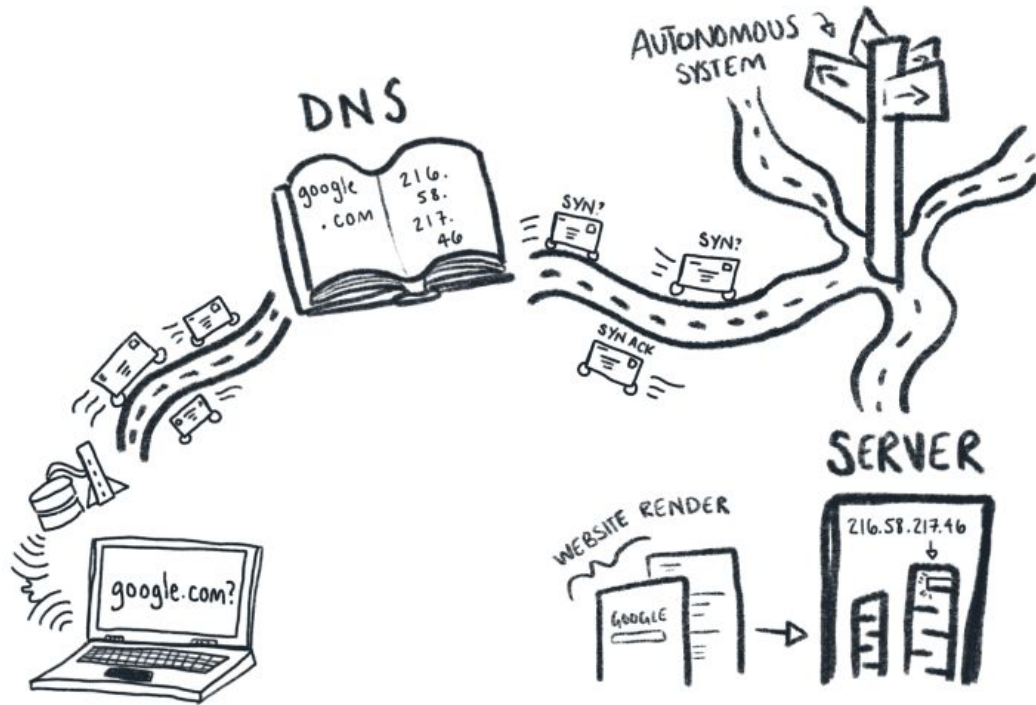
## Internet Protocol

your device's home address



# DNS (Domain Name System)

01. Enter **URL** in the address bar
02. Request from **DNS server** for IP addresses of the domain zone
03. Request from the next **DNS server** for **the server location** of the website
04. Connect to **the server** and request all **site data**
05. Server sends **files** to the browser



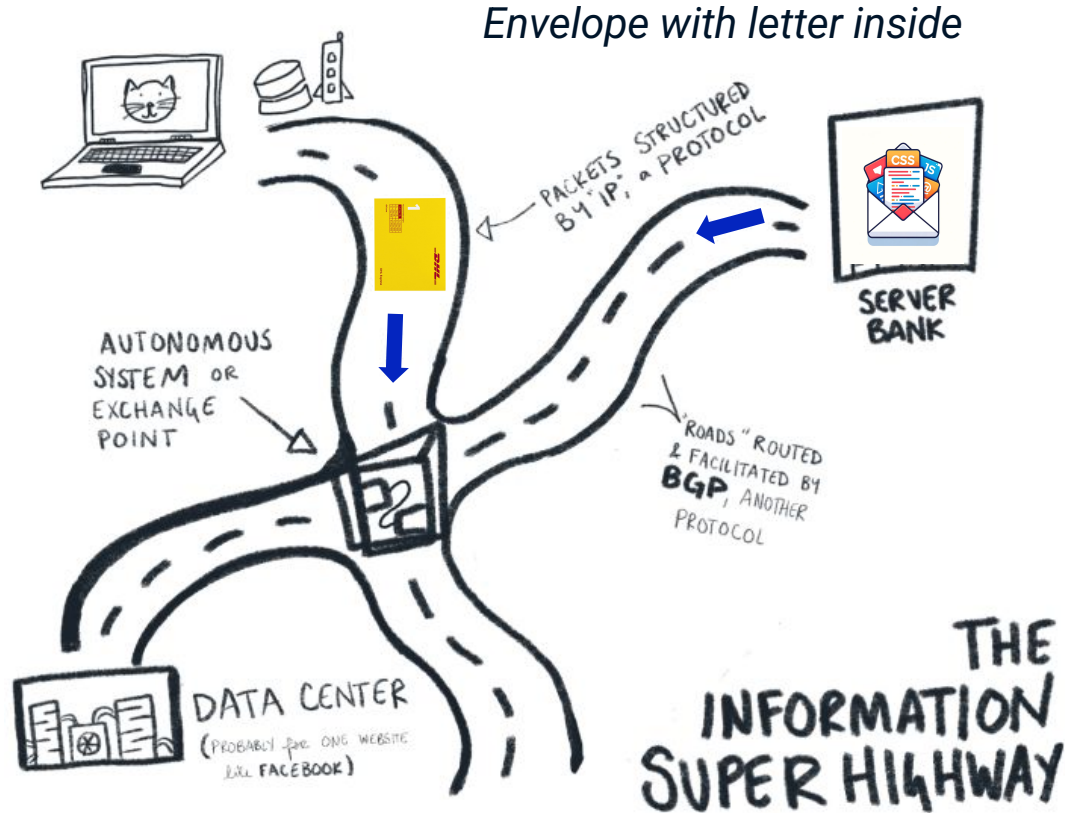


# How Data Moves

## Protocols

*logistics company like DHL*

*Addressee of your letter*



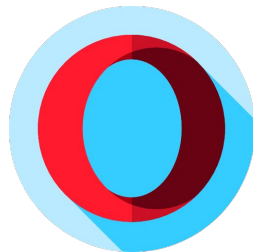
# Browsers



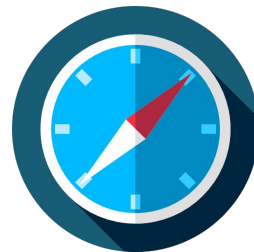
**Chrome**



**Firefox**



**Opera**



**Safari**



**Edge**

# Browsers



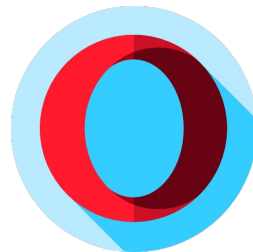
**Chrome**

**67.5%**



**Firefox**

**2.6%**



**Opera**

**2%**



**Safari**

**18%**



**Edge**

**4.9%**

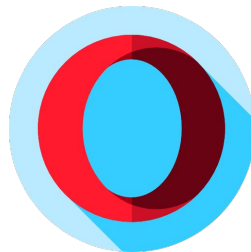
# Browser Engines



**Blink**

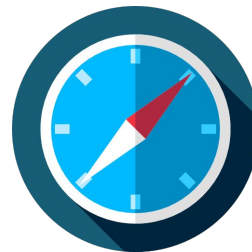


**Gecko**



**Presto**

**Chromium**



**Webkit**

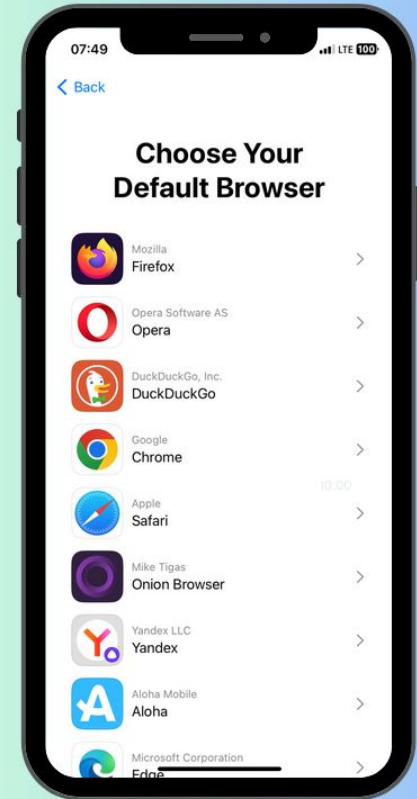


**EdgeHTML**

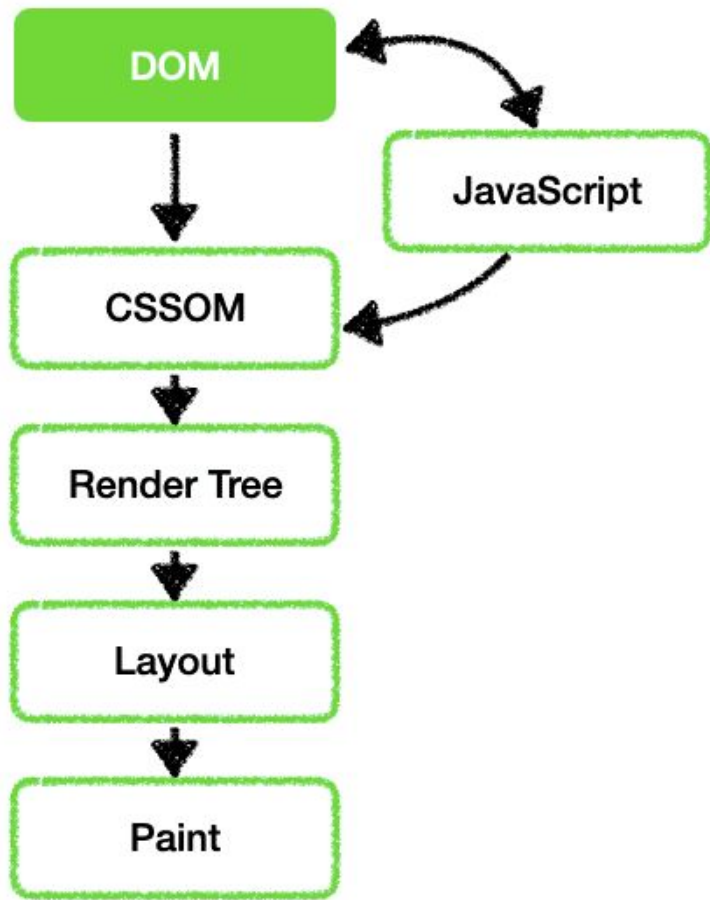
**Chromium**

# Why it's important

- **Users access** websites through various browsers
- Different browsers have **different performance** characteristics
- Different browsers may handle **responsive design** elements differently
- **Bugs** can be browser-specific







## How a Browser Renders a Website

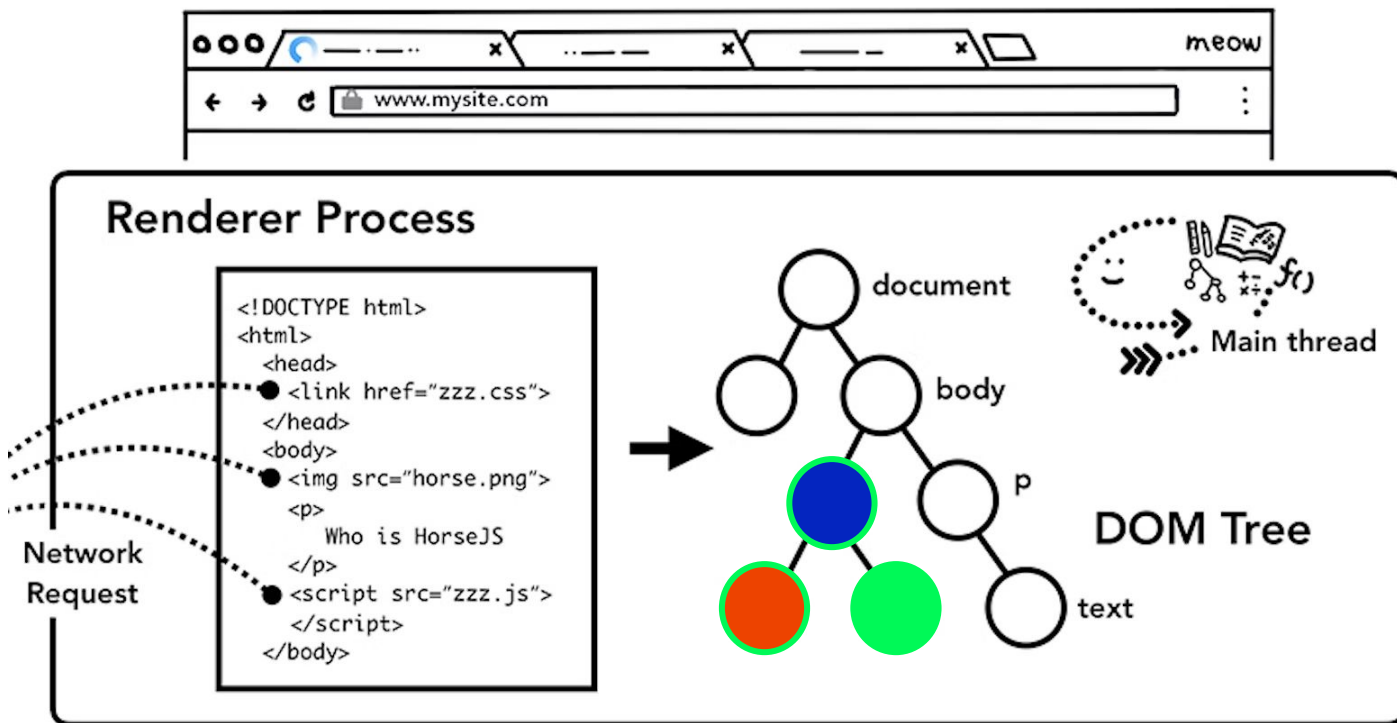
### Critical rendering path

## HTML to Node Tree

# DOM

### Document Object Model

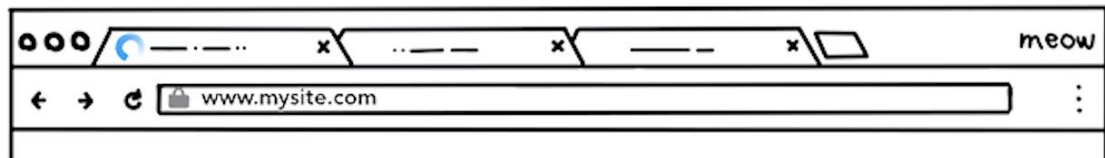
- parent
- child
- sibling



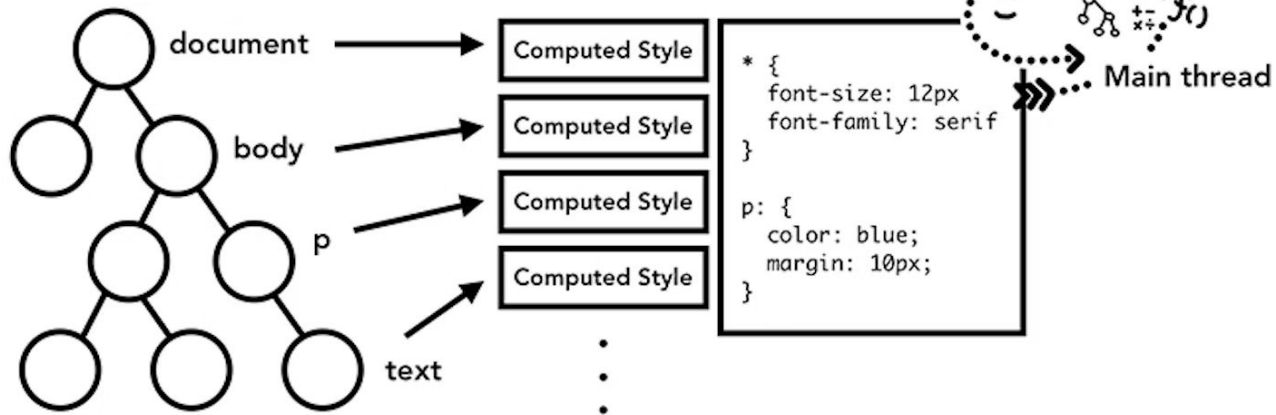
Define styles for tree elements

# CSSOM

CSS  
Object  
Model



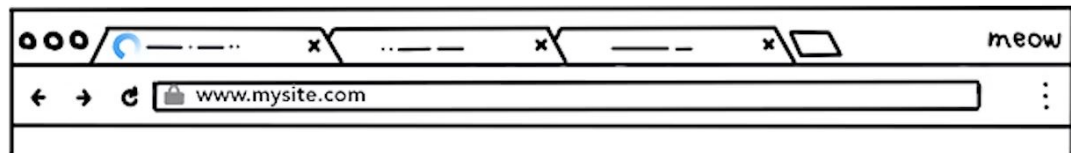
## Renderer Process



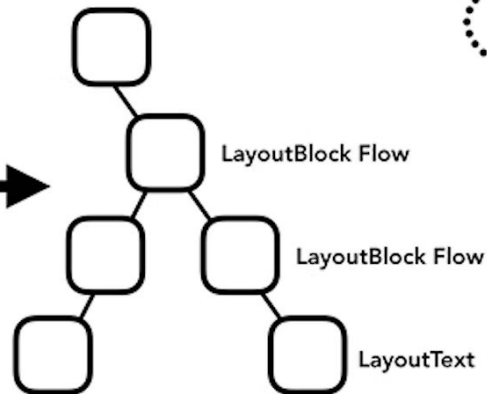
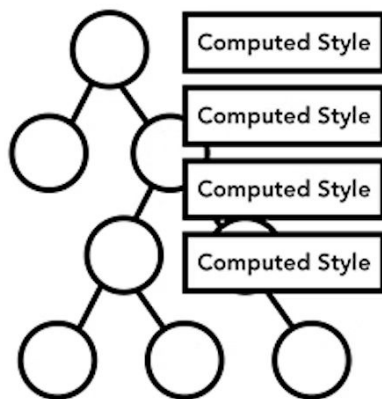
## Combine DOM and CSSOM

# Render tree

Map HTML  
elements to CSS  
styles



### Renderer Process

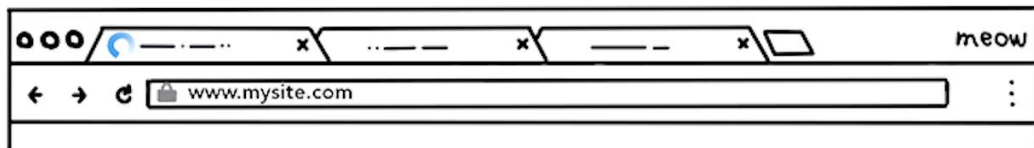


### Layout Tree

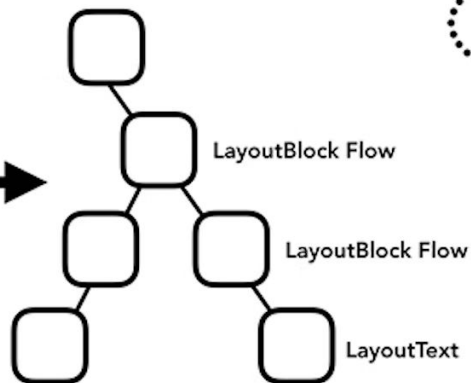
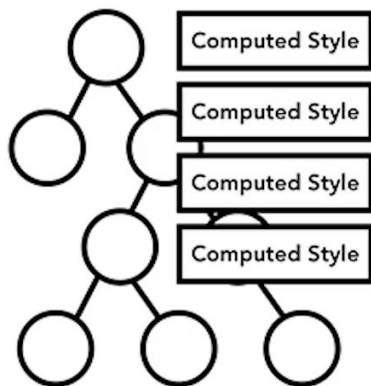
# Layout

Calculate space for elements

Only considers visible elements



## Renderer Process



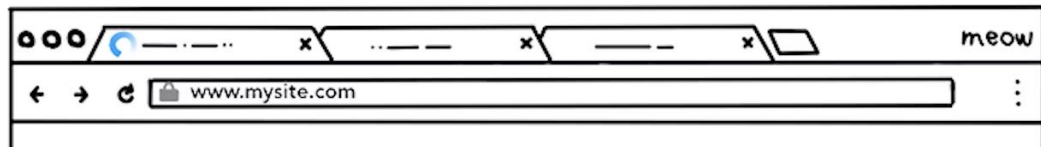
## Layout Tree



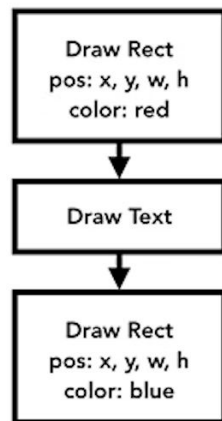
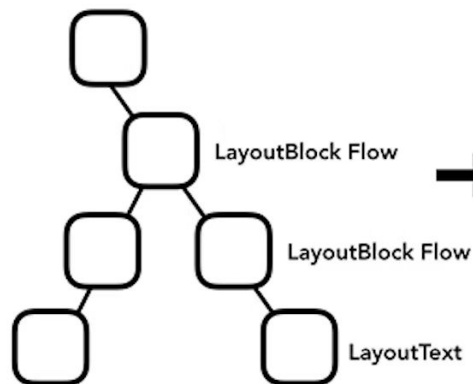
# Painting

Instructions on the  
order and location of  
elements on the page

Render the page



## Renderer Process

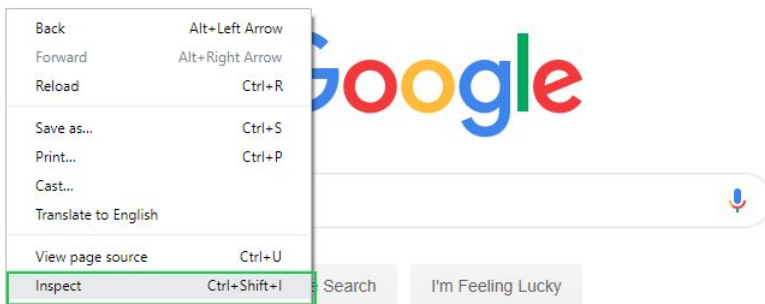


## Paint Records

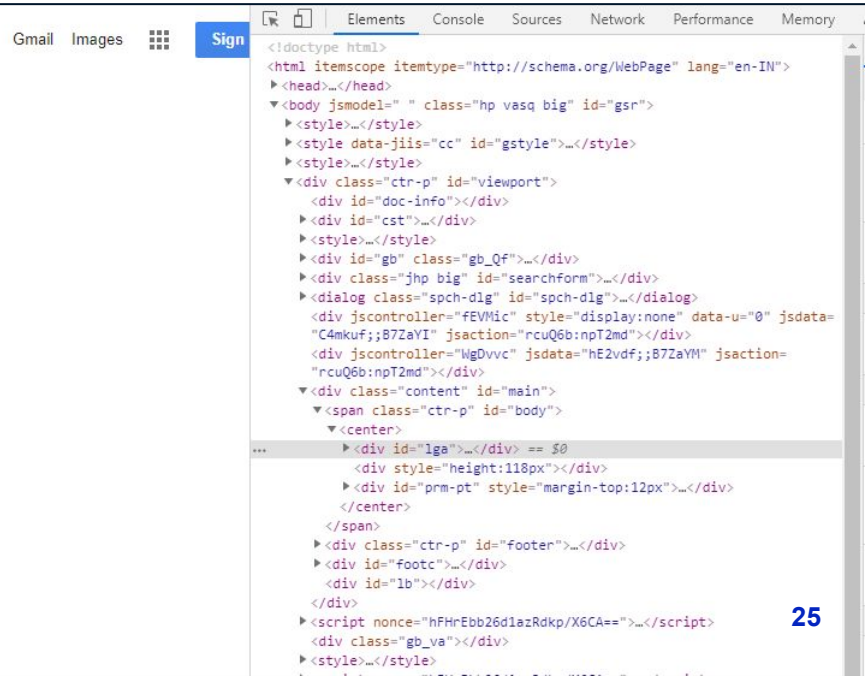


# Chrome

# Dev Tools

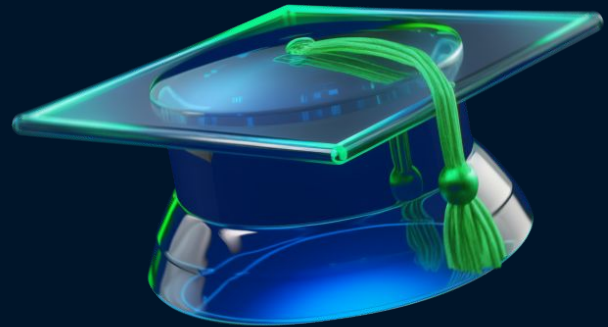


Google offered in: हिन्दी বাংলা తెలుగు मराठी தமிழ் ગુજરાતી ಕನ್ನಡ മലയാളം ਪੰਜਾਬੀ



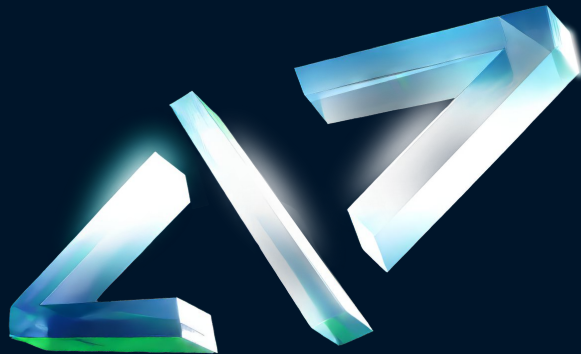
# What We Learned Today

1. What the Internet is
2. What happens when we want to load a website
3. Different types of browsers
4. How a browser renders a page



# Homework

1. Install required apps:
  - Figma
  - Slack
2. Create accounts:
  - GitHub
  - Jira
  - CodePen
  - Codesandbox
3. Read additional materials



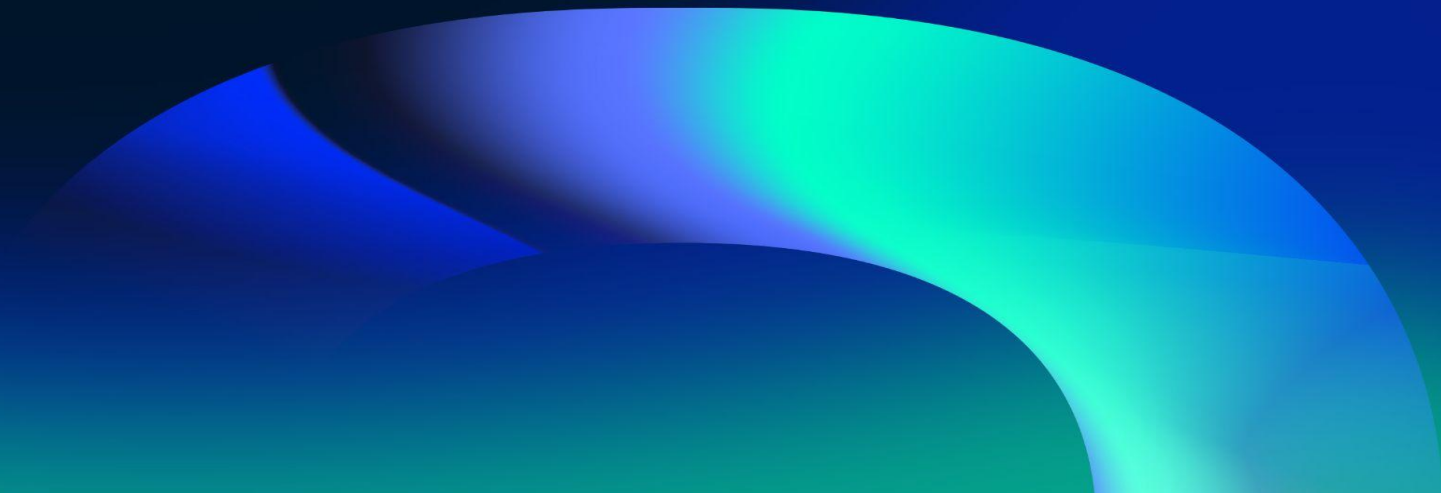
**B** Academy  
**RO**



**QUESTIONS?**



**Please fill out the feedback form**  
**It's very important for us**





**THANK YOU!**

**Have a good evening!**