

Lab 6 Synchronization  
Course: Operating Systems

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Exercises (Required):

1. Bank account situation

If two people withdrawn and deposit money at two very different time , every thing will be just fine.

But if two people do those things at the same time, withdrawing and depositing money at the same time, there will be unexpected consequences..

Firstly, we will talk about good consequence. Although we say two people withdrawn and deposit money at the same time, it is just a relative expression and those two actions do happen one after another but at a very small interval. With that being said , suppose the depositing takes place first, the good result is the computer manages to update the balance right before the computer do the read the value of the balance to do the withdrawal thing. And the same goes for vice versa.

Secondly, unwanted consequence. Consider the situation where computer does n manage to update the value of the balance before doing another transaction. To be more specific, while the computer does the math on withdrawal, it also operates on the calculation of depositing, which means that the computer is processing the same value on two opposite action. And when the computer finishes, it will end up unwanted result. That is the value of the balance is the result of the later update of the computer. For example, if a bank account balance is 1000vnd. While one person withdraws 500vnd, another one deposits 500vnd. The result is unpredictable, which is 1500vnd or 500vnd or even 1000vnd as I said above.

To solve this problem, the simplest way is to use mutual exclusion to prevent a bank account to be registered in mutiple computers so that only one action can take place.