ISYS3257

**Lab #4: Final Exam Practice**

**Due: 12/6/2016**

**Database Schema**

CREATE TABLE FE\_SERVERS

( SERVER VARCHAR2(30) PRIMARY KEY,

OS VARCHAR2(30) NOT NULL ENABLE,

INSTALL\_DT DATE,

MEMORY VARCHAR2(30),

SPT\_STAFF NUMBER references staff(emp\_id) );

CREATE TABLE FE\_APPS

( APP VARCHAR2(30) PRIMARY KEY, /\* Application Name \*/

DEPT VARCHAR2(10),

SPT\_STAFF NUMBER) references staff(emp\_id) );

CREATE TABLE FE\_USAGE

( USE\_CODE NUMBER PRIMARY KEY, /\* from sequence \*/

SERVER VARCHAR2(30) references servers(server),

APP VARCHAR2(30) references apps(app),

STATUS VARCHAR2(10), /\* ‘dev’, ‘qa’ or ‘prod’\*/

FUNCTION VARCHAR2(10), /\* ‘app’, ‘web’, ‘dbms’ \*/

START\_DT DATE,

END\_DT DATE);

CREATE TABLE FE\_STAFF

( EMP\_ID NUMBER(5,0) PRIMARY KEY,

EMP\_NAME VARCHAR2(25),

EMP\_TITLE VARCHAR2(25),

EMP\_START DATE);s

CREATE TABLE FE\_SKILLS

( SKILL\_ID NUMBER PRIMARY KEY, /\* from sequence \*/

EMP\_ID NUMBER(5,0),

SKILL\_TYPE VARCHAR2(5) CHECK (skill\_type in ('OS','WEB','DBA',’APP’),

SKILL\_NAME VARCHAR2(10),

SKILL\_LEVEL NUMBER(1,0), /\* 1(novice) – 5(expert) \*/

SKILL\_DATE DATE);

/\* **NOTES**

skills.skill\_type is the major category of the skill. There are 3 types:

Type ‘OS’ can have skill\_names ‘Linux’ or ‘Windows’

Type ‘SVC’ can have skill\_names ‘Web’ or ‘DBMS’

Type ‘APP’ can be have skill\_names for individual applications

We want to match skills to responsibilities. So if a server with the ‘Windows’ OS is used as a ‘web server’, we would like the spt\_staff person to have those 2 skill records.

Servers and Apps are our basic resource tables (like ‘budgets and projects’ or ‘students and courses’). The usage record is the result of a transaction that links them (like our ‘funding’ or ‘student-registration’ tables).

Both servers and apps have a link to the support person that reference the same ‘STAFF’ table using the employee ID.

1. Are there any server support staff who do not have a skill type of ‘OS’?

select server, spt\_staff, staff.emp\_id, skills.emp\_id, emp\_name, skill\_type from mi257.fe\_servers servers, mi257.fe\_staff staff, mi257.fe\_skills skills where spt\_staff = staff.emp\_id and staff.emp\_id = skills.emp\_id and skill\_type <> 'OS'

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **SERVER** | **SPT\_STAFF** | **EMP\_ID** | **EMP\_ID** | **EMP\_NAME** | **SKILL\_TYPE** |
| indy | 6 | 6 | 6 | Tierney,Pat | SVC |
| miami | 10 | 10 | 10 | Loggins,Brian | SVC |
| dallas | 12 | 12 | 12 | Early,Alan | SVC |
| boston | 14 | 14 | 14 | Murphy,Mary | SVC |
| denver | 18 | 18 | 18 | Ramos,Peter | APP |
| chicago | 18 | 18 | 18 | Ramos,Peter | APP |
| seattle | 19 | 19 | 19 | Robertson,Mark | APP |
| detroit | 21 | 21 | 21 | Bridges,Judy | APP |
| phoenix | 21 | 21 | 21 | Bridges,Judy | APP |
| atlanta | 21 | 21 | 21 | Bridges,Judy | APP |
| austin | 22 | 22 | 22 | Norris,Mike | APP |

1. Does any server have both “web” and “app” usage records for the same server?

select server from mi257.fe\_servers servers where server in (select server from mi257.fe\_usage us1 where function = 'web') and server in (select server from mi257.fe\_usage us2 where function = 'app')

|  |
| --- |
| **SERVER** |
| denver |
| atlanta |
| phoenix |
| boston |
| chicago |
| austin |
| dallas |

1. Who is the most senior employee for each skill type (seniority is simply sysdate – emp\_start)?

select emp\_name, sysdate-emp\_start AS duration, skill\_type from mi257.fe\_staff staff, mi257.fe\_skills skills where staff.emp\_id = skills.emp\_id

and sysdate-emp\_start IN (

select max(sysdate-emp\_start) from mi257.fe\_staff staff, mi257.fe\_skills skills where staff.emp\_id = skills.emp\_id

group by skill\_type

)

|  |  |  |
| --- | --- | --- |
| **EMP\_NAME** | **DURATION** | **SKILL\_TYPE** |
| Sullivan,Jane | 1358.10840277777777777777777777777777778 | APP |
| Geiger,Roy | 1358.10840277777777777777777777777777778 | APP |
| Jones,Ed | 1498.10840277777777777777777777777777778 | OS |
| Waller,David | 1463.10840277777777777777777777777777778 | SVC |

1. List every server with its support staff person’s name and every application with its support person’s name in a single report – identifying whether it is a server or application.

select 'SERVER' as Type, server, servers.spt\_staff, staff.emp\_id, staff.emp\_name from mi257.fe\_servers servers left join mi257.fe\_staff staff on servers.spt\_staff = staff.emp\_id

union

select 'APP', app, apps.spt\_staff, staff2.emp\_id, staff2.emp\_name from mi257.fe\_apps apps left join mi257.fe\_staff staff2 on apps.spt\_staff = staff2.emp\_id

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **TYPE** | **SERVER** | **SPT\_STAFF** | **EMP\_ID** | **EMP\_NAME** |
| APP | Budget | 4 | 4 | Murphy,Eileen |
| APP | CSR | 4 | 4 | Murphy,Eileen |
| APP | FMS | 2 | 2 | Smith,Linda |
| APP | Facilities | 16 | 16 | Geiger,Roy |
| APP | ITS | 6 | 6 | Tierney,Pat |
| APP | Inventory | 7 | 7 | McDonald,Alex |
| APP | Marketing | 1 | 1 | Jones,Ed |
| APP | SCM | 2 | 2 | Smith,Linda |
| APP | Sales | 8 | 8 | Torino,Paul |
| APP | auditor | 12 | 12 | Early,Alan |
| SERVER | albany | - | - | - |
| SERVER | atlanta | 21 | 21 | Bridges,Judy |
| SERVER | austin | 22 | 22 | Norris,Mike |
| SERVER | boston | 14 | 14 | Murphy,Mary |
| SERVER | chicago | 18 | 18 | Ramos,Peter |
| SERVER | dallas | 12 | 12 | Early,Alan |
| SERVER | denver | 18 | 18 | Ramos,Peter |
| SERVER | detroit | 21 | 21 | Bridges,Judy |
| SERVER | indy | 6 | 6 | Tierney,Pat |
| SERVER | miami | 10 | 10 | Loggins,Brian |
| SERVER | philly | - | - | - |
| SERVER | phoenix | 21 | 21 | Bridges,Judy |
| SERVER | seattle | 19 | 19 | Robertson,Mark |
| SERVER | syracuse | - | - | - |

1. We want to have two support staff for every application. Are there any applications that have fewer than two people with that application as their skill\_name? (There could be none so think ‘outer join’).

(Note: Only one person will be assigned to the application, but we should have another person with the right skills ready to take over/assist).

select apps.app, count(\*) from mi257.fe\_apps apps left join mi257.fe\_skills skills on apps.app = skills.skill\_name

group by apps.app having count(\*) < 2

|  |  |
| --- | --- |
| **APP** | **COUNT(\*)** |
| Budget | 1 |
| CSR | 1 |
| FMS | 1 |
| Facilities | 1 |
| Inventory | 1 |
| Marketing | 1 |
| SCM | 1 |
| Sales | 1 |
| auditor | 1 |