

Módulo 1



Reading:
Frontend and Backend:
What are they and what are
their differences?

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The frontend handles the user interface and experience, while the backend deals with the business logic and data management.

Communication and collaboration between these two components are essential for the effective operation of any digital application. Although they are separate components, they work closely together to create a complete and functional user experience on a website or application.

Frontend and backend are two very important terms when starting a project or developing a digital platform, but they differ from each other. Each side must communicate and operate effectively, forming a unit that enhances the operation of a website.

This division facilitates effective collaboration in multidisciplinary teams, where frontend and backend developers work in parallel to accelerate the development process. It also provides technological flexibility, as each part of the application can use the most appropriate technologies for its specific needs.

In terms of security, the backend is responsible for implementing measures such as authentication and authorization, thereby protecting the application and sensitive data. This separation allows for specific security measures to be applied at each layer.

Lastly, this division allows for independent changes to be made to the frontend and backend, facilitating adaptation to new technologies and trends without the need to redo the entire system. This is crucial in a constantly evolving technological environment. In summary, frontend and backend complement each other, together enhancing the efficiency, maintainability, and adaptability of applications or websites.

Frontend

Talking about the frontend, or the "client side," refers to the visual part of a website dedicated to the interface, which includes the structure with which the user interacts directly.

The frontend includes text styles, colors, images, tables, buttons, charts, animations, backgrounds, and navigation menus, in other words, all the code that runs in the user's browser.



The frontend encompasses:

User Interface:

This is responsible for the part of the application that users see and interact with. It includes the presentation of information, the arrangement of elements on the screen, navigation, and the overall user experience.

Design and Style:

This aspect manages the visual appearance of the application, including colors, fonts, images, and the overall design, using technologies like HTML, CSS, and JavaScript.

User Interaction:

This allows users to interact with the application through buttons, forms, menus, and more. It includes real-time interactions, such as clicking a button or scrolling through a page.

Accessibility: This ensures that the application is usable by people with disabilities by implementing features like alt tags for images and support for screen readers.

Backend

The backend, also known as the "server side," refers to the server and cloud processes of a website, where the logical aspects are configured.

It encompasses logic, data storage, and essential security functions necessary for reliable and correct functioning, ensuring that actions requested on the website are executed accurately.

It includes elements with which the user does not interact directly, such as application packages, libraries, and system components.



The backend involves:

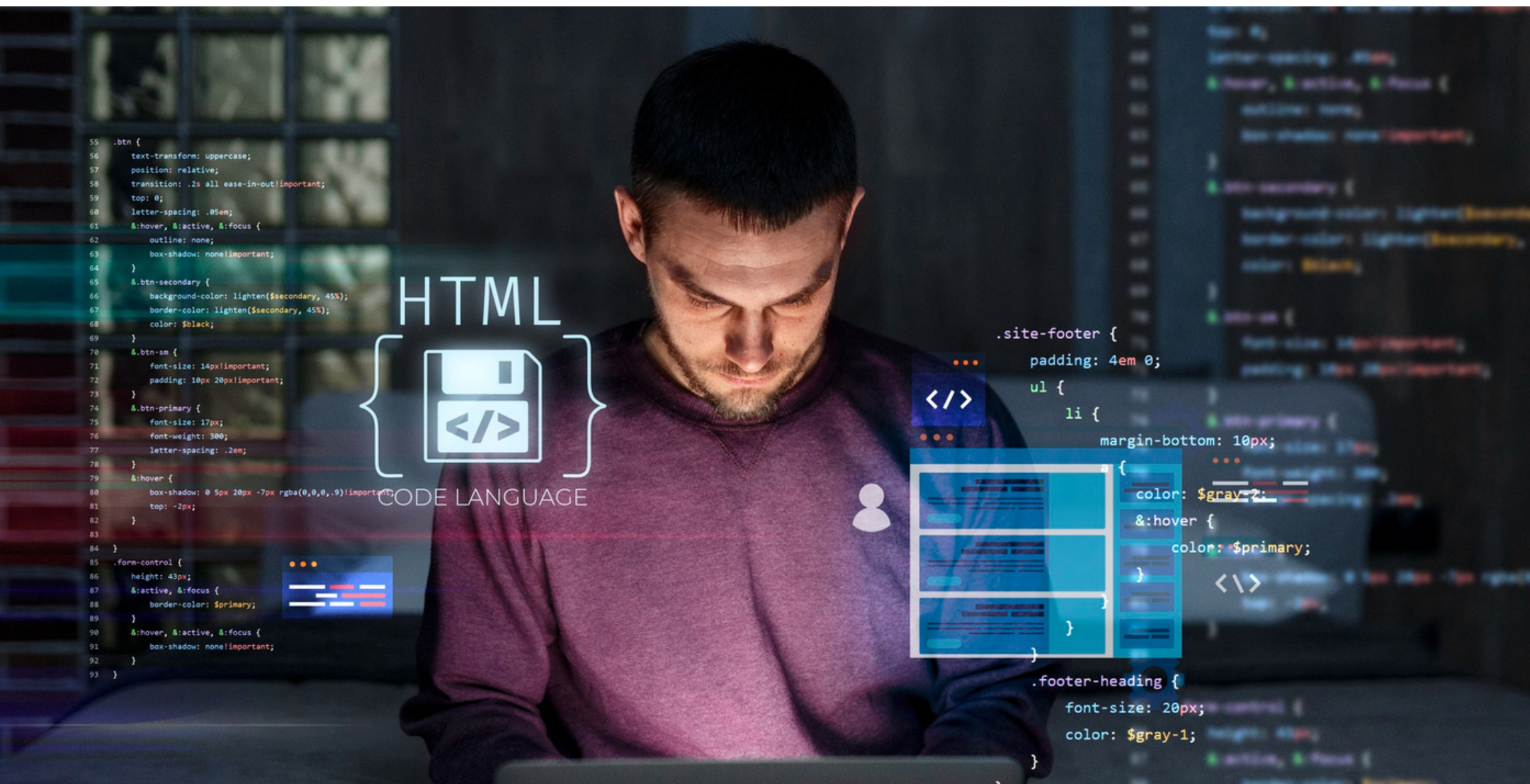
Business Logic: This is responsible for the application's business logic, including processing data, managing authentication and authorization, and performing complex operations such as calculations, payment processing, and database management.

Security: This implements security measures, such as authentication and authorization, to protect the application and data. It also works to safeguard the application against threats such as security attacks

Integration: This connects the application with other services and systems, such as third-party services, external APIs, and internal systems.

Data Storage: This manages and stores data in databases or file systems and is also responsible for retrieving data when requested by the frontend.

Scalability and Performance: This optimizes the performance of the application and ensures that it can handle a growing workload, which may include load balancing and the use of caching storage technologies.



Integration of Frontend with Backend

The integration of the frontend with the backend is a crucial process in the development of websites and applications. It ensures that both parts collaborate effectively and communicate to deliver a comprehensive and functional user experience.

The primary mode of communication between the frontend and the backend is through APIs (Application Programming Interfaces), which are tools responsible for connecting software or systems, enabling them to interact with each other.

To engage with the backend, the frontend employs HTTP methods such as GET, POST, PUT, and DELETE. For instance, when loading a page, the frontend can make a GET request to retrieve data from the backend. Conversely, when submitting a form, it can send a POST request to transmit the form data to the backend.

Both the frontend and the backend must establish security measures to ensure secure communication and to restrict access to certain resources only to authorized users. Such measures may include the implementation of security tokens, user authentication, and authorization.



It is crucial for the frontend to be equipped to handle errors that may occur during communication with the backend, including network errors, unexpected server responses, and data validation issues.

The frontend must efficiently display the data provided by the backend, involving the parsing and processing of the received data to present it coherently and understandably to the user.

Integration between the frontend and the backend requires thorough testing to ensure cohesive functionality. Debugging tools and logs are indispensable for identifying and rectifying communication problems.

Proper integration of the frontend with the backend through an API is vital for an application's effective functioning. When executed correctly, it enables both components to work in unison, delivering a robust user experience and ensuring the application's functionality.

Adapted from: <https://www.gluo.mx/en-US/blog/frontend-y-backend-que-son-y-cuales-son-sus-diferencias> .

