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Introduction to TypeScript

TypeScript: The powerful superset of JavaScript for safer coding.

DEFINITION

> TypeScript is a programming language that builds on JavaScript by adding static types. It helps developers catch errors early and write more maintainable code.

KEY CONCEPTS

Static Typing

TypeScript allows you to define variable types, reducing runtime errors and improving code clarity.

Interfaces

Interfaces in TypeScript define the structure of objects, ensuring they adhere to specific contracts.

Type Inference

TypeScript can automatically deduce types based on the assigned values, simplifying code without losing type safety.

Generics

Generics enable you to create reusable components that work with any data type, enhancing flexibility.

Modules

TypeScript supports modules, allowing you to organize code into reusable pieces, improving maintainability.

EXAMPLES

→ let num: number = 5;

→ interface User { name: string; age: number; }

→ function identity<T>(arg: T): T { return arg; }

MEMORY TIPS

★ Remember 'Type' in TypeScript stands for 'Types' to emphasize static typing.

★ Think of interfaces as blueprints for objects, ensuring they follow a specific structure.

★ Use 'Generics' as a way to think of flexible containers that can hold any type.

COMMON MISTAKES

✗ Forgetting to define types, leading to implicit 'any' types.

✗ Confusing interfaces with types, not realizing they serve different purposes.

✗ Neglecting to use TypeScript's powerful features, sticking to JavaScript habits.

QUICK RECAP

TypeScript enhances JavaScript by adding static types, improving error detection and code quality. Key features include static typing, interfaces, and generics, which help create robust applications.