Quevedo

Files and Databases
Quiz 3

Using the following schema, solve the queries that follow in SQL

Suppliers(sid, sname, city)
Supply(sid, pid, cost)
Part(pid, pname, description, color)

1. Find the sname of suppliers that supply ALL parts with a cost greater than $100.00

```
Select  s.sname
from    suppliers s
where   not exists
        (select *
         from part p
         where not exists
               ( select *
                 from supply sp
                 where sp.sid = s.sid
                 and   sp.pid = p.pid
                 and   sp.cost > 100 ))
```

correlation

2. List the sname of suppliers that do not supply red parts

```
select  s.sname
from    suppliers s
where     s.sid not in
          ( select  sp.sid
            from  supply sp, part p
            where sp.pid = p.pid
            and   p.color = 'red' );
```

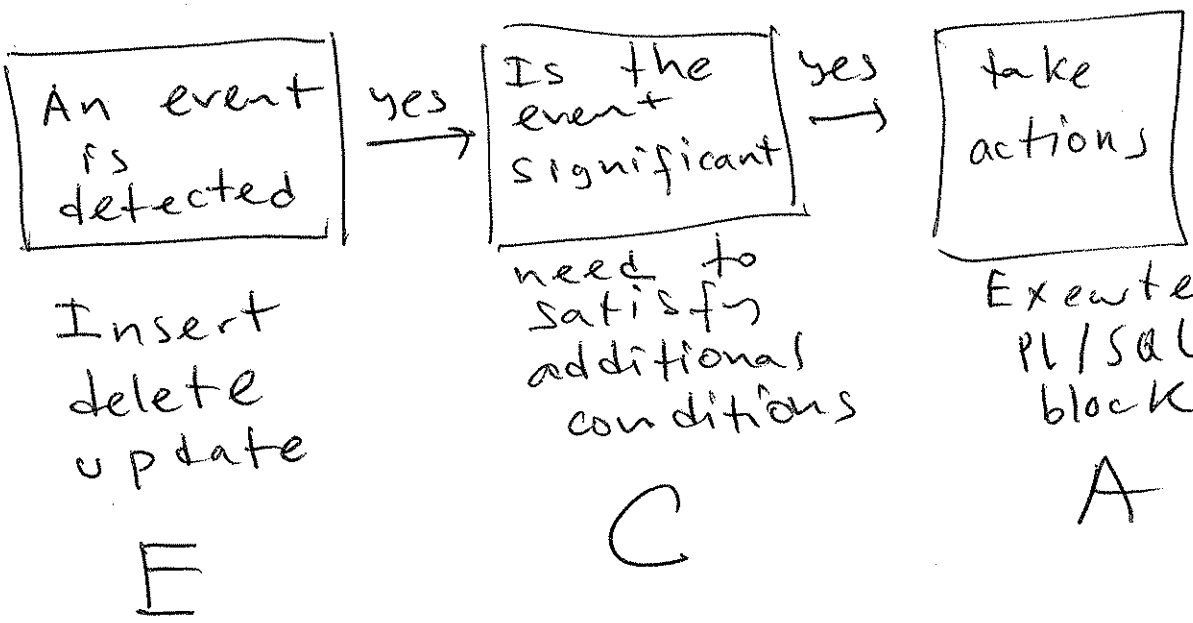
PL/SQL

Anonymous Block
stored Procedure / stored function
packages
Cursors
Triggers

A trigger is an event-driven block of PL/SQL code

ECA Model

Event → Condition → Action



course (cid, title, credits, did)
takes (sid, cid, grade)
student (sid, name, age, balance, major, GPA, address)

Exercise 1: Increase the GPA of student sid = '123' by 0.5

```
update  student
set     GPA = GPA + 0.5
where   sid = '123';
```

Exercise 2: set the grade of every student who takes database to 'A'

```
update  takes
set     grade = 'A'
where   cid in
        ( select  C.cid
          from    course C
          where   C.title = 'database' );
```

Exercise 3: Delete all students who take no courses

```
delete from student
where  sid not in
       (select  t.sid
        from    takes t );
```

Exercise 4:

Write a trigger that displays a message when students exceed 15 credits.

```
set server output on
create or replace trigger over_15
after insert on takes
declare
    total_cred number;
begin
    select sum(c.credits) into total_cred
    from takes t, course c
    where t.cid = c.cid
     and  t.sid = new.sid;
    if (total_cred > 15) then
      dbms_output.put_line('Student
      exceeds 15 credits');
    end if;
end;
/
show errors
```

Integrity Constraints

```
Create table sailors
 ( sid integer,
   sname char(10),
   rating integer,
   age real,
   primary key (sid),
   check(
     (select count(*) from sailors)
   + (select count(*) from boats) < 200
     )
```

In SQL, there are two types of relations: real (base) and virtual.

A view is just a relation, but we store a definition, rather than a set of tuples.

Relations created with "create table" statement are real (base).

Relations created with "create view" statement are virtual.

Example:

```
Create view activeSailors
  (name, age, day) as
    select s.sname, s.age, r.date
    from sailors s, reserves r
    where s.sid = r.sid and
      s.rating > 6;
```

Example:

List name of active sailors older than 50

```
select a.name
from activeSailors a
where a.age > 50;
```

The Grant/Revoke commands can be used to control access to relations (real and views).

```
grant insert, select on sailors to smith;

    select *
    from jquevedo.sailors;

grant delete on sailors to lee
  with grant option;
```

grant update (rating) on sailors to quen, olson;

Revoke: when a priveleg is revoked from X, it is also revoked from all users who got it <u>solely</u> from X.