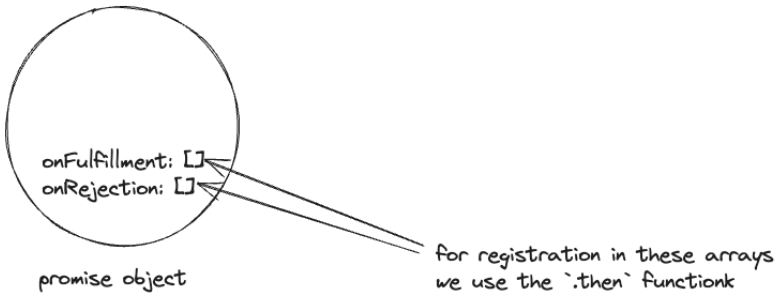
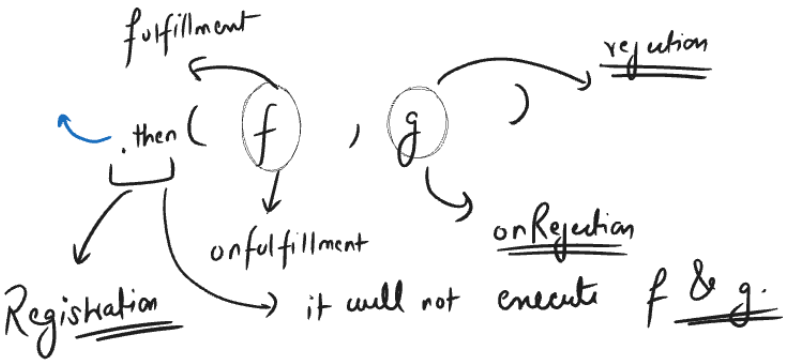
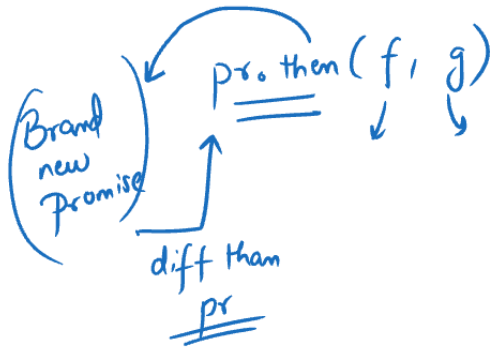
promise

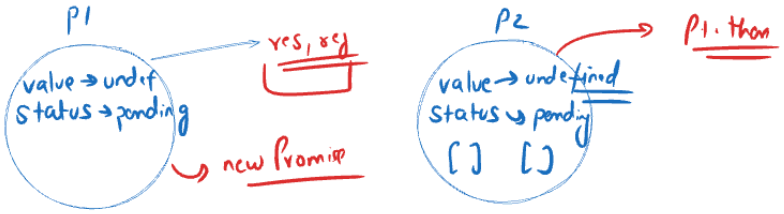
Promises

- Promise are JS objects, they just have a special purpose
- They act as a placeholder for a future to work
- Every promise object has a status, value property and two hidden array onFulfillment and onRejection



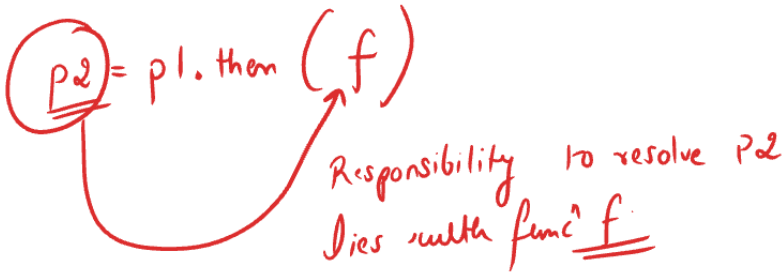


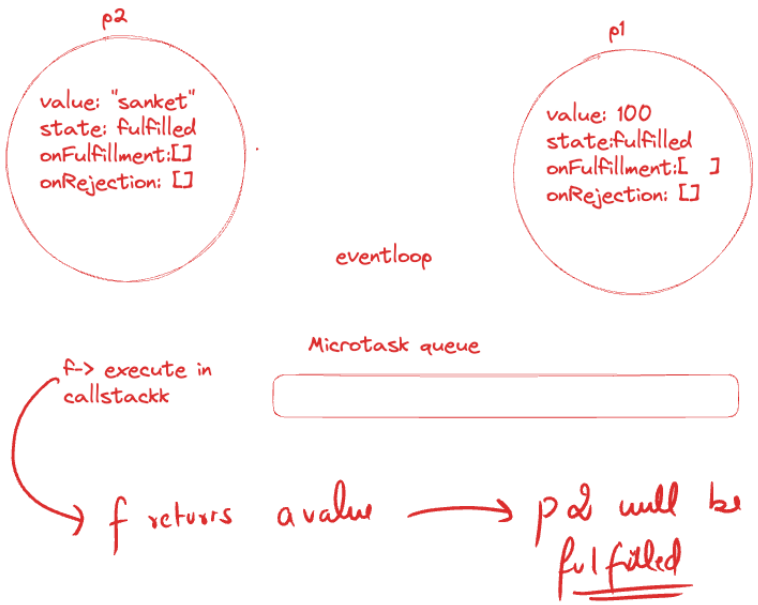




When p1.then returns a new promise p2, initially p2 is also just like any other promise having a value undefined and status pending

Considering p2 is not having any exec callback then how will p2 will be resolved or rejected. ?

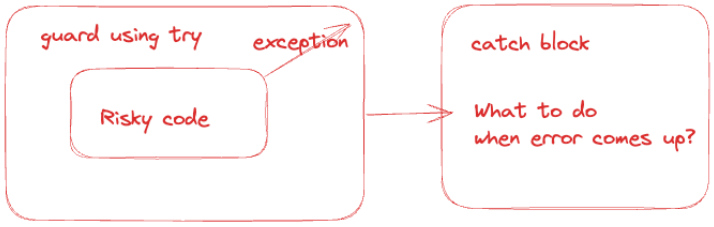


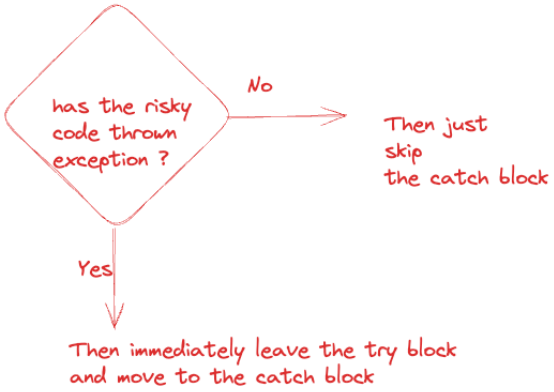


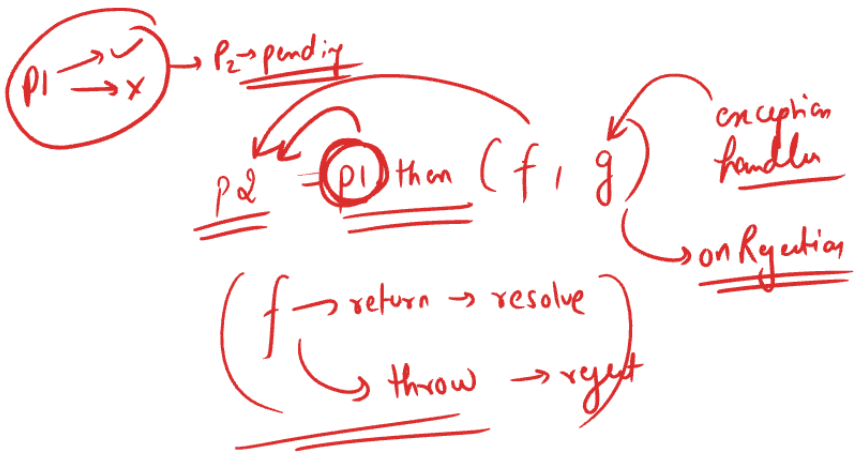
p2 = p1.then(f); → Whenever f is executed (when it gets the chance) and returns

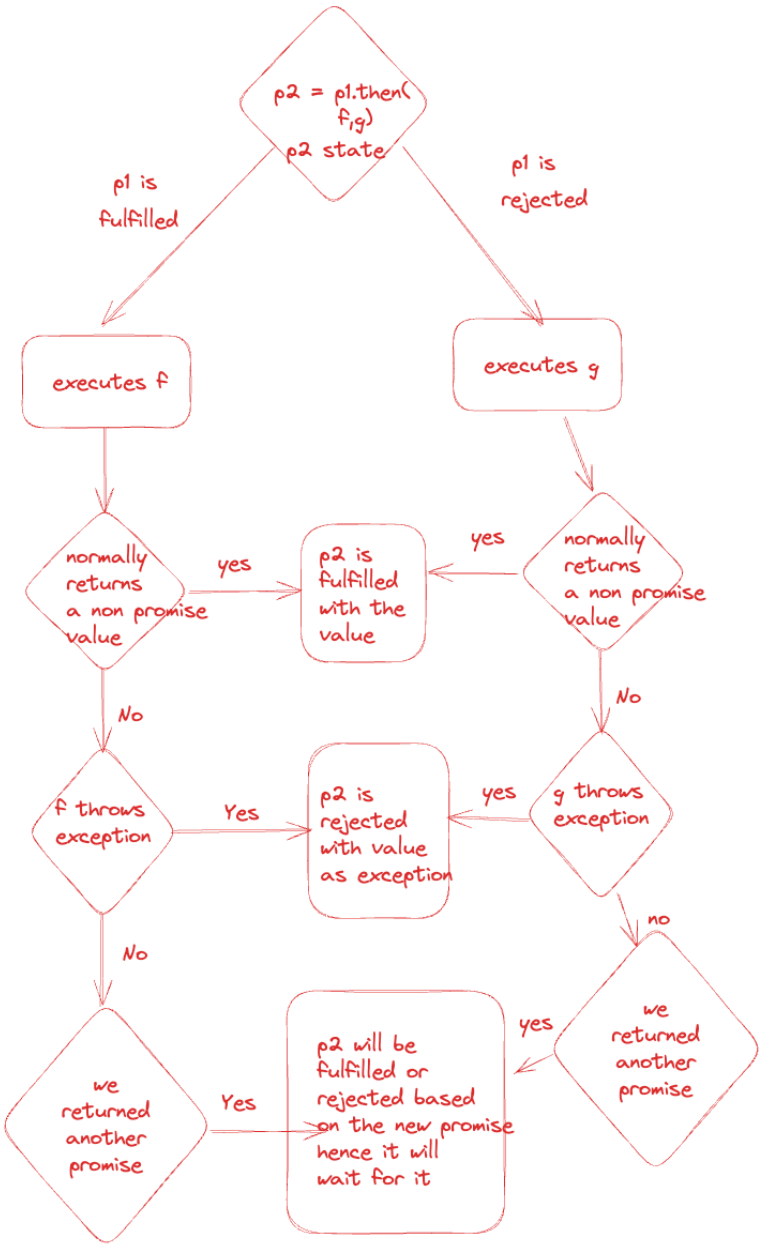
If f throws an exception
then only p2 is rejected

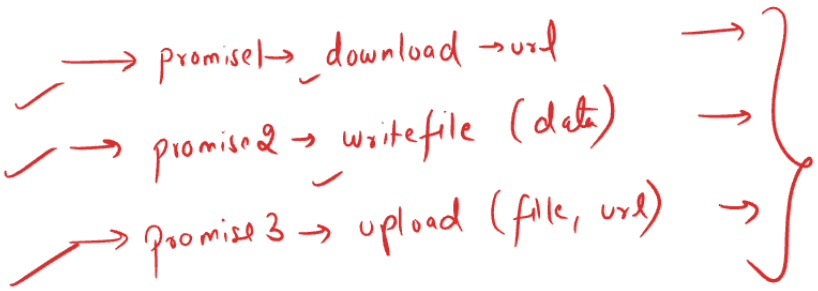
a value properly only at that time
p2's state goes to fulfilled and
value becomes equal to
returned value

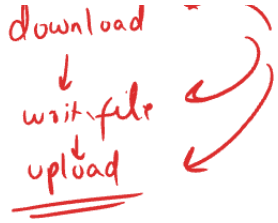


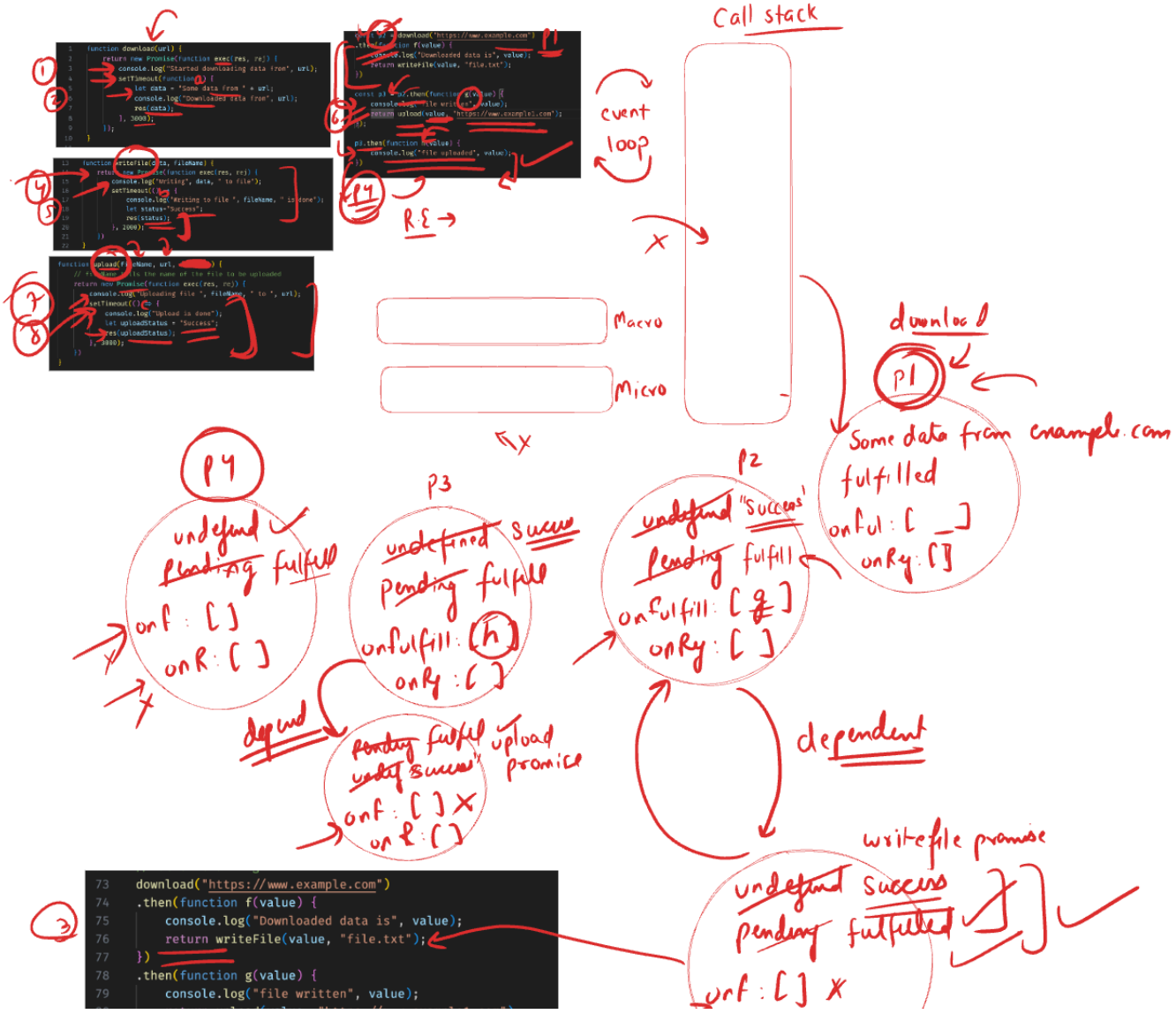





p2 = p1.then(f,g)
p2 state
p1 is fulfilled
p1 is rejected
executes f
executes g
normally returns a non promise value
yes
p2 is fulfilled with the value
yes
normally returns a non promise value
No
f throws exception
Yes
p2 is rejected with value as exception
yes
g throws exception
no
No
we returned another promise
Yes
p2 will be fulfilled or rejected based on the new promise hence it will wait for it
yes
we returned another promise


promise1 → download → url
promise2 → writefile (data)
promise3 → upload (file, url)


download
writefile
upload


Call stack
event loop
Macro
Micro
download
p1
Some data from example.com
fulfilled
onful: [_]
onRy: [ ]
p2
"Success"
fulfill
onfulfill: [ ]
onRy: [ ]
dependent
p3
success
fulfill
onfulfill: (h)
onRy: [ ]
depend
upload promise
onf: [ ] X
onR: [ ]
p4
undefined
fulfill
onf: [ ]
onR: [ ]
writefile promise
Success
fulfilled
onf: [ ] X
download("https://www.example.com")
.then(function f(value) {
console.log("Downloaded data is", value);
return writeFile(value, "file.txt");
})
.then(function g(value) {
console.log("file written", value);

```
    return upload(value, "https://www.example1.com");
})
.then(function h(value) {
    console.log("file uploaded", value);
});

```