Section Worksheet 8 Solution

a. Starting from an empty account, call deposit(50) then withdrawl(1); before the deposit updates 'balance', withdrawl runs in its entirety.

b. Starting with an empty account, 2 deposits are made, one for $5 and one for $20. Both processes evaluate 'balance+amt' before either stores it back in balance, so one of the deposits will be 'forgotten.'

c.

```
int balance;
synchronize void withdraw(long amt) throws Exception
{
      if(amt>balance) throw new Exception("Insufficient Funds");
      balance=balance-amt;
}
synchronize void deposit(long amt) { balance=balance+amt; }
```

d.

```
int balance;
ReentrantLock lk; //initialize in constructor
void withdraw(long amt) throws Exception
{
      lk.lock();
      try
      {
            if(amt>balance) throw new Exception("Insufficient Funds");
            balance=balance-amt;
      }
      finally{lk.unlock();}
}
void deposit(long amt) { lk.lock(); balance=balance+amt; lk.unlock(); }
```