

## ASYNC AWAIT #2/2

## async & promise

```
const timeout =(f, ms)=>new Promise(res=>setTimeout(_=>res(f()), ms));
const f1 =_=>"abc";
const f2 =_=>"def";
const start = performance.now();
```

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```

```
const timeout =(f, ms)=>new Promise(res=>setTimeout(_=>res(f()), ms));
const f1 =_=>"abc";
const f2 =_=>"def";
const start = performance.now();

const promise1 = new Promise(res=>res(f1()));
promise1.then(console.log);
```

```
const timeout =(f, ms)=>new Promise(res=>setTimeout(_=>res(f()), ms));
const f1 =_=>"abc";
const f2 =_=>"def";
const start = performance.now();

const promise1 = new Promise(res=>res(f1()));
promise1.then(console.log);

const promise2 = (async()=>f2())();
promise2.then(console.log);
```

## async/await

```
const timeout =(f, ms)=>new Promise(res=>setTimeout(_=>res(f()), ms));
const f1 =_=>"abc";
const f2 =_=>"def";
const start = performance.now();
```

```
const timeout =(f, ms)=>new Promise(res=>setTimeout(_=>res(f()), ms));
const f1 =_=>"abc";
const f2 =_=>"def";
const start = performance.now();
(()=>{
   timeout(f1, 500).then(v=>console.log(v, performance.now() - start));
})();
(()=>{
   timeout(f2, 1000).then(v=>console.log(v, performance.now() - start))
})();
```

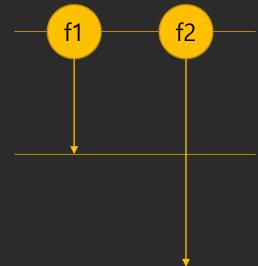
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const f1 = _=>"abc";
const f2 = _=>"def";
const start = performance.now();

(()=>{
    timeout(f1, 500).then(v=>console.log(v, performance.now() - start));
})();
(()=>{
    timeout(f2, 1000).then(v=>console.log(v, performance.now() - start));
})();
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const start = performance.now();
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  timeout(f1, 500).then(v=>console.log(v, performance.now() - start));
})();
(()=>{
  timeout(f2, 1000).then(v=>console.log(v, performance.now() - start));
})();
```

f2

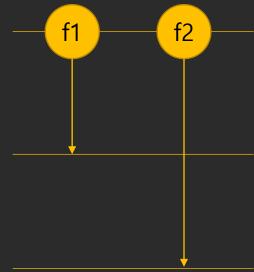
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const f2 = = > "def";
const start = performance.now();
(()=>{
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})();
(()=>{
  timeout(f2, 1000).then(v=>console.log(v, performance.now() - start));
})();
(async ()=>\{
```



```
const timeout =(f, ms)=>new Promise(res=>setTimeout(_=>res(f()), ms));
const f1 =_=>"abc";
const f2 =_=>"def";
const start = performance.now();
(()=>{
  timeout(f1, 500).then(v=>console.log(v, performance.now() - start));
})();
(()=){
  timeout(f2, 1000).then(v=>console.log(v, performance.now() - start));
})();
(async ()=>{
  console.log(await timeout(f1, 500), performance.now() - start);
})();
```

f2

```
const timeout =(f, ms)=>new Promise(res=>setTimeout(_=>res(f()), ms));
const f1 = => "abc";
const f2 =_=>"def";
const start = performance.now();
(()=>{
  timeout(f1, 500).then(v=>console.log(v, performance.now() - start));
})();
(()=>{
  timeout(f2, 1000).then(v=>console.log(v, performance.now() - start));
})();
(async ()=>{
  console.log(await timeout(f1, 500), performance.now() - start);
})();
(async ()=>{
  console.log(await timeout(f2, 1000), performance.now() - start);
})();
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                                                                                        f2
})();
(()=>{
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(()=>{
  timeout(f2, 1000).then(v=>console.log(v, performance.now() - start));
})();
(async ()=>{
  console.log(await timeout(f1, 500), performance.now() - start);
})();
                             SUSPEND
(async ()=>{
 })();
```

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const timeout =(f, ms)=>new Promise(res=>setTimeout(_=>res(f()), ms));
const f1 =_=>"abc";
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const start = performance.now();
(()=>{
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    .then(v=>{
      console.log(v, performance.now() - start);
      return timeout(f2, 1000);
    .then(v=>console.log(v, performance.now() - start));
})();
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      console.log(v, performance.now() - start);
      return timeout(f2, 1000);
    .then(v=>console.log(v, performance.now() - start));
})();
(async ()=>{
  console.log(await timeout(f1, 500), performance.now() - start);
  console.log(await timeout(f2, 1000), performance.now() - start);
})();
                     SUSPEND
```

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const timeout =(f, ms)=>new Promise(res=>setTimeout(_=>res(f()), ms));
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    .then(v=>{
      console.log(v, performance.now() - start);
      return timeout(f2, 1000);
    .then(v=>console.log(v, performance.now() - start));
})();
(async ()=>{
  console.log(await timeout(f1, 500) < performance.now() - start);</pre>
  console.log(await timeout(f2, 1000), performance.now() - start);
                     SUSPEND
})();
```

```
const timeout =(f, ms)=>new Promise(res=>setTimeout(_=>res(f()), ms));
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const f2 = =>"def";
const start = performance.now();
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    .then(v=>{
      console.log(v, performance.now() - start);
      return timeout(f2, 1000);
    .then(v=>console.log(v, performance.now() - start));
})();
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  console.log(await timeout(f1, 500) < performance.now() - start);</pre>
  console.log(await timeout(f2, 1000), performance.now() - start);
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      console.log(v, performance.now() - start);
      return timeout(f2, 1000);
    .then(v=>console.log(v, performance.now() - start));
})();
(async ()=>{
  console.log(await timeout(f1, 500) < performance.now() - start);</pre>
  console.log(await timeout(f2, 1000), ✓ performance.now() - start);
                     SUSPEND
})();
```

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const timeout =(f, ms)=>new Promise(res=>setTimeout(_=>res(f()), ms));
const f1 =_=>"abc";
const f2 =_=>"def";
const start = performance.now();
(()=>{
  timeout(f1, 500)
    .then(v=>{
      console.log(v, performance.now() - start);
      return timeout(f2, 1000);
    .then(v=>console.log(v, performance.now() - start));
})();
(async ()=>{
  console.log(
```

```
const timeout =(f, ms)=>new Promise(res=>setTimeout(_=>res(f()), ms));
const f1 =_=>"abc";
const f2 =_=>"def";
const start = performance.now();
(()=>{
  timeout(f1, 500)
    .then(v=>{
      console.log(v, performance.now() - start);
      return timeout(f2, 1000);
    .then(v=>console.log(v, performance.now() - start));
})();
(async ()=>{
  console.log(
    await timeout(f1, 500), performance.now() - start,
    await timeout(f2, 1000), performance.now() - start
})();
```

```
const timeout =(f, ms)=>new Promise(res=>setTimeout(_=>res(f()), ms));
const f1 =_=>"abc";
const f2 =_=>"def";
const start = performance.now();
(()=>{
  timeout(f1, 500)
    .then(v=>{
      console.log(v, performance.now() - start);
      return timeout(f2, 1000);
    .then(v=>console.log(v, performance.now() - start));
})();
(async ()=>{
  console.log(
    await timeout(f1, 500), performance.now() - start,
    await timeout(f2, 1000), performance.now() - start
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      console.log(v, performance.now() - start);
      return timeout(f2, 1000);
    .then(v=>console.log(v, performance.now() - start));
})();
(async ()=>{
  console. log(
    await timeout(f1, 500), performance.now() - start,
    await timeout(f2, 1000), performance.now() - start
           SUSPEND
})();
```

```
const timeout =(f, ms)=>new Promise(res=>setTimeout(_=>res(f()), ms));
const f1 =_=>"abc";
const f2 = =>"def";
const start = performance.now();
(()=>{
  timeout(f1, 500)
    .then(v=>{
      console.log(v, performance.now() - start);
      return timeout(f2, 1000);
    .then(v=>console.log(v, performance.now() - start));
})();
(async ()=>{
  console. log(
    await timeout(f1, 500) 
    performance.now() - start,>

    await timeout(f2, 1000), performance.now() - start
           SUSPEND
})();
```

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const start = performance.now();
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  timeout(f1, 500)
    .then(v=>{
      console.log(v, performance.now() - start);
      return timeout(f2, 1000);
    .then(v=>console.log(v, performance.now() - start));
})();
(async ()=>{
  console.log(
    await timeout(f1, 500) < performance.now() - start,>
    await timeout(f2, 1000), performance.now() - start
           SUSPEND
})();
```

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const timeout =(f, ms)=>new Promise(res=>setTimeout(_=>res(f()), ms));
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    .then(v=>{
      console.log(v, performance.now() - start);
      return timeout(f2, 1000);
    .then(v=>console.log(v, performance.now() - start));
})();
(async ()=>{
  console.log(
    await timeout(f1, 500) < performance.now() - start,>
    await timeout(f2, 1000) < performance.now() - start>
           SUSPEND
})();
```

## 실무에서 Promise.all 과 race를 사용하나요?

```
const timeout =(f, ms)=>new Promise(res=>setTimeout(_=>res(f()), ms));
const f1 =_=>"abc";
const f2 =_=>"def";
const start = performance.now();

(async ()=>{
   const [v1, v2] = await Promise.all([timeout(f1, 500), timeout(f2, 1000)]);
   console.log(v1, v2, performance.now() - start);
})();
```

```
const timeout =(f, ms)=>new Promise(res=>setTimeout(_=>res(f()), ms));
const f1 =_=>"abc";
const f2 =_=>"def";
const start = performance.now();
(async ()=>{
  const [v1, v2] = await Promise.all([timeout(f1, 500), timeout(f2, 1000)]);
  console.log(v1, v2, performance.now() - start);
})();
```

```
const timeout =(f, ms)=>new Promise(res=>setTimeout(_=>res(f()), ms));
const f1 = => "abc";
const f2 = =  "def";
const start = performance.now();
(async ()=>\{
  const [v1, v2] = await Promise.all([timeout(f1, 500), timeout(f2, 1000)]);
  console.log(v1, v2, performance.now() - start);
})();
(async ()=>\{
  const v = await Promise.race([timeout(f1, 500), timeout(f2, 1000)]);
  console.log(v, performance.now() - start);
})();
```

```
const timeout =(f, ms)=>new Promise(res=>setTimeout(_=>res(f()), ms));
const f1 = => "abc";
const f2 =_=>"def";
const start = performance.now();
(async ()=>\{
  const [v1, v2] = await Promise.all([timeout(f1, 500), timeout(f2, 1000)]);
  console.log(v1, v2, performance.now() - start);
})();
(async ()=>\{
  const v = await Promise.race([timeout(f1, 500), timeout(f2, 1000)]);
  console.log(v, performance.now() - start);
})();
```

## timeout fetch

## 실무에서 사용 중인 통신방법

```
const api = async(url, timeout = 5000, info = {})=>{
```

```
const api = async(url, timeout = 5000, info = {})=>{
    let id = -1;
      new Promise(res=>id = window.setTimeout(_=>res(), timeout)),
      fetch(new Request(url, info))
```

```
const api = async(url, timeout = 5000, info = {})=>{
    let id = -1;
    const v = await Promise.race([
      new Promise(res=>id = window.setTimeout(_=>res(), timeout)),
      fetch(new Request(url, info))
   ]);
```

```
const api = async(url, timeout = 5000, info = {})=>{
    let id = -1;
    const v = await Promise.race([
      new Promise(res=>id = window.setTimeout(_=>res(), timeout)),
      fetch(new Request(url, info))
   ]);
   if(v instanceof Response){
   }else return new Error("timeout");
```

```
const api = async(url, timeout = 5000, info = {})=>{
    let id = -1;
    const v = await Promise.race([
      new Promise(res=>id = window.setTimeout(_=>res(), timeout)),
      fetch(new Request(url, info))
   ]);
   if(v instanceof Response){
      clearTimeout(id);
      return v.status === 404 ? new Error("404") : await v.text();
   }else return new Error("timeout");
```

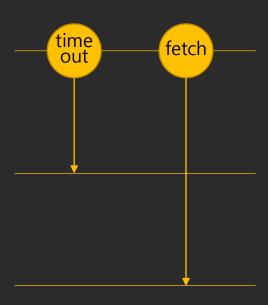
```
const api = async(url, timeout = 5000, info = {})=>{
    let id = -1;
    const v = await Promise.race([
      new Promise(res=>id = window.setTimeout(_=>res(), timeout)),
      fetch(new Request(url, info))
   ]);
   if(v instanceof Response){
   }else return new Error("timeout");
```

```
const api = async(url, timeout = 5000, info = {})=>{
  try {
    let id = -1;
    const v = await Promise.race([
      new Promise(res=>id = window.setTimeout(_=>res(), timeout)),
      fetch(new Request(url, info))
   ]);
   if(v instanceof Response){
      clearTimeout(id);
      return v.status === 404 ? new Error("404") : await v.text();
   }else return new Error("timeout");
 }catch(e){
    return e;
```

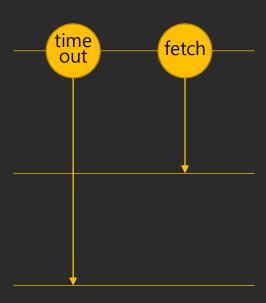
```
const api = async(url, timeout = 5000, info = {})=>{
    let id = -1;
    const v = await Promise.race([
      new Promise(res=>id = window.setTimeout(_=>res(), timeout)),
      fetch(new Request(url, info))
   ]);
   if(v instanceof Response){
      clearTimeout(id);
      return v.status === 404 ? new Error("404") : await v.text();
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  try {
    let id = -1;
    const v = await Promise.race([
      new Promise(res=>id = window.setTimeout(_=>res(), timeout)),
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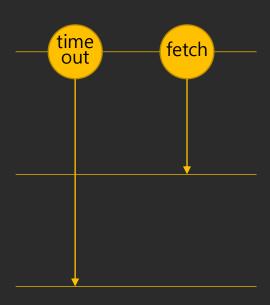
```
const api = async(url, timeout = 5000, info = {})=>{
  try {
    let id = -1;
    const v = await Promise.race([
      new Promise(res=>id = window.setTimeout(_=>res(), timeout)),
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  try {
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    const v = await Promise.race([
      new Promise(res=>id = window.setTimeout(_=>res(), timeout)),
      fetch(new Request(url, info))
    ]);
    if(v instanceof Response){
      clearTimeout(id);
      return v.status === 404 ? new Error("404") : await v.text();
    }else return new Error("timeout");
  }catch(e){
    return e;
(async()=>{
  const v = await api("200.html", 1);
  if(v instanceof Error) console.log(\`error : ${v}\`);
  else console.log(`contents : ${v}`);
})();
```



```
const api2 = async(url, timeout = 5000, info = {})=>{
  let id = -1;
  const v = await Promise.race([
    new Promise(res=>id = window.setTimeout(_=>res(), timeout)),
    fetch(new Request(url, info))
  ]);
  if(v instanceof Response){
    clearTimeout(id);
    if(v.status === 404) throw new Error("404");
    return await v.json();
  }else throw new Error("timeout");
};
```

```
const api2 = async(url, timeout = 5000, info = {})=>{
  let id = -1;
  const v = await Promise.race([
    new Promise(res=>id = window.setTimeout(_=>res(), timeout)),
    fetch(new Request(url, info))
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    if(v.status === 404) throw new Error("404");
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  let id = -1;
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    fetch(new Request(url, info))
 ]);
  if(v instanceof Response){
    clearTimeout(id);
    if(v.status === 404) throw new Error("404");
    return await v.json();
  }else throw new Error("timeout");
};
(async()=>{
  try {
  } catch (e) {
    console.log(e);
})();
```

```
const api2 = async(url, timeout = 5000, info = {})=>{
  let id = -1;
  const v = await Promise.race([
    new Promise(res=>id = window.setTimeout(_=>res(), timeout)),
    fetch(new Request(url, info))
 ]);
  if(v instanceof Response){
    clearTimeout(id);
    if(v.status === 404) throw new Error("404");
    return await v.json();
  }else throw new Error("timeout");
(async()=>{
  try {
    const {id, nick, thumb} = await api("/member");
 } catch (e) {
    console.log(e);
})();
```

```
const api2 = async(url, timeout = 5000, info = {})=>{
  let id = -1;
  const v = await Promise.race([
    new Promise(res=>id = window.setTimeout(_=>res(), timeout)),
    fetch(new Request(url, info))
 ]);
 if(v instanceof Response){
    clearTimeout(id);
   if(v.status === 404) throw new Error("404");
    return await v.json();
 }else throw new Error("timeout");
(async()=>{
  try {
    const {id, nick, thumb} = await api("/member");
    const [{name, email, sex}, friendsId] = await Promise.all([api(`/detail/${id}`), api(`/friends/${id}`)]);
 } catch (e) {
    console.log(e);
})();
```

```
const api2 = async(url, timeout = 5000, info = {})=>{
  let id = -1;
  const v = await Promise.race([
    new Promise(res=>id = window.setTimeout(_=>res(), timeout)),
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 }else throw new Error("timeout");
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  try {
    const {id, nick, thumb} = await api("/member");
    const [{name, email, sex}, friendsId] = await Promise.all([api(`/detail/${id}`), api(`/friends/${id}`)]);
    updateMember(nick, thumb, name, email, sex);
 } catch (e) {
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})();
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const api2 = async(url, timeout = 5000, info = {})=>{
  let id = -1;
  const v = await Promise.race([
    new Promise(res=>id = window.setTimeout(_=>res(), timeout)),
    fetch(new Request(url, info))
 ]);
 if(v instanceof Response){
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    updateFriends(
      (await Promise.all(friendsId.map(id => api(`/detail/${id}`)))).map((v, idx)=>({id:friendsId[idx], ...v}))
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                                                                                                            friends
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                                                                                                          detail
                                                                                                                detail
                                                                                                                      detail
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                                                                                                             friends
                                                                                                detail
 ]);
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    clearTimeout(id);
                                                                                                      detail
                                                                                                            detail
                                                                                                                 detail
                                                                                                                       detail
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                                                                                                              map
                                                                                               update
member
                                                                                                               +id
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    updateMember(nick, thumb, name, email, sex);
    updateFriends(
      (await Promise.all(friendsId.map(id => api(`/detail/${id}`)))).map((v, idx)=>({id:friendsId[idx], ...v}))
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                                                                                                 detail
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 if(v instanceof Response){
    clearTimeout(id);
                                                                                                       detail
                                                                                                             detail
                                                                                                                   detail
                                                                                                                        detail
    if(v.status === 404) throw new Error("404");
    return await v.json();
 }else throw new Error("timeout");
                                                                                                                map
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    const [{name, email, sex}, friendsId] = await Promise.all([api(`/detail/${id}`), api(`/friends/${id}`)]);
    updateMember(nick, thumb, name, email, sex);
    updateFriends(
      (await Promise.all(friendsId.map(id => api(`/detail/${id}`)))).map((v, idx)=>({id:friendsId[idx], ...v}))
   catch (e) {
    console.log(e);
})();
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```
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    new Promise(res=>id = window.setTimeout(_=>res(), timeout)),
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                                                                                               detail
                                                                                                            friends
 ]);
  if(v instanceof Response){
    clearTimeout(id);
                                                                                                     detail
                                                                                                          detail
                                                                                                                detail
                                                                                                                     detail
    if(v.status === 404) throw new Error("404");
    return await v.text();
  }else throw new Error("timeout");
                                                                                                             map
                                                                                              update
member
                                                                                                             +id
(async()=>{
                                                                                                            update
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  try {
    const {id, nick, thumb} = await api("/member");
    const [{name, email, sex}, friendsId] = await Promise.all([api(`/detail/${id}`), api(`/friends/${id}`)]);
    updateMember(nick, thumb, name, email, sex);
    updateFriends(
      (await Promise.all(friendsId.map(id => api(`/detail/${id}`)))).map((v, idx)=>({id:friendsId[idx], ...v}))
  } catch (e) {
    console.log(e);
})();
const updateMember = (nick, thumb, name, email, sex)=>{};
const updateFriends = (details)=>details.map(({id, name, email, sex})=>{});
```

## asynchous iterator

## 실무에서 iterator를 사용하나요?

```
const infinity = async function*(cat){
  let page = -1;
  do {
    try {
      const {nextPage, items} = await api2(`/list/${cat}/${page === -1 ? "" : page}`);
      page = nextPage;
      yield items;
    }catch(e){
      return;
    }
  }while(page !== -1);
};
```

```
const infinity = async function*(cat){
  let page = -1;
  do {
    try {
      const {nextPage, items} = await api2(`/list/${cat}/${page === -1 ? "" : page}`);
      page = nextPage;
      yield items;
    }catch(e){
      return;
    }
  }while(page !== -1);
};
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const infinity = async function*(cat){
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      page = nextPage;
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   }catch(e){
      return;
 }while(page !== -1);
const notice = infinity("notice");
```

```
const infinity = async function*(cat){
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    try {
      const {nextPage, items} = await api2(`/list/${cat}/${page === -1 ? "" : page}`);
      page = nextPage;
      yield items;
    }catch(e){
      return;
  }while(page !== -1);
const notice = infinity("notice");
(async()=>{
  const {value, done} = await notice.next();
  if(!done) console.log(value);
})();
```

```
const infinity = async function*(cat){
  let page = -1;
  do {
    try {
      const {nextPage, items} = await api2(`/list/${cat}/${page === -1 ? "" : page}`);
      page = nextPage;
      yield items;
    }catch(e){
      return;
  }while(page !== -1);
const notice = infinity("notice");
(async()=>{
  const {value, done} = await notice.next();
  if(!done) console.log(value);
})();
document.querySelector("#next").onclick = async()=>{
  const {value, done} = await notice.next();
 if(!done) console.log(value);
```