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INTERNET

Browsers: a customer and a waiter in a restaurant

At the restaurant called “The WWW Address”, six waiters were hired to serve web pages. None intended to cook, but all insisted they were the best. Five minutes after opening, they were arguing about occupied tables, computer memory and who deserved to be the default waiter. The owner was beginning to wish he'd opened an ordinary diner instead. 🤣

The waiter is not the cook

Greg entered the restaurant, sat down and opened his laptop.

— I'd like the train timetable page.

— Certainly! — replied Chrome. — Address?

— Seven Railway Street.

— The website address, Greg.

— Oh. `https://example.com/timetable`.

Chrome wrote down the order and ran behind the counter. There, in the kitchen, a server prepared documents, pictures and all the other ingredients of a webpage.

A browser is **a program for viewing websites and using web applications**. It isn't the Internet and it isn't the server. It accepts an address, establishes connections, downloads information, interprets it and displays the result. The server may be on another continent or in the next room. Some locally stored pages and resources can even be displayed without a network connection.

— So you don't cook any of this? — asked Greg.

— No. I order it, arrange it and make sure you don't eat a JavaScript napkin.

— That last part sounds suspicious.

First the address, then the order

The waiter stopped at the kitchen hatch.

— One order for `example.com`!

— Where is that kitchen? — asked an assistant.

— I'll check the address book.

Chrome consulted the **DNS office**, found the server's address, established a connection and made a request. The server responded.

In simple terms, the browser determines where to connect, sets up a connection, sends an **HTTP request** and receives information. With HTTPS, TLS protects the data in transit. There may also be redirects and dozens of additional resources. No wonder the waiter needs comfortable shoes.

— What if I mistype the address?

— We might not find the restaurant.

— And if the kitchen has no such dish?

— Perhaps `404`.

— And if the chef drops the stove?

— Maybe `500`.

— Then I'm not ordering soup.

HTTP status codes describe how the request went. They are not emergency phone numbers for angry chefs.

HTML brings the content and CSS dresses it

A plate arrived bearing the words “Heading”, “Paragraph” and “Button”.

— Excuse me, where is my beautiful website?!

— That's HTML. We're just getting started — replied Chrome.

A helper named CSS arrived carrying colors, fonts and layout instructions. Then JavaScript rushed in and immediately began rearranging the buttons.

— Could that third fellow stop touching everything?

— Yes, but some features would stop working.

HTML describes a document's structure. **CSS** determines how it looks. **JavaScript** enables interactions and runs code. Pictures, videos, fonts and other resources may arrive from different servers. The browser engine assembles them into a visible page. This is called rendering.

— One page might need a hundred files?

— Or more.

— I'll have tea instead.

— With a stylesheet?

— DON'T START.

Chrome and thirty-seven tables

The owner ordered all the waiters to serve the same website.

Chrome arrived first, pushing an enormous trolley of tools and thirty-seven open tabs.

— Do you need every one? — asked Greg.

— Of course. Or at least I needed them last Tuesday.

Chrome is Google's popular browser, with extensive tools, support for modern websites and a large extension ecosystem. Like any browser, it can use substantial memory and processing power when someone turns one window into mission control for half the galaxy.

— Where's the button to close every tab I don't remember?

— In your self-discipline, Greg.

— Then we're in trouble.

Firefox, Opera, Safari, Edge and a retiree

Firefox arrived on a bicycle flying a fox-shaped flag.

— Independence and customization are important around here.

— Even that button I lost yesterday?

— We'll find it together.

Opera wheeled in a polished cart full of compartments.

— I keep plenty of useful extras within reach.

— Do you have a fork?

— I have a workspace devoted to cutlery.

Safari entered in a perfectly ironed apron.

— I feel most at home among Apple devices. I like everything to work together.

— What about equipment from other companies?

— Then check what that particular device supports.

Edge wore a business jacket.

— System integration, work tools and document handling are my specialties.

— Weren't you somebody else once?

— I changed workshops, not my name.

Finally Internet Explorer appeared with an ancient binder and an official stamp.

— Does anyone still need a site written exclusively for me?

Silence was broken by an accountant shouting from the storeroom.

— I DO! OUR SYSTEM FROM THE YEAR TWO THOUSAND STILL NEEDS YOU!

Internet Explorer is now a historical character rather than a sensible modern everyday browser. In some companies its legacy lasted longer than the furniture in the meeting room.

Fewer engines than waiters

Greg peeked beneath the trolleys.

— Wait. Chrome, Opera and Edge have something in common!

— We use the Chromium project and the Blink engine — explained Edge.

— I use Gecko — added Firefox.

— And I use WebKit — said Safari.

Internet Explorer cleared his throat.

— I used Trident. No need to stand.

A **rendering engine** interprets webpage content and helps turn it into a visual layout. Chrome, modern Opera and Edge share a Chromium/Blink foundation but differ in interface, features and priorities. Firefox relies on Gecko, Safari on WebKit and the old Internet Explorer used Trident. Earlier versions of Opera also had their own engine called Presto.

— Why so many brands if some engines are the same?

— Cars can share a platform yet have completely different equipment.

— And all ask if I want them as the default browser?

— Especially that.

Tabs, bookmarks and a panting laptop

Greg opened the news, weather, three cat videos and thirteen tutorials about closing tabs.

— Why does my computer sound like a vacuum cleaner?

— You've opened half the restaurant — replied Chrome.

Tabs allow multiple pages in one window. **Bookmarks** save addresses for later. They are not the same thing. Active pages can consume memory, CPU time and network bandwidth, although browsers may suspend inactive tabs and limit resource use. Browsing history is another feature: a record of visited locations.

— If I close a tab, does the website vanish from the Internet?

— No. Only from your table.

— And if I delete my history?

— That doesn't erase every trace everywhere.

— Shame. I wanted to forget the tutorial “How to disconnect your fridge from the Internet”.

Private mode is not an invisibility cloak

Firefox led Greg to a table labeled “Private browsing”.

— When this visit ends, I won't retain the normal local browsing history from this session.

— So I'm invisible?

— I never said that.

— But it's a private table!

— People outside can still see which restaurant you entered.

Private browsing or incognito mode limits certain data stored on the device after the private window is closed. **It does not provide anonymity** to the websites you visit, your network provider or the administrator of a corporate connection. Downloaded files don't vanish from the disk either.

— What if I pull down the blind?

— That's a window blind, not a secure connection.

— I've lost my appetite.

Padlocks, permissions and microphone pancakes

A webpage requested access to the camera, microphone, location and notifications.

— What are you looking for? — Firefox asked.

— A pancake recipe.

— WHY DO PANCAKES NEED MY MICROPHONE?!

Browsers ask permission for selected device capabilities, warn about some malicious websites and isolate web content. Updating your browser matters, too: protection is never perfect. HTTPS information indicates a secured connection and **certificate checks**, not that the website's owner is honest.

— So a scammer can have a padlock?

— A scammer can have a valid certificate for their own domain.

— Meaning I can reach a scammer securely?

— That's why you still need to decide whom to trust.

— Fine. The pancakes can wait.

The browser in your pocket and other visitors

Greg opened the same page on his phone.

— Why does it look different?

— The screen is smaller and the page may adapt its layout — Safari explained.

Mobile browsers support touch interaction and smaller screens. Websites often use responsive design. Even a familiar browser name doesn't guarantee an identical engine on every platform: on Apple mobile devices, browsers may use different rendering technology than their desktop counterparts.

Then Brave, Vivaldi and Tor Browser entered.

Brave asked if advertising and tracking could be reduced. Vivaldi immediately started rearranging the table. Tor Browser refused to reveal which route he had taken.

— Did you even get here? — Chrome asked.

— I'm here. That's enough.

Brave and Vivaldi demonstrate how different experiences can grow from similar Chromium foundations. Tor Browser focuses on privacy through the Tor network; that's different from merely using incognito mode. A portrait of Netscape Navigator looked down from the wall, remembering when opening a colorful website was an event in itself.

— Which one is best? — Greg asked.

All the waiters started talking at once.

— Never mind. Forget I asked.

The bill for a webpage

The owner presented the bill: HTML, CSS, JavaScript, images, fonts, redirects and updates.

— And the browser?

— The waiter who can assemble it all, remember your favorite addresses and warn you about some traps.

When choosing a browser, consider updates, usability, privacy, extensions and compatibility with your devices. There is no single best option for everyone, only the one that fits your needs.

— Which will you take? — the owner asked.

— The one that works without getting in the way.

— And the bill?

— I'll send it by email.

A mail carrier shouted from the storeroom:

— JUST DON'T ATTACH THE ENTIRE RESTAURANT! 🤣

Management of “The WWW Address” restaurant reports: all browsers successfully served their orders. Chrome left thirty-seven tables open, Firefox demanded permission to rearrange the dining room, Opera created a separate workspace for cutlery, Safari polished the tableware, and Edge prepared a report for

management. Internet Explorer asked whether it could be printed in a format compatible with 2001. Greg left the restaurant. By mistake, he closed only one of his thirty-seven tabs. 🥏🍽️🤣❤️