CP5806: ASSESSMENT 2: CONCEPT REVIEW

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ENTITY-RELATIONSHIP MODELLING VS. DIMENSIONAL MODELLING

ER modelling	Dimensional modelling
Support OLTP	Support OLAP
Normalised	Denormalised
Removes redundancy	Allows redundancy
A view of data from data processing	A view of data from business processing
Contains both logical and physical model	Contains only a physical model
Current data	Historical data
Many operational users	Small managerial users
MB to GB	GB to TB even PB
Volatile	Non-volatile

DIMENSION TABLE VS. FACT TABLE

Dimension table	Fact table
Descriptive attributes	Quantitative measurement
Surrogate key	Foreign key
Less records and more attributes	More records and less attributes
Grows horizontally	Grows vertically
Created first	Created later
More number of tables	Less number of tables
Shorter key	Longer key

STAR SCHEMA VS. SNOWFLAKE SCHEMA

Star schema	Snowflake schema
Simple	Complex
Denormalised	Normalised
One join to fetch the data	Many joins to fetch the data
Faster response time	Slower response time
Redundant data	No redundancy
Top-down approach	Bottom-up approach
One dimension table for each dimension	More than one table for each dimension
Easy to understand	Less easy to understand

PRIMARY KEY

- Unique values
- Nonintelligent
- No change over time
- Preferably single-attribute
- Preferably numeric
- Security-compliant

PRIMARY KEY(CONS)

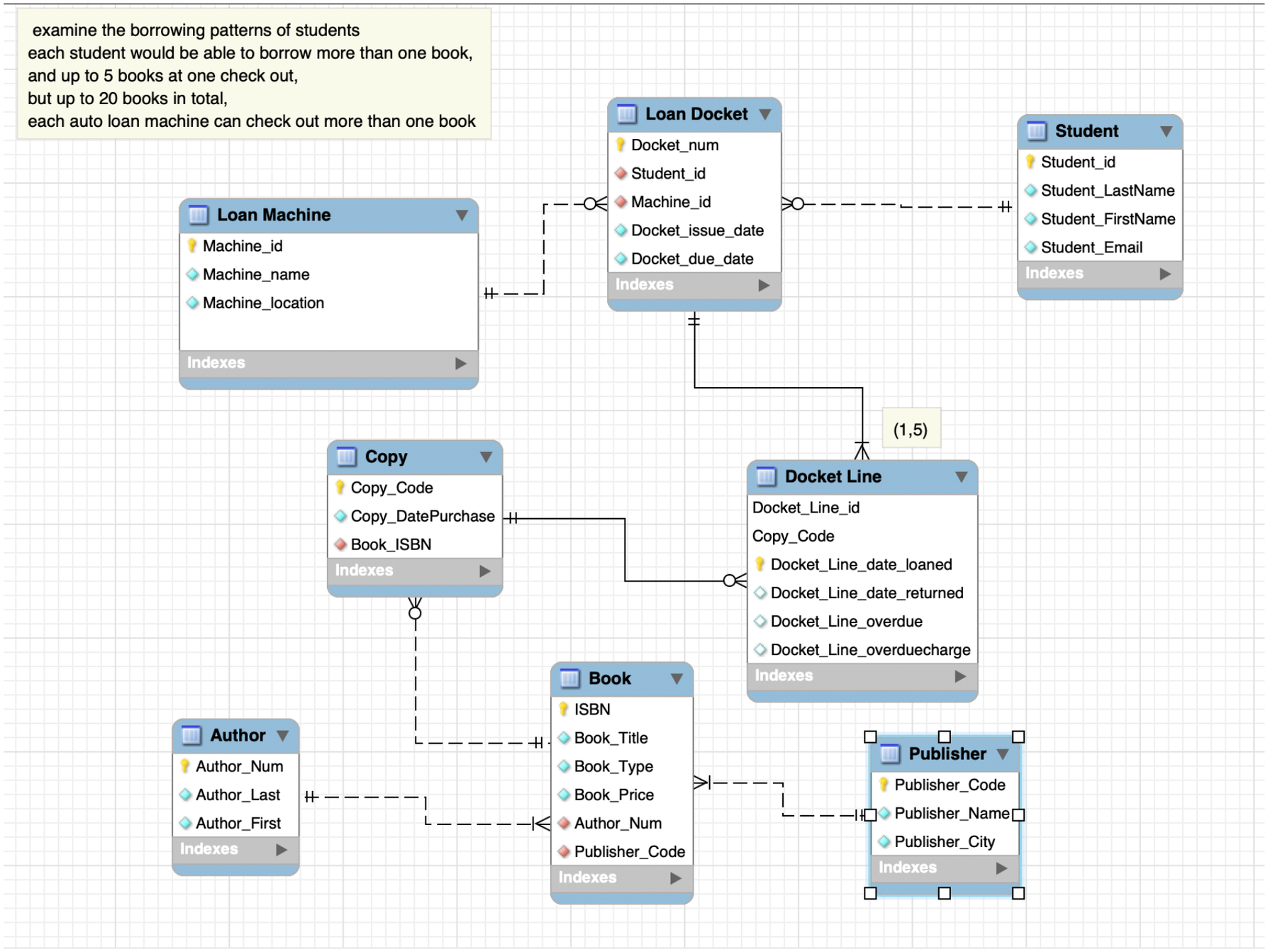
- Type of primary keys:
  - Natural keys
  - Composite primary keys: allow only once in m:n relationship, automatically ensure no duplicate values
    - Composite entities
    - Weak entities: strong identifying relationship with parent entity
- (Common in dimensional modelling) Surrogate keys: auto-incremented values, id that has no relation to the entity

Reference
https://www.mssqltips.com/sqlservertip/5431/surrogate-key-vs-natural-key-differences-and-when-to-use-in-sql-server/

ATTRIBUTES

- Naming: use table name as a prefix
- Type of attributes:
  - **Atomic**: cannot be divided into smaller independent attribute, e.g., state, city
  - Composite: can be divided into smaller independent attribute, e.g., address, name
  - **Single valued**: has only one value, e.g., postcode
  - Multi valued: has multiple values, e.g., education
  - **Stored**: cannot be derived from another attribute, e.g., DOB
  - Derived: can be derived from another attribute, e.g., age

MABO LIBRARY ERD



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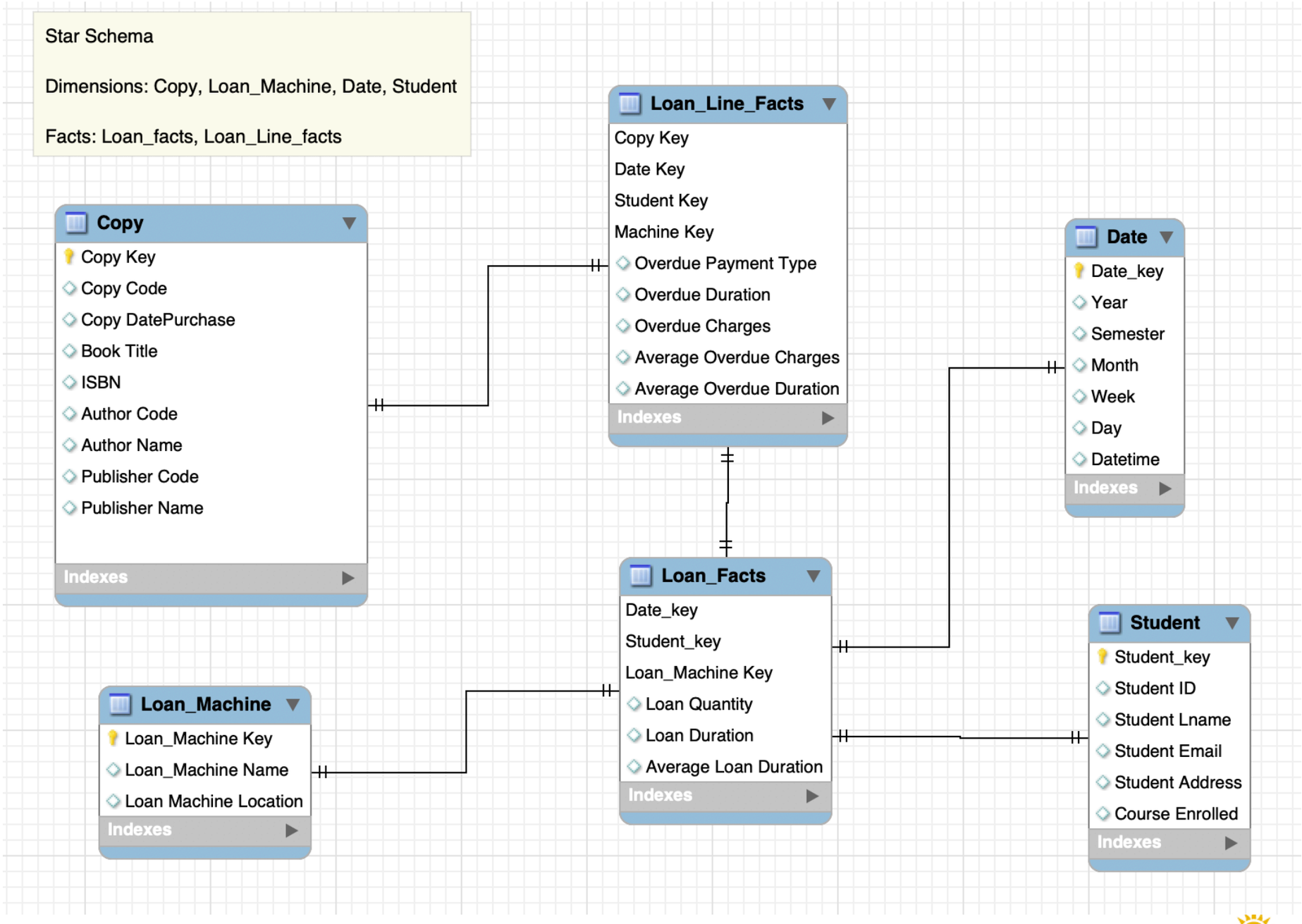

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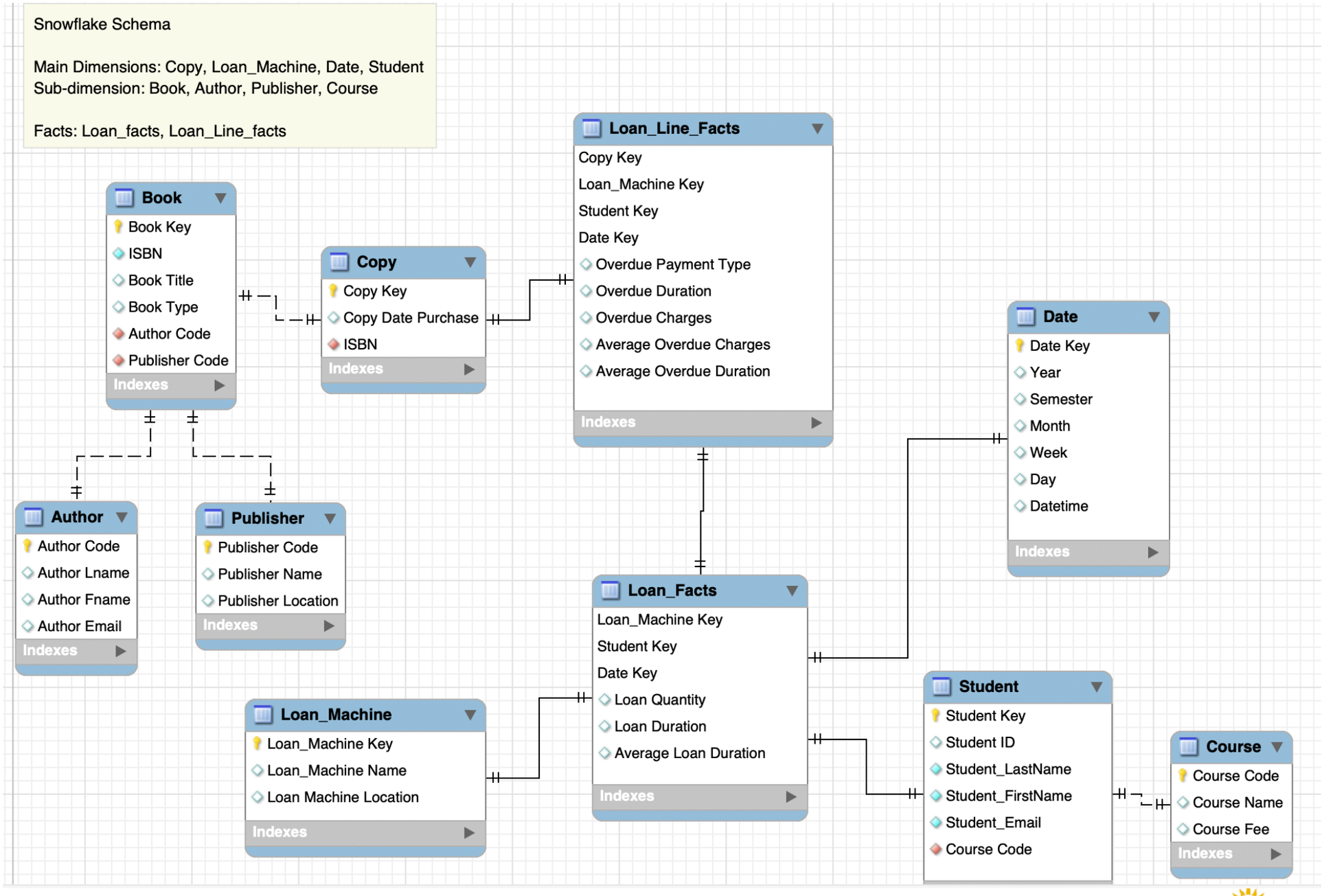

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