class scoreboard;

int total\_money=0;

mailbox mon2sco;

transaction trans,trans\_ref;

function new(mailbox mon2sco);

this.mon2sco=mon2sco;

endfunction

task get\_msg();

repeat(20)

begin

trans\_ref=new();

mon2sco.get(trans);

trans\_ref.sel=trans.sel;

trans\_ref.coin=trans.coin;

ref\_logic();

compare();

end

endtask

task ref\_logic();

if(trans\_ref.sel==0)

begin

total\_money+=trans\_ref.coin;

if (trans\_ref.coin==0)

begin

trans\_ref.item=0;

trans\_ref.change=total\_money;

total\_money=0;

end

else if (total\_money>=15)

begin

trans\_ref.item=1;

trans\_ref.change=total\_money-15;

total\_money=0;

end

else

begin

trans\_ref.item=0;

trans\_ref.change=0;

end

end

else

begin

total\_money+=trans\_ref.coin;

if (trans\_ref.coin==0)

begin

trans\_ref.item=0;

trans\_ref.change=total\_money;

total\_money=0;

end

else if (total\_money>=20)

begin

trans\_ref.item=1;

trans\_ref.change=total\_money-20;

total\_money=0;

end

else

begin

trans\_ref.item=0;

trans\_ref.change=0;

end

end

endtask

task compare();

// $display("scoreboard");

if ((trans.item==trans\_ref.item) && (trans.change==trans\_ref.change))

begin

$display("--------------------------------------------------");

$display("time=%0d reference logic --sel=%b,coins=%b,item=%b,change=%b",$time,trans.sel,trans\_ref.coin,trans\_ref.item,trans\_ref.change);

$display("TESTCASE PASS");

$display("time=%0d actual logic --sel=%b,coins=%b,item=%b,change=%b",$time,trans.sel,trans.coin,trans.item,trans.change);

$display("--------------------------------------------------");

end

else

begin

$display("--------------------------------------------------");

$display("time=%0d reference logic --sel=%b,coins=%b,item=%b,change=%b",$time,trans.sel,trans\_ref.coin,trans\_ref.item,trans\_ref.change);

$display("TESTCASE FAIL");

$display("time=%0d actual logic --sel=%b,coins=%b,item=%b,change=%b",$time,trans.sel,trans.coin,trans.item,trans.change);

$display("--------------------------------------------------");

end

endtask

endclass