

# Currency

What's wrong with the following code?

```
1 import java.util.ArrayList;
2 import java.util.List;
3
4 public class Currency {
5
6     public static void main(String[] args) {
7         List<ClientCurrencyDetails> currenciesAsPerClientHashId = new ArrayList<>();
8         currenciesAsPerClientHashId.add(new ClientCurrencyDetails("USD"));
9         currenciesAsPerClientHashId.add(new ClientCurrencyDetails("EUR"));
10
11         List<ClientCurrencyDetails> currencyDetailsAsPerPlatformSetup = new ArrayList<>();
12         currencyDetailsAsPerPlatformSetup.add(new ClientCurrencyDetails("USD"));
13         currencyDetailsAsPerPlatformSetup.add(new ClientCurrencyDetails("EUR"));
14         currencyDetailsAsPerPlatformSetup.add(new ClientCurrencyDetails("JPY"));
15
16         for (ClientCurrencyDetails clientCurrency : currenciesAsPerClientHashId) {
17             long value = currencyDetailsAsPerPlatformSetup
18                 .stream().filter(t ->
19                     t.getCurrencyCode().equalsIgnoreCase(clientCurrency.getCurrencyCode()))
20                     .count();
21             if (value >= 1) {
22                 currencyDetailsAsPerPlatformSetup.remove(clientCurrency);
23             }
24         }
25
26         System.out.println("Remaining currencies:");
27         for (ClientCurrencyDetails currency : currencyDetailsAsPerPlatformSetup) {
28             System.out.println(currency.getCurrencyCode());
29         }
30     }
31
32     class ClientCurrencyDetails {
33         final private String currencyCode;
34
35         public ClientCurrencyDetails(String currencyCode) {
36             this.currencyCode = currencyCode;
37         }
38
39         public String getCurrencyCode() {
40             return currencyCode;
41         }
42     }
43 }
```

Interestingly, if we turn `ClientCurrencyDetails` into a *Record* (introduced in Java 14), the program works as expected. Can you guess why?

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Bug: The code tries to remove elements from the `currencyDetailsAsPerPlatformSetup` list inside a loop using the `remove()` method.

Fix:

```
1 currencyDetailsAsPerPlatformSetup.removeIf(clientCurrency ->
2     currenciesAsPerClientHashId.stream().anyMatch(t ->
3     t.getCurrencyCode().equalsIgnoreCase(clientCurrency.getCurrencyCode()))
4 );
```

The reason the program works fine when `ClientCurrencyDetails` is a `Record` is that `Records` automatically provide `equals()` and `hashCode()` methods based on their state descriptions.