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SDS Resource Management database

Requirement Analysis

Data requirements

1.Catalogue Search

A search process that investigates collection and location to find a resource Catalogue Search will have keywords, a list of members, and a unique code

2.Collections

Every resource is put into a collection that collection will have a unique code, name and description, including location, type, condition

3.Member

Members can be categorised into two different groups students and staff. Each member has a unique id, name, address, phone, email, status, and comments field

4.Privilege

A member is assigned a privilege with a name, description, and a collection to which the privilege is granted for a maximum number of resources that can be reserved or loaned at any given time. From the collection, students will have a different privilege depending on their requirements at the SDS at the University of Northwest Technology

5.Acquisition Request

A member can request new acquisitions to the school. An acquisition contains a person requesting acquisition, item name, make manufacturer, model, year, and a description of the required item and its urgency

6.Reservation

Members can reserve resources that their privileges allow them to borrow. Once a reservation is made, the resource will be booked for use by the member on the requested date and time. Reservations have the date and time the resources are required to be picked up and a due time to leave the immovable resource

7.Loan

SDS allows each member to take moveable resources on the loan that their privileges allow them to borrow once a loan is made; the resource will be booked for use by the member on the requested date and time. Reservations have the date and time the resources are required to be picked up and a due time to return the movable resource

8.Location

A building where collections are located will have a unique code, room, building and campus

9.Resources

The School of Data Science (SDS) at the University of Northwest Technology has many different resources rooms, cameras, speakers, software, and phones, each with its exclusive Id and an explanation of the object along with what status of the object is in examples currently in Use, Upkeep, Accessible, Lent, Missing, Damaged the SDS also categorises resources into moveable or immovable. The defining factor is whether that resource can be moved out of its location. In addition, certain information may be added depending on the collections the resource is in Moveable (make, producer, model, year, asset value), immovable (Capacity)

Business rules

1. A member's borrowing privileges are automatically taken away when the current date is later than the end date of all his/her enrolled courses. The status of the member is set to "disabled."
2. Maximum items loaned or reserved at any one time. A member cannot borrow, or reserve more than the maximum number of items specified in his/her privileges at any given time
3. The duration of borrowing/reservation periods (either number of days or hours) are determined by the collections to which the item belongs
4. The members should be able to hold items from the library
5. first come-first-serve basis for hold requests
6. When an item on hold is not collected it will be returned to collection within a week

Transaction requirements

Data update/deletion

* + Update/insert/delete the details of a Resource
  + Update/insert/delete the details of a Member
  + Update/insert/delete the details of a Reservation
  + Update/insert/delete the details of a Collection
  + Update/insert/delete the details of a Location
  + Update/insert/delete the details of an Acquisition Request
  + Update/insert/delete the details of a Privilege
  + Update/insert/delete the details of a Catalogue Search
  + Update/insert/delete the details of a Loan

Data queries

* + Search the catalogue based on keywords
  + Search a loan resource based on a member ID
  + Search a reservation resource based on a member ID
  + List all the reservations for a particular item
  + Display the ID of Members who have an Acquisition Request
  + Display the details of a loan
  + List the details of the location in each area.
  + Identify the total number of members
  + Identify the loans that have been taken more than the average number of times.
  + Identify the reservation that has been taken more than the average number of times



|  |  |  |  |
| --- | --- | --- | --- |
| Entity name | Description | Aliases | Occurrences |
| Member | Persons that are in the SDS system | Student and Staff | Individuals in the SDS system |
| Acquisition request | A request for SDS to get an item | Buy a resource request | When SDS get a request to get an item |
| Location | land owned and mange by SCS | Campus, building and room | Physical area owned by SDS |
| Collection | A Collection of resources | Category | When Resources get put into a collection |
| Privilege | Members that have access to SDS resources under certain conditions | Permission | Conditions that allow for a member to access resources |
| Catalogue search | The ability to find resources | SDS search | When members initiate a search for resources in the catalogue |
| Resources | Things acquired by SDS | Items | When SDS buy resources |
| Loan | SDS allow for member to borrowed resources | Lease | When member borrow resources |
| Reservation | SDS allow for member to reserve resources | Lease | When member reserve resources |

Entity

Relationship

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Entity name | Multiplicity | Relationship | Multiplicity | Entity name |
| Member | 1..1 | Has | 1..1 | Privilege |
| Member | 0\* | Makes | 0\* | Catalogue search |
| Member | 0\* | Makes | 0\* | Acquisition request |
| Catalogue Search | 0\* | BelongTo | 1..1 | Location |
| Resource | 0\* | BelongTo | 1..1 | Collection |
| Collection | 0\* | BelongTo | 1..1 | Location |
| Privilege | 0\* | Manges | 0\* | Loan |
| Loan | Man, Or | Generalisation | Man, Or | Reservation |
| Moveable | Man, Or | Generalisation | Man, Or | Immovable |
| Moveable | 1..1 | Belongto | 1..1 | Resource |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Entity | Attributes | Description | Date type & Length | Nulls | Multi valued | Derived | Default |
| Resource | ID No | Unique number | Char (10) | N | N | N | None |
|  | Status | What condition the resource is in | Char\* | Y | N | N | None |
|  | Description | The features of resource | Char\* | Y | N | N | None |
| Member | ID No | Unique number | Char (10) | N | N | N | None |
|  | Name | Member name they go by | Char\* | Y | N | N | None |
|  | Address | Place of residence | Char\* | Y | N | N | None |
| Catalogue Search | ID No | Unique number | Char (10) | N | N | N | None |
|  | Keyword used | List of Keywords used | Char\* | Y | N | N | None |
|  | list of members who used catalogue search | An organised list of members | Char\* | Y | N | Y | None |
| Location | ID No | Unique number | Char (10) | N | Y | N | None |
|  | Campus | The features of Campus | Char\* | Y | N | N | None |
|  | Building | The features of building | Char\* | Y | N | N | None |
|  | Room | The features of room | Char\* | Y | N | N | None |
| Collection | ID No | Unique number | Char (10) | N | N | N | None |
|  | Description of Collection | The features of collection | Char\* | Y | N | N | None |
| Privilege | ID No | Unique number | Char (10) | N | N | N | None |
|  | List of each member privilege | Privileges each member has | Char\* | Y | N | Y | None |
|  | Each privilege details | The features of privilege | Char\* | Y | N | N | None |
| Acquisition Request | Acquisition ID | Unique number | Char (10) | N | Y | N | None |
|  | Requested Acquisition details | The features of requested Acquisition details | Char\* | Y | N | N | None |
|  | Member who requested the Acquisition | Name and ID of Member who requested the Acquisition | Char\* | Y | N | Y | None |
| Reservation | ID | Unique number | Char (10) | N | Y | N | None |
| Loan | ID | Unique number | Char (10) | N | Y | N | None |