

2795. Parallel Execution of Promises for Individual Results Retrieval

Solved

Premium

Medium

Given an array `functions`, return a promise `promise`. `functions` is an array of functions that return promises `fnPromise`. Each `fnPromise` can be resolved or rejected.

If `fnPromise` is resolved:

```
obj = { status: "fulfilled", value: resolved value}
```

If `fnPromise` is rejected:

```
obj = { status: "rejected", reason: reason of rejection (caught error message)}
```

The `promise` should resolve with an array of these objects `obj`. Each `obj` in the array should correspond to the promises in the original array function, **maintaining the same order**.

Try to implement it without using the built-in method `Promise.allSettled()`.

Example 1:

```
Input: functions = [
  () => new Promise(resolve => setTimeout(() => resolve(15), 100))
]
```

```
Output: [{"t":100,"values":[{"status":"fulfilled","value":15}]}]
```

Explanation:

```
const time = performance.now()
const promise = promiseAllSettled(functions);
```

```
promise.then(res => {
  const out = {t: Math.floor(performance.now() - time), values: res}
  console.log(out) // {"t":100,"values":[{"status":"fulfilled","value":15}]}
})
```

The returned promise resolves within 100 milliseconds. Since promise from the array functions is fulfilled, the resolved value of the returned promise is set to `[{"status":"fulfilled","value":15}]`.

Example 2:

```
Input: functions = [
  () => new Promise(resolve => setTimeout(() => resolve(20), 100)),
  () => new Promise(resolve => setTimeout(() => resolve(15), 100))
]
```

Output:

```
{
  "t":100,
  "values": [
    {"status":"fulfilled","value":20},
    {"status":"fulfilled","value":15}
  ]
}
```

Explanation: The returned promise resolves within 100 milliseconds, because the resolution time is determined by the promise that takes the longest time to fulfill. Since promises from the array functions are fulfilled, the resolved value of the returned promise is set to `[{"status":"fulfilled","value":20}, {"status":"fulfilled","value":15}]`.

Example 3:

```
Input: functions = [
  () => new Promise(resolve => setTimeout(() => resolve(30), 200)),
  () => new Promise((resolve, reject) => setTimeout(() => reject("Error"), 100))
]
```

Output:

```
{
  "t":200,
  "values": [
    {"status":"fulfilled","value":30},
    {"status":"rejected","reason":"Error"}
  ]
}
```

Explanation: The returned promise resolves within 200 milliseconds, as its resolution time is determined by the promise that takes the longest time to fulfill. Since one promise from the array function is fulfilled and another is rejected, the resolved value of the returned promise is set to an array containing objects in the following order: `[{"status":"fulfilled","value":30}, {"status":"rejected","reason":"Error"}]`. Each object in the array corresponds to the promises in the original array function, maintaining the same order.

Constraints:

- `1 <= functions.length <= 10`

Seen this question in a real interview before? 1/5

Yes No

Accepted 495 | Submissions 564 | Acceptance Rate 87.8%

Discussion (0)

Copyright © 2024 LeetCode All rights reserved

12 0 | ☆ ✉ ⌚

</> Code

TypeScript Auto

```
7   reason: string;
8   }
9   type Obj = FulfilledObj | RejectedObj;
10
11  function promiseAllSettled(functions: Function[]): Promise<Obj[]> {
12
13      return new Promise((resolve) => {
14          const results = [];
15          let settledCount = 0;
16
17          functions.forEach((promise, index) => {
18              promise()
19                  .then(value => {
20                      results[index] = { status: "fulfilled", value };
21                  })
22                  .catch(reason => {
23                      results[index] = { status: "rejected", reason };
24                  })
25                  .finally(() => {
26                      settledCount++;
27
28                      if (settledCount === functions.length) {
29                          resolve(results);
30                      }
31                  });
32          });
33      });
34  }
```

Saved

Ln 17, Col 48

Testcase Test Result

Accepted

Runtime: 83 ms

Case 1 Case 2 Case 3

Input

```
[() => new Promise(resolve => setTimeout(() => resolve(15), 100))]
```

Output