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### Sample Solution

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This sample solution HAS NOT YET MET the project requirements.

There are MUCH ROOM for enhancement.

## Project – Staff vaccination leave

### Business needs

- record the date of vaccination and the date of leave taken per staff member
- determine whether the leave is entitled or not
- provide status summary including leaves taken and outstanding
- list staff members who have not taken any vaccines

### Assumptions and limitations

- All staff members will take vaccination leaves shortly after taking vaccines that the status summary can be run at any time to reflect the real status.
- If one staff member left the company, the records of that member should be deleted from the VACCINATION table. Otherwise, the status summary may include that and be confusing.

### Database design

Two tables and one logical view

#### Table STAFF

Basic information of each staff member

#### Table VACCINATION

V\_STAFF\_NO and V\_DOSE\_ID are composite primary key

V\_DATE\_VAC is the date of vaccination

V\_DATE\_LEAVE is the date of leave taken

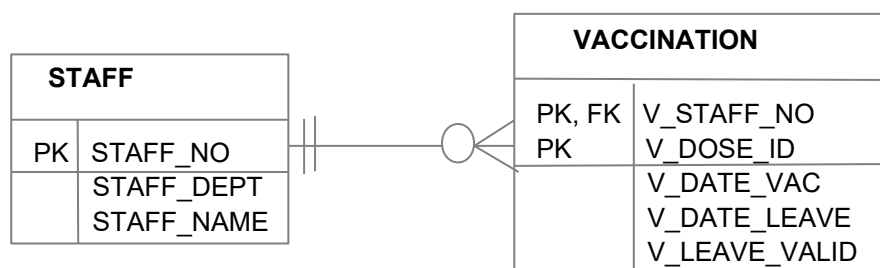
V\_LEAVE\_VALID is a derived attribute with value either

YES (entitled leave has been taken) or

NO (expired after 7 days from vaccination)

*This attribute is derived by running a SQL at any time to ensure accuracy. It is justified because the frequency of use is high and the frequency of change is very low.*

### ER Diagram



Initial setup:

STAFF: Basic information of each member

	STAFF_NO	STAFF_DEPT	STAFF_NAME
1	3205	Finance	Francis Fan
2	5239	Accounting	Connie Hung
3	6521	Logistics	Ever Hong
4	7014	Sales	Yannie So
5	7162	Sales	Steve Ko

Data entry by end-users:

VACCINATION: Staff number, dose, 2 dates

	V_STAFF_NO	V_DOSE_ID	V_DATE_VAC	V_DATE_LEAVE	V_LEAVE_VALID
1	3205	1	2022-12-31	2023-01-04	
2	5239	1	2022-07-06	2022-07-14	
3	5239	2	2022-10-14	2022-10-21	
4	6521	1	2022-08-19	2022-08-20	
5	6521	2	2022-09-15	2022-09-24	
6	6521	3	2023-02-06	NULL	NULL
7	7162	1	2022-11-30	2022-12-03	
8	7162	2	2022-12-26	NULL	NULL

Data to be computed:

VACCINATION: V\_LEAVE\_VALID

The following SQL updates the V\_LEAVE\_VALID:

```
UPDATE VACCINATION
  SET V_LEAVE_VALID = 'Yes'
  WHERE ((JulianDay(V_DATE_LEAVE)-JulianDay(V_DATE_VAC)) < 8);
UPDATE VACCINATION
  SET V_LEAVE_VALID = 'No'
  WHERE ((JulianDay(V_DATE_LEAVE)-JulianDay(V_DATE_VAC)) > 7);
```

Sample results:

	V_STAFF_NO	V_DOSE_ID	V_DATE_VAC	V_DATE_LEAVE	V_LEAVE_VALID
1	3205	1	2022-12-31	2023-01-04	Yes
2	5239	1	2022-07-06	2022-07-14	No
3	5239	2	2022-10-14	2022-10-21	Yes
4	6521	1	2022-08-19	2022-08-20	Yes
5	6521	2	2022-09-15	2022-09-24	No
6	6521	3	2023-02-06	NULL	NULL
7	7162	1	2022-11-30	2022-12-03	Yes
8	7162	2	2022-12-26	NULL	NULL

## Logical View ENTITLEMENT

```
CREATE VIEW ENTITLEMENT AS
  SELECT V_STAFF_NO, STAFF_NAME, COUNT(V_DOSE_ID) AS ENTITLED,
         COUNT(V_LEAVE_VALID) AS TAKEN,
         (COUNT(V_DOSE_ID) - COUNT(V_LEAVE_VALID)) AS OUTSTANDING
  FROM STAFF, VACCINATION
  WHERE V_STAFF_NO = STAFF_NO
  GROUP BY V_STAFF_NO, STAFF_NAME
  ORDER BY V_STAFF_NO, STAFF_NAME;
```

Sample results:

	V_STAFF_NO	STAFF_NAME	ENTITLED	TAKEN	OUTSTANDING
1	3205	Francis Fan	1	1	0
2	5239	Connie Hung	2	2	0
3	6521	Ever Hong	3	2	1
4	7162	Steve Ko	2	1	1