

## Assignment 1

### Database Concepts

1.1 – No it does not ensure this because there are no known constraints to say that `super_empNo*` needs to be different to `emp_No*`, which means that an employee could potentially supervise themselves. Another possibility is the fact that two or more different supervisors could look after the same employee.

1.2 – It is possible as the department number could be set to null however if the department was set to not null it would need a department to exist to insert the project instance.

A project cannot have many departments as only one department number is asked for as a foreign key. As Project contains the foreign key, defining a relationship between department and project means the relationship will be many projects to one department.

1.3 – It is possible that a supervisor looks after no employees as there is no constraints saying that the supervisor employee number (`super_empNo*`) is any different to the employee number (`emp_No*`) that they are to supervise. If both employees' numbers are the same, a supervisor would supervise themselves.

1.4 – No it cannot successfully execute, assuming that the department number of a project cannot be null. If the department number could not be null trying to execute the SQL statement would leave a project or projects hanging.

However, if the department number in the Project relation can be null then you could successfully execute the SQL statement.

## 2.1 –

In this database I have chosen to add only two relations. The first one is called 'player' which represents a person who is a member of the sports club with the player number being the primary key. The second relation I have decided to add is the 'position' relation which lists all the details of a position in a team. As the position number in this instance is unique it has been chosen to be the primary key.

The reason only two relations are needed is that a player can have many positions on many teams, but for each position only one player can fill the role.

Player(player\_no, name, phone, address, city, state, postcode, country)

Position (position\_no, description, sport, address, coach, player\_no\*)

## 2.2 -

DROP TABLE position;

DROP TABLE player;

PURGE RECYCLEBIN;

CREATE TABLE player

(player_no	INTEGER	,
name	VARCHAR(40)	,
phone	VARCHAR(40)	,
address	VARCHAR(40)	,
city	VARCHAR(40)	,
state	VARCHAR(40)	,
postcode	VARCHAR(40)	,
country	VARCHAR(40)	,
PRIMARY KEY (player_no)		);

CREATE TABLE position

(position_no	INTEGER	,
description	VARCHAR(40)	,
sport	VARCHAR(40)	,
address	VARCHAR(40)	,
coach	VARCHAR(40)	,
player_no	INTEGER	,
PRIMARY KEY (position_no)		,
FOREIGN KEY (player_no) REFERENCES player(player_no)		);

2.3 -

INSERT INTO player VALUES(103,'Andrew Guy','40.32.2555','54 Rue Royale','Nantes',NULL,'44000','France');

INSERT INTO player VALUES(112,'Simon Stevens','7025551838','8489 Strong St.','Las Vegas','NV','83030','USA');

INSERT INTO player VALUES(119,'Leanne Gills','40.67.8555','67 Rue Des Cinquante Otage','Nantes',NULL,'44000','France');

INSERT INTO player VALUES(121,'Bill Carey','07-98 9555','Erling Skakkes Gate 78','Stavern',NULL,'410','Norway');

INSERT INTO player VALUES(114,'Adam Craft','03 9520 4555','636 St Kilda Road Level 3','Melbourne','Victoria','3004','Australia');

INSERT INTO player VALUES(128,'Ben Court','(49)69 66 90 2555','Lyonerstr. 34','Frankfurt',NULL,'60528','Germany');

INSERT INTO player VALUES(141,'Eddie Carrey','(91)555 94 44','C/moralzarzal 86','Madrid',NULL,'28034','Spain');

INSERT INTO player VALUES(129,'Miley Connar','6505555787','5557 North Pendale Street','San Francisco','CA','94217','USA');

INSERT INTO player VALUES(125,'Hazel Croft','(26)642-7555','ul. Filtrowa 68','Warsawa',NULL,'01-012','Poland');

INSERT INTO player VALUES(124,'Mandy Linn','4155551450','5677 Strong St.','San Rafael','CA','97562','USA');

INSERT INTO player VALUES(231,'Lara Ives','21255557818','897 Long Airport Avenue','NCY','NY','10022','USA');

```

INSERT INTO position VALUES(10100,'S18_1749','Tennis','Paris France','Adam Jones', 103);
INSERT INTO position VALUES(10103,'S10_4325','Football','Melbourne Australia','Mark Fox',
103);
INSERT INTO position VALUES(10167,'S18_1749','Tennis','Paris France','Will Smith', 112);
INSERT INTO position VALUES(10564,'S24_1345','Tennis','Paris France','Adam Jones', 119);
INSERT INTO position VALUES(10732,'S11_9087','Football','Melbourne Australia','Mark Lee',
121);
INSERT INTO position VALUES(10897,'S18_4409','Football','Melbourne Australia','Cameron
Box', 114);
INSERT INTO position VALUES(10903,'S21_4532','Rugby','Frankfurt Germany','Bill Green',
128);
INSERT INTO position VALUES(11045,'S17_2091','Cricket','Los Angeles USA','Sam Will', 141);
INSERT INTO position VALUES(11412,'S18_3409','Tennis','Paris France','Will Smith', 129);
INSERT INTO position VALUES(11453,'S24_1345','Polo','Paris France','Amanda Kay', 119);
INSERT INTO position VALUES(11509,'S20_9083','Polo','Paris France','Judith Max', 125);
INSERT INTO position VALUES(11897,'S18_5690','Basketball','New York USA','Max Williams',
119);
INSERT INTO position VALUES(12098,'S12_2795','Cricket','Los Angeles USA','Sam Will', 124);
INSERT INTO position VALUES(12345,'S19_2313','Baseball','New York USA','Bob Karl', 119);
INSERT INTO position VALUES(12945,'S20_9083','Baseball','New York USA','Karl Marx', 231);
INSERT INTO position VALUES(13209,'S21_5092','Basketball','New York USA','Max Williams',
129);
INSERT INTO position VALUES(13456,'S12_8904','Cricket','Los Angeles USA','Sam Will', 124);
INSERT INTO position VALUES(14321,'S22_4501','Tennis','Paris France','Will Smith', 129);

```

```

SELECT player.player_no AS "PlayerNo", name AS "PlayerName", phone AS "Phone",
player.address AS "Address", city AS "City", state AS "State",
postcode AS "PostCode",country AS "Country", position_no AS "PositionNo",
description AS "PositionDescription", sport AS "TeamSport",
position.address AS "TeamAddress", coach AS "CoachName"
FROM player, position
WHERE player.player_no = position.player_no
ORDER BY position_no;

```

3.1 -

```
SELECT title
FROM academic
WHERE title IS NOT NULL
GROUP BY title
ORDER BY title;
```

3.2 -

```
SELECT famname, givenname, initials
FROM academic
ORDER BY famname DESC, givenname DESC, initials DESC;
```

3.3 -

```
SELECT instname, deptname
FROM department
WHERE LOWER(state) = 'vic'
OR LOWER(state) = 'tas'
ORDER BY instname, deptname;
```

3.4 -

```
SELECT givenname, famname
FROM academic
WHERE RTRIM(givenname) LIKE '%y';
```

3.5 -

```
SELECT COUNT(*)
FROM paper
WHERE LOWER(title) LIKE '%data %';
```

3.6 -

```
SELECT paper.pnum, paper.title
FROM academic,author, paper
WHERE LOWER(famname) LIKE '%pr%'
AND academic.acnum = author.acnum
AND author.pnum = paper.pnum
ORDER BY paper.pnum DESC;
```

3.7 -

```
SELECT author.acnum, COUNT(paper.pnum) AS "number of papers"
FROM paper, author
WHERE author.pnum = paper.pnum
GROUP BY author.acnum
HAVING COUNT(paper.pnum) >= 40
ORDER BY "number of papers" DESC;
```

3.8 -

```
SELECT acnum
FROM academic, department
WHERE UPPER(descrip) LIKE '%CS%'
AND department.deptnum = academic.deptnum
ORDER BY acnum;
```

3.9 –

```
SELECT fieldnum, title
FROM field
WHERE (fieldnum < 600 OR fieldnum > 700)
AND RTRIM(UPPER(title)) LIKE '%DATA'
ORDER BY fieldnum DESC;
```

### 3.10 –

I believe the query is asking to find out the unique field numbers there are, that have interest shown in them by two or more academics.

4 – Some of my assumptions include:

- A therapist does not need a patient, but can also look after many patients
- Each patient can be treated by zero therapists but can also be treated by many therapists.
- All relationships in this diagram (Treats, Roster, Contact) are assumed to have both primary keys from both entities they have a relationship with.

