-module(helloworld).

-export([start/0,account/1,bank/0,clerk/0]).

n2s(N) -> lists:flatten(io\_lib:format("~p", [N])). %% HACK!

account(Balance) ->

receive

{deposit,Amount} ->

account(Balance+Amount);

{printbalance} ->

io:fwrite(n2s(Balance) ++ "\n")

end.

bank() ->

receive

{transfer,Amount,From,To} ->

From ! {deposit,-Amount},

To ! {deposit,+Amount},

bank()

end.

random(N) -> random:uniform(N) div 10.

ntransfers(0,\_,\_,\_) -> true;

ntransfers(N,Bank,From,To) ->

R = random(100),

Bank ! {transfer,R,From,To},

ntransfers(N-1,Bank,From,To).

clerk() ->

receive

{start,Bank,From,To} ->

random:seed(now()),

ntransfers(100,Bank,From,To),

clerk()

end.

start() ->

A1 = spawn(helloworld,account,[0]),

A2 = spawn(helloworld,account,[0]),

B1 = spawn(helloworld,bank,[]),

B2 = spawn(helloworld,bank,[]),

C1 = spawn(helloworld,clerk,[]),

C2 = spawn(helloworld,clerk,[]),

C1 ! {start,B1,A1,A2},

C2 ! {start,B2,A2,A1},

timer:sleep(1000),

A1 ! {printbalance},

A2 ! {printbalance}.

Answer to question C):

"What happens if we replace {deposit, +-Amount} w/ the msgs?"

To be honest, I’m not completely sure I understand the question. But I guess that there could raise a race condition, since worst case would be something like “setting” a new balance between “inspect” and “balance”, which would lead to the program getting the wrong balance value.