In TypeScript (and JavaScript), template literals provide a powerful way to create strings with embedded expressions, spanning multiple lines, and including special characters without needing escape sequences. They are enclosed by backticks (`) instead of single (') or double (") quotes. Here's a detailed look at how to use template literals in TypeScript:

**Basic Usage**

Template literals allow you to embed expressions and variables within strings using the ${...} syntax.

const name = "Alice";

const age = 30;

const message = `Hello, my name is ${name} and I am ${age} years old.`;

console.log(message); // Output: Hello, my name is Alice and I am 30 years old.

### Multi-line Strings

Template literals can span multiple lines, making it easier to format strings without using escape sequences for new lines.

const multiLine = `This is a string

that spans across

multiple lines.`;

console.log(multiLine);

/\*

Output:

This is a string

that spans across

multiple lines.

\*/

### Tagged Templates

Tagged templates allow you to parse template literals with a function. The first argument of the tag function contains an array of string literals, and the rest of the arguments are the values of the placeholders.

function tag(strings: TemplateStringsArray, ...values: any[]) {

console.log(strings); // ["The total is ", " and the tax is ", ""]

console.log(values); // [100, 20]

return `${strings[0]}${values[0]}${strings[1]}${values[1]}${strings[2]}`;

}

const total = 100;

const tax = 20;

const output = tag`The total is ${total} and the tax is ${tax}.`;

console.log(output); // Output: The total is 100 and the tax is 20.

Embedding Expressions

const user = {

firstName: "John",

lastName: "Doe",

age: 25

};

const greeting = `Hello, ${user.firstName} ${user.lastName}! You are ${user.age} years old.`;

console.log(greeting); // Output: Hello, John Doe! You are 25 years old.

Function Calls

function getFullName(firstName: string, lastName: string): string {

return `${firstName} ${lastName}`;

}

const firstName = "Jane";

const lastName = "Smith";

const fullName = `Full name: ${getFullName(firstName, lastName)}`;

console.log(fullName); // Output: Full name: Jane Smith