

readme.md for @push.rocks/smartdelay

@push.rocks/smartdelay is a modern library designed to simplify working with timeouts in the async/await era, all while being fully written in TypeScript. This tool offers a range of functionalities that streamline the process of implementing delays and timeouts in your asynchronous JavaScript code, making it more readable and maintainable.

Install

To integrate @push.rocks/smartdelay into your project, you can install it via npm. Run the following command in your project directory:

```
npm install @push.rocks/smartdelay --save
```

This command adds the package to your project's dependencies, ensuring that you can easily import and utilize smartdelay's functions in your TypeScript files.

Usage

@push.rocks/smartdelay simplifies the handling of timeouts within async functions, offering methods to introduce specified delays or randomized time intervals. Below are detailed examples to demonstrate its usage. These examples are crafted using ECMAScript Modules (ESM) syntax and TypeScript.

Basic Delay

To introduce a basic delay in your asynchronous function, use the `delayFor` function. This method halts the execution for a specified number of milliseconds.

```
import { delayFor } from '@push.rocks/smartdelay';  
  
async function basicDelayExample() {
```

```
console.log('Delay start');
await delayFor(3000); // Execution will pause here for 3 seconds
console.log('Delay ended');
}

basicDelayExample();
```

In the above example, the program prints "Delay start", waits for 3 seconds due to `delayFor`, and then prints "Delay ended".

Delay with Randomization

For scenarios where you need a delay within a random time range, `delayForRandom` can be utilized. This introduces a non-deterministic delay duration, making it ideal for simulating real-world scenarios or for testing purposes.

```
import { delayForRandom } from '@push.rocks/smartdelay';

async function randomDelayExample() {
  console.log('Random delay start');
  await delayForRandom(2000, 5000); // Delay execution for a random duration between 2 and 5
  seconds
  console.log('Random delay ended');
}

randomDelayExample();
```

This function takes two parameters: the minimum and maximum bounds (in milliseconds) for the random delay.

Passing Through Values

Both `delayFor` and `delayForRandom` can be used to pass through values after the delay. This feature can be particularly useful when chaining asynchronous operations.

```
import { delayFor } from '@push.rocks/smartdelay';

async function passThroughExample() {
  const result = await delayFor(3000, 'Hello after delay');
  console.log(result); // Outputs: Hello after delay
```

```
}  
  
passThroughExample();
```

Advanced Usage: Timeout Class

@push.rocks/smartdelay provides a `Timeout` class for more granular control over timeouts, including support for cancellation.

```
import { Timeout } from '@push.rocks/smartdelay';  
  
async function timeoutExample() {  
  const timeout = new Timeout<string>(5000, 'Result after 5 seconds');  
  // Cancel the timeout if needed  
  // timeout.cancel();  
  
  try {  
    const result = await timeout.promise;  
    console.log(result); // Result after 5 seconds (if not cancelled)  
  } catch (error) {  
    console.error('Timeout was cancelled', error);  
  }  
}  
  
timeoutExample();
```

This class allows you to programmatically cancel the timeout before it completes, providing flexibility for dynamic timeout management situations.

Conclusion

@push.rocks/smartdelay offers a TypeScript-friendly, easy-to-use solution for managing timeouts and delays in asynchronous JavaScript. By leveraging this module, developers can write cleaner, more readable async code with minimal boilerplate. Whether you're implementing a simple delay, a random delay, or need finer control over your timeout logic, smartdelay provides the tools you need to get the job done effectively.

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