

Assignment 1 – Logical: Assumptions

Team: G067

Applied Class: Wednesdays 4pm-6pm Unit: FIT3171 – Databases

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Table of Contents

Table of Contents.....	2
Cardinality of Logical Model.....	3
Surrogate Keys in Logical Model	5
Data Types in Logical Model	6

Cardinality of Logical Model

These assumptions are carried through from Assignment 1 – Conceptual with some amendments to suit the updated brief in Assignment 1 – Logical.

Assumption 1:

We assume that an LGA must open at least one branch in order for ReadMore Community Library to provide a service. As a result, LGA -> 1:Many Branch cardinality (not 0:M).

Assumption 2:

We assume that when a branch is created, they may not have a manager yet assigned to it. As a result, Branch -> 0:1 Manager cardinality.

Assumption 3:

We assume the branch is home to at minimum 0 people and at maximum many people (when a new branch is created, they may not have any borrowers yet). As a result, Branch -> 0:Many Borrower cardinality (instead of 1:Many)

Assumption 4:

We assume that a branch handles many books, but at the start may have none. As a result, Branch -> 0:Many Book_copy cardinality. (instead of 1:Many)

Assumption 5:

We assume that a catalogue publisher must have published at least one catalogue entry to be in the database. As a result, Publisher -> 1:Many Catalogue cardinality (instead of 0:Many).

Assumption 6:

We assume a borrower must take out at least one loan (i.e. must borrow a book) to be in their system. I.e. we assume that you cannot just register but not have borrowed at least once. As a result, Borrower -> 1:M Loan cardinality.

Assumption 7:

We assume a manager must manage at least one branch to be a manager. As a result, Manager -> 1:M Branches cardinality.

Assumption 8:

We assume that a borrower can only be assigned one borrower class type at a time. As a result, Borrower -> 1:1 Class cardinality.

Surrogate Keys in Logical Model

Two surrogate keys were added.

Surrogate Key 1: Loan Relation

A surrogate key called, 'loan_no', was added to the 'Loan' relation. This was because the original primary key was a composite of three attributes (loan_datetime, book_copy_id, branch_code). As such, a surrogate key was made to simplify the primary key.

Surrogate Key 2: Reservation Relation

A surrogate key called, 'reservation_no', was added to the 'Reservation' relation. This was because the original primary key was a composite of four attributes (reservation_datetime, borrower_no, book_copy_id, branch_code). As such, a surrogate key was made to simplify the primary key.

Data Types in Logical Model

Assumption 1:

LGA Size in hectares will include decimals and won't be bigger than 99.99 hectares.

Assumption 2:

Catalogue Edition will be stored as a whole string, i.e. '##st Edition' instead of just the number.

Assumption 3:

Loan fines do not exceed \$99.99.

Assumption 4:

Book Copy Purchase price does not exceed \$999.99.