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**2013**

**Teddy Bear Nursery Club Problem Statement**

There is an evident need for Teddy Bear Club nursery to transform their paper-based record and reporting system into an electronic version that permits more efficient administration and therefore time-saving. This assignment is to design a Relational Database system for Teddy Bear Club nursery.

**Teddy Bear Nursery Club Problem Statement**

**AC32004–Database Systems**

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Problem Statement

There is an evident need for Teddy Bear Club nursery to transform their current paper-based/electronic records keeping and reporting system into a single electronic version that permits more efficient and time saving administration of repetitive tasks such as generation of reports and producing monthly invoices. This assignment is to design a Relational Databasesystem for Teddy Bear Club nursery with the minimum requirements of allowing it to track, at least:

* **Children’s records**:

Attendance, invoices and fees paid, contact details, progress etc

* **Suppliers:**

This will be a register of suppliers’ information and a register of invoices received by the nursery. An additional extra to this category is it could be expanded upon to run reports on the total outstanding invoices and the invoices payable by month, etc.

* **Employee Information**: holidays, training, holidays, professional registration etc
* **Applicants**: People applying for those jobs, and their history as handled by the employment agency.

**Additional** Improvements upon this may include expanding the supplier information to create a stock management system.

Overview

This problem statement deals with the management of Children’s Records, Supplier Invoices, and Employee records within the Teddy Bear Nursery Club. In a new database, the company wants to keep and maintain information about the employees, children registered at the nursery, the departments/rooms the employees work in, the children allocated to each room, and the general running of the nursery through automated generation of reports to aid in the day to day running.

Up to now, the company has maintained the information on paper and in files, alongside using various electronic documents in the form of Microsoft office. This resulted in three major problems:

* It has become difficult and time confusing to produce monthly invoices as each of these has to be created manually before being sent to the parent.

The Teddy Bear Nursery Club is a preschool nursery catering to children from the ages of 0-5 years on a part time and full time and basis. The nursery consists of 3 types of department. These three departments are administration, culinary, and care management. The care management section of the nursery is further sub divided into allocated room types that cater to specific age groups.

As Employees it has care staff, supervisors, culinary staff, and administration staff. The care staff and supervisors are assigned to individual room types with varying ratio’s of care staff/supervisors to the number of children depending upon the age of the children and which room type they are within.

The Teddy Bear nursery administration staff wants to administer a single electronic database system that will generate report’s automatically reducing on the amount of time required to manually carry out these tasks. The minimum requirements to meet is a system that maintains Children’s Records, Supplier Invoices, and Employee records.

Additionally the nursery

Business Object Types

Teddy Bear Nursery Club wants to store information about the following business object types in its database. The Business Object Types have been broken down into categories of where they are most likely to appear in the real world to help organise the business object types and allow for a logical flow between various objects. The following categories are:

* Nursery
* Children
* Employee
* Human Resources
* Supplier
* Medical
* Payment

**Nursery**

### Register

As children are enrolled at the nursery, registration records are established for them. The information gathered as part of the Register is taken from the Application Form for that child and includes information such as Type of Placement, Three Authorised Named Individuals to Collect Child, Preferred Start Date, etc

Placement type must be either full time or part time

**Attributes of Register**

* Child
* Mother
* Father
* Emergency Contact 1
* Emergency Contact 2
* Placement Type

### Part Time Placement

Any children enrolled in the nursery register that are actively attending the nursery part time need to specific which specific day’s they are attending the nursery.

***Attributes of Part Time Placement***

* Monday
* Tuesday
* Wednesday
* Thursday
* Friday

### Consent

The information kept for a registered child includes personal data as well as business-related data in the form of a consent form. The personal information includes Dietary Requirements, Allergies, Medication, Medical Conditions, and Doctor.

***Consent Attributes***

* Dietary Requirements
* Allergies
* Medication
* Medical Condition
* Doctor
* Permissions
* Nursery Policies Agreed

### Permissions

Children at the nursery require permission to join in on events such as photo sessions, trips, etc. The permission would be given by the parents. Permissions would include the name of permission as well as a description of what that permission entails.

Permissions can be uniquely identified by their name.

**Permission Attributes**

* Walks
* Coach Trips
* Public Transport
* Photo taken
* Photo used in nursery
* Photo used on website
* Photo used in publicity material
* Photo used in report documents
* Application of Suncream
* Receive Medical Treatment
* Calpol Administration

**Illness**

Illness Attributes

Medicine Records

### Rooms

TBNC wants to store information for each of its rooms. Every room has a unique room name to identify it and costs associated with it.

***Rooms Attributes:***

Room name

Daily charge

Weekly charge

Tea charge

Room Vacancy

### Progress

A child can potentially be in the nursery for 5 and a half years. During this time the child will progress through different rooms.

### Attendance

***Attendance Attributes:***

Regular days

Total days

Teas

### Days

Date

Tea

**Payment**

**Monthly Invoice**

Contains all the information that must be sent to the payee:

* Child name
* Fees
* Invoice
* Pay date
* Late Fees (if they apply)
* Teas received
* Extra Days

**Payment History**

TBNC need to keep track of payments made and by which method:

* Deposit
* Date due
* Paid Y/N
* Date Paid
* Amount due
* Payment method

**Extra Costs**

Added costs to the regular monthly cost need to be added:

* Late fee
* Tea cost
* Extra days

**Cost Deduction**

Certain children may have deduction from a monthly payment, this must be recorded:

* Vouchers
* Council scheme
* Missed days
* Leaving Nursery

### Voucher Scheme Register

Register with one of the companies listed above. At this point you must use your child’s name as your reference. This is necessary for us to be able to trace your payment. If we are unable to trace your payment you may be withdrawn from the nursery’s voucher scheme.

***Attributes of Voucher Scheme Register***

* Parent
* Voucher Scheme Provider ID
* Child
* Intended Start Date
* registered with Dundee Council
* Date Signed

### Voucher Scheme Provider

The nursery accepts 5 different vouchers schemes from

***Attributes of Voucher Scheme Provider***

* Voucher Scheme Provider ID
* Name

**Children**

### Child

**Child Attributes:**

* First name
* Surname
* Address
* Date of Birth
* Mother
* Father
* Emergency Contact 1
* Emergency Contract 2
* Named Person 1
* Named Person 2
* Named Person 3
* Room Attending
* Days of attendance
* Start date
* Date left nursery
* Deposit

### Deposit

Amount of deposit paid and by whom, date

Amount of deposit returned and to whom, date

***Attributes of Deposit***

* Deposit Paid
* Payee
* Date Paid
* Deposit Refunded
* Recipient
* Date Refunded

### Address

***Attributes of Address***

* Address ID
* Address Line 1
* Address Line 2
* City
* State/Province
* Postal Code
* Country

**Parent**

***Attributes of Parent***

* First Name
* Surname
* Relationship
* Name known by at work
* Title
* Home Address ID
* Work Address ID
* Home Telephone
* Work Telephone
* Mobile Telephone
* Work Email

**Named Person**

### Emergency Contact

Children at the nursery require two emergency contacts in the event of an emergency when neither parent can be contacted.

***Attributes of Emergency Contact***

* First name
* Surname
* Relationship
* Telephone Number
* Address ID

**Address**

**Medical**

**Dietary Requirements**

**Allergies**

**Medication**

Appropriate staff can administer prescribed medication if necessary and complete the medicine record book.

**Medicine Records**

**Attributes of Medicine Record**

* Childs name
* Dosage
* Expirary Date

**Medical Conditions**

**Doctor**

### Allergies

Children at the nursery that have allergies require their allergies to be specified and any special arrangements that are necessary for that child if they have an allergic reaction. Allergies would be confirmed by a doctor to ensure the appropriate action is taken in the event of an allergic reaction.

**Attributes of Allergies**

* Type of Allergies
* Special Arrangements
* Confirmed by Doctor

**Medication**

**Medical Conditions**

**Supplier**

**Supplier Invoices**

TBNC wants to store information (Supplier, Invoice Number, Date, Amount, etc) from invoices received for Suppliers.

As every invoice has a unique Invoice number.

**Attributes:**

Supplier, Invoice Number, Date, Amount

**Suppliers’**

TBNC wants to store information in the form of a register of the supplier’s to the nursery.

suppli

**Employee**

**Employee details**

* Name
* Address
* Phone Number
* Employment start date
* Date PVG registration expires
* Annual review dates
* Long service etc.

**Emergency Contacts**

TBNC wants to store details of emergency contacts:

* Name
* Address
* Phone Number
* Secondary Phone Number
* Relation

**Holiday Records**

TBNC needs to store holiday information of employees:

* Date Requested
* Start Date
* End Date
* No. of days requested
* Holidays remaining prior to request
* Holidays remaining after request
* Approved/not Approved
* Reason for not approving

**Training Records**

TBNC stores records of employees training:

* Start Date
* End date
* Training course
* Course Duration
* Renewal Date

**Human Resources**

Applicants

Job History

Human Resources File Management

**Retention Schedule**

TBNC wants to store information for all nursery records that are in hard copy format or electronic format that will be destroyed as stated in Retention Schedule. The information gathered as part of the retention schedule include:

* Name of record
* Description
* Destruction

**Retention Records**

All the retention records are maintained for destruction of documents and retention schedule records are established for these. The information gathered as part of the retention records include:

* Type of Record
* Destruction Description

Holidays

**Holidays Database**

* List of staff names (capacity for 40 staff)
* Start Date
* Days Worked
* Number of Hours worked
* Annual entitlement + 3 public holidays (Christmas Day, Boxing Day and 1 January)
* Bonus days for length of service

**Department**

* Department worked in
* How many staff allowed off in department

Business Relationship Types

**Children**

**Child – Address**

Many children can live at the same address.

Cardinality – \*:1

**Child – Parent**

More than one child at the nursery can have the same parents. There can be more than one parent per child.

i.e Siblings attending the nursery.

Cardinality – \*:\*

**Parent - Address**

More than one parent can live at the same address.

Cardinality - \*:1

**Child – Named Person**

There can be more than one child attending the nursery that has the same or multiple named persons responsible for them.

Cardinality - \*:\*

### Child – Emergency Contact

A child can have 2 emergency contacts.

1:2

**Emergency Contact – Address**

There can be more than one emergency contact at the same address.

Cardinality - \*:1

**Child – Progress**

A child progresses from one class at a time.

Cardinality – 1:1

**Child – Register**

A child registers only once.

Cardinality – 1:1

**Child – Room**

A child is assigned to only one room at a time. Child is assigned to a new room when space becomes available.

Cardinality – 1:1

**Child – Fees**

A child can incur more fees throughout the month through attending extra days or staying for tea.

Cardinality – 1:\*

**Child – Consent**

A child can require lots of permissions for medical reasons etc.

Cardinality – 1:\*

**Child – Attendance**

A child can attend more than once, depending on their plan.

Cardinality – 1:\*

**Child – Deposit**

A child must have a one week deposit placed before starting.

Cardinality – 1:1

**Child – Voucher Scheme Register**

A child can be registered to a voucher scheme.

Cardinality – 1:1

**Payment**

Fees – Room

Fees – Invoice

Fees – Voucher Scheme Register

Voucher Scheme Register –Voucher Scheme Providers

Cardinality: 1:1

Fees - Payment

**Nursery**

**Register – Consent**

### Register –Part Time Placement

Each child has a placement type within the nursery, if a child’s placement type is Part time then the individual day’s that the child attends the nursery must be specified. Each child can only have one Part Time placement at a time

**Conversely**: Part Time Placement – Register

**Relationship Type**: 1:0..1 ( Register – Part time placement )

**Attendance – Days**

Many attendances: One Day

**Medical**

**Consent – Dietary Requirements**

A parent can identify multiple dietary requirements when enrolling their child.

Cardinality – 1:\*

**Consent – Allergies**

Multiple allergies can be identified when enrolling child.

Cardinality – 1:\*

**Consent – Medication**

A child can require many medications for medical reasons. These are identified when enrolling child.

Cardinality – 1:\*

**Consent – Medical Conditions**

A child can have many conditions. These are identified when enrolling child.

Cardinality – 1:\*

**Consent – Doctor**

A child can only have one doctor. When child is enrolled, doctor information must be given.

Cardinality – 1:1

**Doctor - Address**

There can be multiple doctors from one practice in the system.

Cardinality – \*:1

**Human Resources**

**Retention Schedule – Retention Record**

For a Retention schedule record, TBNC have a number of Retention Records that are used to specify the Name of a record. It is possible there are no Retention schedule records yet for a Retention Record. Conversely, a retention record belongs to one and only one Retention Schedule.

**Cardinality:** Many retention Schedule to One Retention Record.

**Suppliers**

**Suppliers – Supplier Invoice**

**Employee**

### EMPLOYEE – ROLE

Each employee has a certain role that they play in the nursery, whether it is care worker, receptionist, cook, etc. Employees can only hold one role at any time, and must always have one.

**Conversely:** *Role – Employee*

Each role can be assumed by many employees at the same time. Some roles may not be taken by any employees for a period of time.

**Relationship type:** 1:0..M (*Role:Employee*)

**Employee** – **Holidays**

**Human Resources**

**Holidays - Department**

Business Constraints

**Children**

### Registering a child

**Constraint**: A child must have a completed consent form whenever an application form is submitted.

**Enforce**: To be enforced when a child is registering to the nursery.

**Action**: The Childs registration must be rejected if a complete consent form is not submitted with the application form.

### Child’s Emergency Contact Details

**Constraint** A child must have 2 additional emergency contacts that are not the parent’s of that child.

**Enforce**: To be enforced when a child is enrolled in the nursery.

**Action**: The request to add a child to the nursery must generate a report if additional emergency contact details are not added for a child.

### Voucher Scheme Register

Constraint: Any child over 3 is eligible and a space is available in the nursery

**Staff**

**Employee Detail**

**Constraint**:(Assumption) Employee must have their PVG before they start their employment.

**Enforce**: To be enforced when employment is accepted.

**Action**: Report identifies if new employee has PVG.

**Staff Emergency Contact Details**

**Constraint**: A member of staff must have at least two emergency contacts.

**Enforce**: To be enforced when employee commences employment.

**Action**: Report must generate if two contacts are not supplied upon starting job.

**Holiday Details**

**Constraint**: Employee must have enough available holidays to cover requested holidays.

**Enforce**: Enforced when employee requests holidays.

**Action**: System must check whether employee has enough holiday days to cover the days requested.

**Constraint**: Holidays can only be approved if there is enough employees available for that department.

**Enforce**: When holiday request form is submitted.

**Action**: Holidays requested are checked alongside already approved holidays and staff availability.

**Training Records**

**Constraint**: Employees course renewal.

**Enforce**: 2 months prior to renewal date for PVG, (Assumption) 2 weeks prior to other courses

**Action**: A notification will appear to remind staff that training needs to be renewed. Employee added to training list.

**Supplier**

**Medical**

**Nursery**

### Part Time Placement

Part Time Placement must either be full time or part time. If Part time is selected and 5 individual days are selected then placement must be full time.

**Payments**

### FEES MUST BE PAID ON THE 1ST OF EACH MONTH

Fees to be paid by parents must be paid by the 1st of each month

**Constraint applied:**

When the 1st of the month is reached and a fee has not been paid

**If constraint violated:**

Parents will incur a daily charge of £5 for every day after the 3rd of the month

relationships: