Quiz 3 Solution

1. Create a trigger that fires when a new row is added to the loan table. The trigger makes sure the copynum in the row is not a copynum of a copy that is currently checked-out. A copy is checked-out if there is a row in loan for the copy in which the ret (return date) value is null.

create or replace function checkLoan () returns trigger AS $$
Declare

Begin
    if exists (select loannum from Loan where copynum = NEW.copynum and ret is null) then
        raise exception '% cannot be borrowed', NEW.copynum;
    end if;
    return NEW;
End;
$$ Language plpgsql;

create trigger checkLoan before insert on Loan
 For each row execute procedure checkLoan();

2. Write a trigger called checkCapacity. The trigger is called when the capacity column in the Library table is changed. The trigger checks that the new capacity is greater than or equal to the number of copies currently housed in the library. If the new capacity is greater than or equal to the number of copies housed in the library the new row is returned (the update happens) otherwise an exception is raised and the update fails.

```
create or replace function checkCapacity() returns trigger AS $$
Declare
     cap Integer;
Begin
     select count(copynum) into cap from copy where libnum = NEW.libnum;
     if NEW.capacity < cap then
          raise exception 'A capacity of % is too small', NEW.capacity;
     end if;
     return NEW;
End;
$$ Language plpgsql;

create trigger checkCapacity before update of capacity on Library
 For each row execute procedure checkCapacity();
```