JavaScript Promise.allSettled()

Summary: in this tutorial, you'll learn about the `Promise.allSettled()` method to compose promises.

Introduction to the Promise.allSettled() method

ES2020 introduced the `Promise.allSettled()` method that accepts a list of Promises and returns a new promise that resolves after all the input promises have settled, either resolved or rejected.

The following shows the syntax of the `Promise.allSettled()` method:

```
Promise.allSettled(iterable);
```

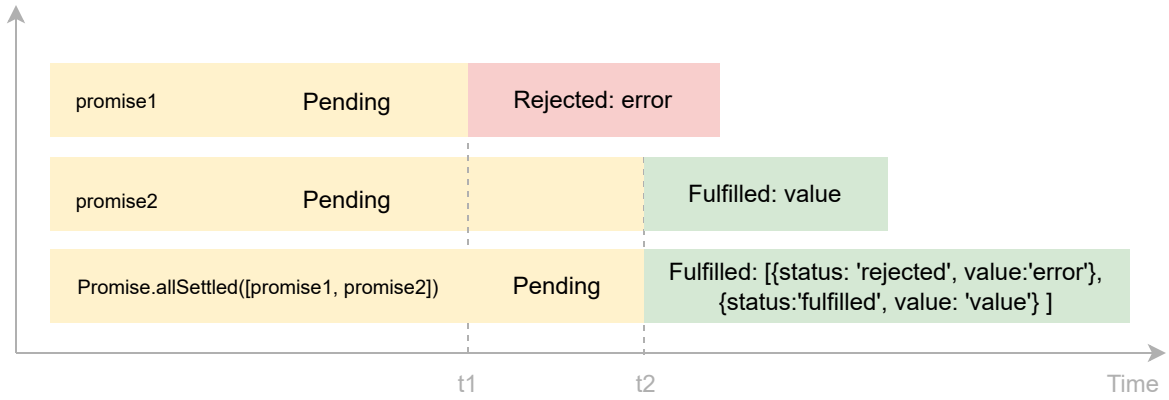
The `iterable` contains the promises. The `Promise.allSettled()` returns a pending promise that will be asynchronously fulfilled once every input promise has settled.

The `Promise.allSettled()` method returns a promise that resolves to an array of objects that each describes the result of the input promise.

Each object has two properties: `status` and `value` (or `reason`).

- The `status` can be either `fulfilled` or `rejected`.
- The `value` if case the promise is fulfilled or `reason`) if the promise is rejected.

The following diagram illustrates how the `Promise.allSettled()` method works:



In this diagram:

- The `promise1` rejects to the `error` at `t1`.
- The `promise2` resolves to a `value` at `t2`.
- The `Promise.allSettled()` method resolves to an array containing objects that describe the statuses and outcomes of the `promise1` and `promise2`.

JavaScript Promise.allSettled() example

The following example uses the `Promise.allSettled()` to wait for all the input promises to settle:

```
const p1 = new Promise((resolve, reject) => {
    setTimeout(() => {
        console.log('The first promise has resolved');
        resolve(10);
    }, 1 * 1000);

});

const p2 = new Promise((resolve, reject) => {
    setTimeout(() => {
        console.log('The second promise has rejected');
        reject(20);
    }, 2 * 1000);
});

Promise.allSettled([p1, p2])
    .then((result) => {
```

```
    console.log(result);
});
```

Output:

```
The first promise has resolved
The second promise has rejected
▼Array(2) i
  ▶0: {status: "fulfilled", value: 10}
  ▶1: {status: "rejected", reason: 20}
```

How it works:

- The first promise `p1` resolves to the value `10` after one second
- The second promise `p2` rejects for a reason with a value `20` after two seconds.
- The `Promise.allSettled()` returns a promise that resolves to the `result` array that has two elements. The first element is an object resolved by the `p1` promise and the second one is another object which is rejected by the `p2` promise.

Summary

- The `Promise.allSettled()` method accepts an iterable of promises and returns a new promise that resolves when every input promise has settled with an array of objects that describes the result of each promise in the iterable object.