

Politecnico di Torino

Database Management Systems

July 8th 2011

Trigger exercise: draft solution

1. (7 Points) The following relations are given (primary keys are underlined, optional attributes are denoted with *):

```
PERSON (RegNumber, Job)
SHIFT (RegNumber, Date, TCode)
SHIFT-TYPE (TCode, StartTime, Duration)
LEAVE-REQUEST(RCode, RegNumber, Date)
NOTIFICATION(RegNumber, Date, RequestOutcome)
```

Write a trigger to manage one-day leave requests by people working in a hospital (insert into the LEAVE-REQUEST table). A leave request is accepted if the person requesting it is not on duty in the requested date (SHIFT table). If instead the person is on duty, the request is accepted only if another person is available to fill the requester's shift. Otherwise, the request is declined. A person may substitute another person on a shift if they both have the same job and the substitute is not on duty in the same date.

The outcome of the request (accepted or declined) must be notified by means of an insert into the NOTIFICATION table.

```
EVENT: insert on LEAVE-REQUEST
EXECUTION GRANULARITY: row level (one request at a time)
EXECUTION MODE: after (business rule)
CONDITION: NO
ACTION:
(1) check if the person has the shift on the requested date
    (2) if the person does not have the shift the request is accepted
    (3) if the person has the shift, check if there is another person
        with the same job but no shift on the requested date
    (4) if a person is available the request is accepted, otherwise the request
        is declined
(5) Notify the outcome of the request
```

```
create or replace trigger LeaveRequest
after insert on LEAVE-REQUEST
for each row
```

```
declare
N number;
outcome varchar[20];
```

```
begin
```

```
--check if the person has the shift on the requested date
select count(*) into N
from Shift
where RegNumber= :new.RegNumber and Date = :new.Date;
```

```

if (N=0) then
---The person does not have the shift
  outcome = 'accept';
else
---The person has the shift. Check if there is another person with the same job
---but no shift on requested date

  select count(*) into N
  from Person
  where Job = (select Job
               from Person
               where RegNumber = :new.RegNumber)
  and RegNumber not in
    (select RegNumber
     from Shift
     where Date = :new.Date);

  if (N > 0) then
    outcome = 'accept';
  else
    outcome = 'reject';
  endif;
endif;

----Notify the outcome of the request
insert into Notification (RegNumber, Date, RequestOutcome)
values (:new.RegNumber,:new.Date,outcome);

end;

```