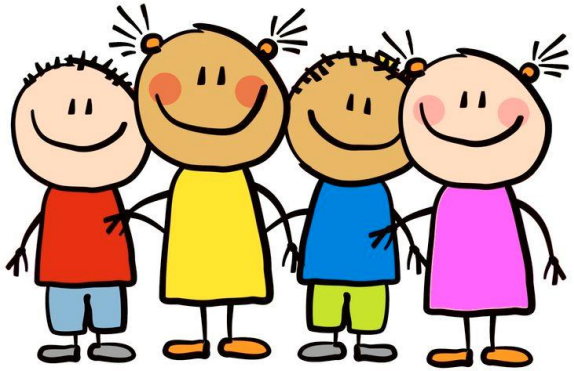


SUNNYSIDE DAYCARE

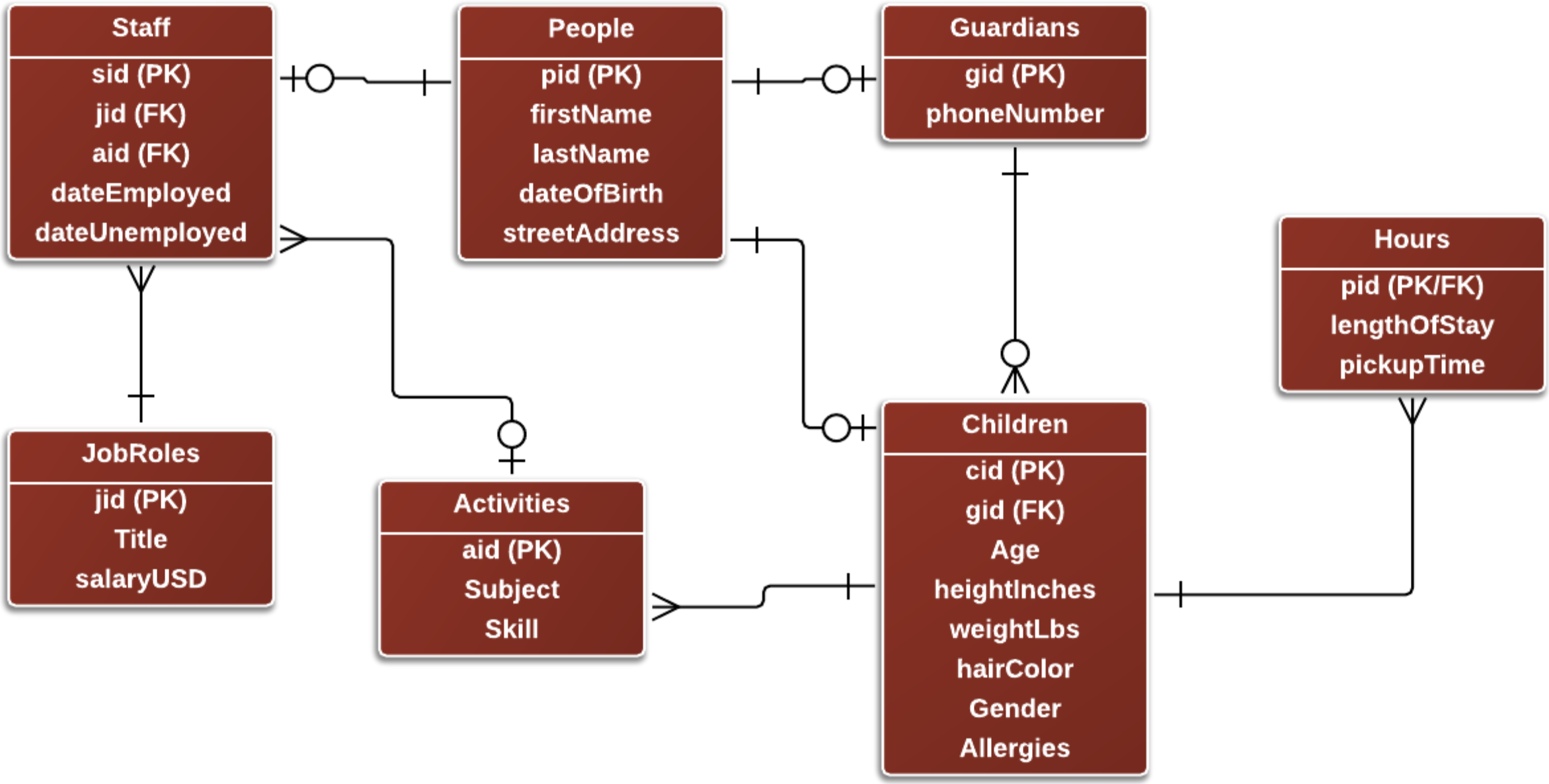
A Database Proposal

By Kim Coterwas

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The following displays the basics of a structure for implementing a database for a daycare center. Its purpose is to hold all of the information regarding the staff, the children, their guardians, and so forth. The database also implements administration access to select, insert, and update information on all of the entities within the database. In its final stage, this database will be complete with all possible recordable entities that are required in the data collection of a daycare.


Staff
sid (PK)
jid (FK)
aid (FK)
dateEmployed
dateUnemployed
People
pid (PK)
firstName
lastName
dateOfBirth
streetAddress
Guardians
gid (PK)
phoneNumber
Hours
pid (PK/FK)
lengthOfStay
pickupTime
JobRoles
jid (PK)
Title
salaryUSD
Activities
aid (PK)
Subject
Skill
Children
cid (PK)
gid (FK)
Age
heightInches
weightLbs
hairColor
Gender
Allergies

PEOPLE

```
CREATE TABLE People(
pid CHAR(3) NOT NULL UNIQUE,
firstName TEXT NOT NULL,
lastName TEXT NOT NULL,
dateOfBirth DATE NOT NULL,
streetAdress TEXT NOT NULL,
PRIMARY KEY (pid)
);
```

	pid character(3)	firstname text	lastname text	dateofbirth date	streetaddress text
1	101	Samuel	Hampton	1972-12-12	958 Virginia Avenue
2	102	Juliana	Paternoster	1972-12-12	219 4th Street
3	103	Diane	York	1972-10-29	733 Winding Way
4	104	Amanda	Mingo	1989-07-27	29 Charles Street
5	105	Erica	Bunker	1985-09-04	898 Main Street
6	106	Peyton	Randall	1972-02-03	506 Vine Street
7	567	Lauryn	Scarsi	2014-03-18	252 George Street
8	568	Bridgette	Brennan	2008-01-01	583 Maple Lane
9	569	Conor	Brennan	2010-09-15	583 Maple Lane
10	570	Irene	Vann	2005-07-23	493 James Street
11	571	Walt	Amoretto	2005-05-25	591 Cedar Court
12	572	Evan	Shaw	2012-11-10	143 Woodland Avenue
13	573	Alexandrea	Shaw	2007-06-26	143 Woodland Avenue
14	222	Macey	Brennan	1954-08-20	583 Maple Lane
15	223	Piper	Scarsi	1960-03-26	252 George Street
16	224	Isaac	Amoretto	1960-05-04	591 Cedar Court
17	225	Sabrina	Vann	1961-02-08	493 James Street
18	226	Paul	Shaw	1986-11-17	143 Woodland Avenue

Functional Dependencies

pid -> firstName, lastName, dateOfBirth, streetAddress

CHILDREN

	cid character(3)	gid character(3)	age integer	heightinches integer	weightlbs numeric(4,1)	haircolor text	gender text	allergies text
1	567	223	2	31	28.9	Brown	Female	None
2	568	222	8	45	55.8	Blonde	Female	None
3	569	222	5	40	41.8	Brown	Male	Nuts
4	570	225	11	52	78.3	Black	Female	Nuts
5	571	224	11	55	77.0	Black	Male	None
6	572	226	4	37	36.0	Red	Male	None
7	573	226	9	49	62.4	Brown	Female	Lactose Intolerant

```
CREATE TABLE Children(
cid CHAR(3) NOT NULL UNIQUE,
gid CHAR(3) NOT NULL REFERENCES Guardians(gid),
Age INTEGER NOT NULL,
heightInches INTEGER NOT NULL,
weightLbs NUMERIC(4,1) NOT NULL,
hairColor TEXT DEFAULT 'None',
Gender TEXT NOT NULL,
Allergies TEXT DEFAULT 'None',
PRIMARY KEY(cid)
);
```

Functional Dependencies

Cid -> Age, heightInches, weightLbs, hairColor, Gender, Allergies

JOB ROLES

```
CREATE TABLE JobRoles (
  jid CHAR(3) NOT NULL UNIQUE,
  Title TEXT NOT NULL,
  salaryUSD NUMERIC(6,2),
PRIMARY KEY(jid)
);
```

	jid character(3)	title text	salaryusd numeric(8,2)
1	734	Manager	30000.00
2	735	Caretaker	23000.00
3	736	Janitor	15000.00

Functional Dependencies

Jid -> Title, salaryUSD

STAFF

	sid character(3)	jid character(3)	aid character(3)	dateemployed date	dateunemployed date
1	101	734	<NULL>	2005-10-29	<NULL>
2	102	736	<NULL>	2009-02-04	<NULL>
3	103	736	<NULL>	2013-07-12	2015-04-30
4	104	735	455	2008-06-13	<NULL>
5	105	735	457	2009-03-14	2009-06-10
6	106	735	456	2016-04-17	<NULL>

```
CREATE TABLE Staff (
 sid CHAR(3) NOT NULL UNIQUE,
 jid CHAR(3) NOT NULL REFERENCES JobRoles(jid),
 aid CHAR(3) REFERENCES Activities(aid),
 dateEmployed DATE NOT NULL,
 dateUnemployed DATE,
PRIMARY KEY(sid)
);
```

Functional Dependencies

Sid -> jid, dateEmployed, dateUnemployed

HOURS

```
CREATE TABLE Hours (
  pid CHAR(3) NOT NULL UNIQUE REFERENCES People(pid),
  lengthOfStay INTEGER,
  pickupTime TIME,
  PRIMARY KEY(hid)
);
```

	pid character(3)	lengthofstay integer	pickuptime time without time zone
1	567	8	04:30:00
2	568	7	05:00:00
3	569	7	05:00:00
4	570	5	02:30:00
5	571	6	03:00:00
6	572	7	04:00:00
7	573	7	04:00:00

Functional Dependencies

pid -> lengthOfStay, pickupTime

ACTIVITIES

```
CREATE TABLE Activities (
 aid CHAR(3) NOT NULL UNIQUE,
 Subject TEXT,
 Skill TEXT,
PRIMARY KEY(aid)
);
```

	aid character(3)	subject text	skill text
1	455	Math	Critical Thinking
2	456	English	Writing
3	457	Science	Analysis

Functional Dependencies

Aid -> Subject, Skill

GUARDIANS

```
CREATE TABLE Guardians (
  gid CHAR(3) NOT NULL UNIQUE,
  phoneNumber TEXT,
PRIMARY KEY(gid)
);
```

Functional Dependencies

Gid -> phoneNumber

	gid character(3)	phonenumber character(11)
1	222	1234567890
2	223	0987654321
3	224	5678901234
4	225	8901234567
5	226	3456789012

VIEWS

CHILDRENINFO – DISPLAYS THE NAMES OF THE CHILDREN, HOW LONG THEY STAY AT THE DAYCARE, AND AT WHAT TIME THEY ARE PICKED UP

```
CREATE OR REPLACE VIEW ChildrenInfo

SELECT p.firstname AS ChildFName, p.lastname AS
ChildLName, h.lengthofstay AS billedHours, h.pickuptime

FROM People p

RIGHT OUTER JOIN Children c ON p.pid = c.cid

RIGHT OUTER JOIN Hours h ON p.pid = h.pid
```

	childfname text	childlname text	billedhours integer	pickuptime time without time zone
1	Lauryn	Scarsi	8	04:30:00
2	Bridgette	Brennan	7	05:00:00
3	Conor	Brennan	7	05:00:00
4	Irene	Vann	5	02:30:00
5	Walt	Amoretto	6	03:00:00
6	Evan	Shaw	7	04:00:00
7	Alexandrea	Shaw	7	04:00:00

VIEWS

STAFFJOBS – DISPLAYS THE NAMES OF THE STAFF, THEIR JOBS, AND THEIR SALARY

```
CREATE OR REPLACE VIEW StaffJobs AS
SELECT firstname, lastname, title, salaryUSD
FROM JobRoles
INNER JOIN staff ON JobRoles.jid = staff.jid
INNER JOIN people on people.pid = staff.sid;
```

	firstname text	lastname text	title text	salaryusd numeric(8,2)
1	Samuel	Hampton	Manager	30000.00
2	Juliana	Paternoster	Janitor	15000.00
3	Diane	York	Janitor	15000.00
4	Amanda	Mingo	Caretaker	23000.00
5	Erica	Bunker	Caretaker	23000.00
6	Peyton	Randall	Caretaker	23000.00

REPORTS

QUERY TO RETURN THE PERCENTAGE OF CHILDREN 8 YEARS OLD AND YOUNGER

```
(SELECT x.number / y.number
FROM
(
SELECT (CAST(count(cid) AS NUMERIC(5,2))) as number
FROM Children
WHERE Age <= 8
)  x
JOIN
(
SELECT (CAST(count(cid) AS NUMERIC(5,2))) as Number
FROM Children
) y ON 1=1)
```

	?column? numeric
1	0.571428571428571428571

REPORTS

QUERY TO RETURN THE PERCENTAGE OF STAFF THAT ARE OR WERE CARETAKERS

```
(SELECT x.number / y.number
FROM
(
SELECT (CAST(count(sid) AS NUMERIC(5,2))) as number
FROM Staff
WHERE jid = '735'
)  x
JOIN
(
SELECT (CAST(count(sid) AS NUMERIC(5,2))) as Number
FROM Staff
) y ON 1=1)
```

	?column? numeric
1	0.500000000000000000000

STORED PROCEDURES

```
CREATE OR REPLACE FUNCTION addStaff(CHAR(3), CHAR(3), CHAR(3), DATE, DATE) RETURNS refcursor AS
$$
DECLARE
 vsid             CHAR(3)      :=$1;
 vjid             CHAR(3)      :=$2;
 vaid             CHAR(3)      :=$3;
 vdateEmployed    DATE         :=$4;
 vdateUnemployed  DATE         :=$5;
 resultset        REFCURSOR    :=NULL;
BEGIN
 INSERT INTO Staff(sid, jid, aid, dateEmployed, dateUnemployed)
 VALUES (vsid, vjid, vaid, vdateEmployed, vdateUnemployed);
 RETURN resultset;
END;
$$
LANGUAGE plpgsql;
```

```
SELECT addStaff(107,735,457,'2007-2-30','2013-8-19', 'results');
FETCH ALL FROM results;
```

STORED PROCEDURES

```
CREATE OR REPLACE FUNCTION getChildrenByAge(Int, REFCURSOR) RETURNS refcursor AS
$$
DECLARE
 ChildAge     Int           :=$1;
 resultset    REFCURSOR     :=2;
BEGIN
 open resultset FOR
   SELECT count(age)
   FROM children
   WHERE age IN (ChildAge);
 RETURN resultset;
END;
$$
LANGUAGE plpgsql;
```

```
SELECT getChildrenByAge(2, 'results');
FETCH ALL FROM results;
```

TRIGGERS

```
CREATE TRIGGER changePay
AFTER UPDATE ON JobRoles
FOR EACH ROW EXECUTE PROCEDURE addStaff();
```

SECURITY

Admin

```
CREATE ROLE admin;
GRANT ALL ON ALL TABLES
IN SCHEMA PUBLIC
TO admin;
```

Guardians

```
CREATE ROLE Guardians;
GRANT SELECT, UPDATE ON People, Children, Guardians, Hours
TO Guardians;
```

SECURITY

Staff

```
CREATE ROLE Staff;

GRANT SELECT, INSERT ON People, Children, Activities,
Staff, Hours, Guardians

TO Staff;

GRANT UPDATE ON People, Children, Staff, Hours, Guardians

To Staff;
```

NOTES, PROBLEMS, FUTURE ENHANCEMENTS

In a more developed database in this situation, queries would be able to display much more valuable information once more children, staff, and guardians are added. In this case, a small number is added in order to show the basics of the use of the database.

There is also no consideration for multiple records of guardians for one child. In the future the database will have the capability to perform this action.

This database does not account for different days of the week that a child may be staying at the daycare. There is also the consideration that volunteers that may help out at the daycare that do not get paid that can later be added to the database under staff without a payroll. Within Activities, there would be different activities based around different age groups to better accommodate each age groups learning abilities.