

```
1 function fib(i: number): number {
2     if (i ≤ 1) return 1
3     return fib(i - 1) + fib(i - 2)
4 }
5
6 function dp(i: number): number {
7     const fib = [1, 1]
8     for (let j = 2; j ≤ i; j++)
9         fib[j] = fib[j - 1] + fib[j - 2]
10    return fib[i]
11 }
12
13 const cache = [1, 1]
14 function dp2(i: number): number {
15     if (cache[i]) return cache[i]
16     const n = dp2(i - 1) + dp2(i - 2)
17     cache[i] = n
18     return n
19 }
20
21 console.time('no dp')
22 console.log(fib(40))
23 console.timeEnd('no dp')
24 // no dp: 1501.243ms
25
26 console.time('dp')
27 console.log(dp(40))
28 console.timeEnd('dp')
29 // dp: 0.129ms
30
31 console.time('dp2')
32 console.log(dp2(40))
33 console.timeEnd('dp2')
34 // dp2: 0.112ms
35
36
```