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Introduction to TypeScript

Unlock the power of TypeScript for safer, scalable JavaScript development.

DEFINITION

TypeScript is a superset of JavaScript that adds static typing, making code easier to understand and maintain. It helps developers catch errors early and improves collaboration.

KEY CONCEPTS

Static Typing

TypeScript allows you to define types for variables, helping to prevent type-related errors.

Interfaces

Interfaces define the structure of objects, enforcing a contract for object properties and methods.

Generics

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

Type Inference

TypeScript can automatically infer types based on the assigned values, reducing the need for explicit type declarations.

Modules

Modules help organize code into reusable pieces, making it easier to manage large applications.

EXAMPLES

```
→ let age: number = 25;
→ interface User { name: string; age: number; }
→ function identity<T>(arg: T): T {
  return arg; }
```

MEMORY TIPS

- ★ Think of TypeScript as JavaScript with a safety net.
- ★ Remember 'I' for Interfaces: they define structure.
- ★ Generics are like templates: they adapt to any type.

COMMON MISTAKES

- ✗ Forgetting to declare types, leading to implicit 'any' type.
- ✗ Misusing interfaces and types, causing confusion in object structure.
- ✗ Neglecting to use modules, resulting in tangled code.

QUICK RECAP

TypeScript enhances JavaScript by adding static typing and other features for better code quality. Understanding key concepts like interfaces and generics is crucial for effective TypeScript programming.