

Trigger Exercises: Leave request management

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.

SOLUTION:

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;
```