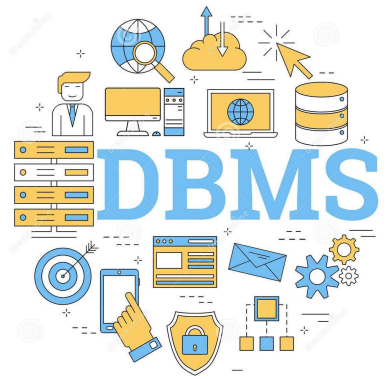
Unit I - Introduction

Purpose of Database System - Views of data – Data models, Database Management system - Three-schema architecture of DBMS, Components of DBMS. Entity – Relationship Model - Conceptual data modelling - motivation, entities, entity types, attributes, relationships, relationship types, **E/R diagram notations, Examples**



Primary Key

- **Primary Key:** A primary key is used to ensure that data in the specific column is unique. A column cannot have NULL values. It is either an existing table column or a column that is specifically generated by the database according to a defined sequence.
- **Example:** STUD_NO, as well as STUD_PHONE both, are candidate keys for relation STUDENT but STUD_NO can be chosen as the primary key

Foreign Key

- **Foreign Key:** A foreign key is a column or group of columns in a relational database table that provides a link between data in two tables. It is a column (or columns) that references a column (most often the primary key) of another table.
- **Example:** STUD_NO in STUDENT_COURSE is a foreign key to STUD_NO in STUDENT relation.

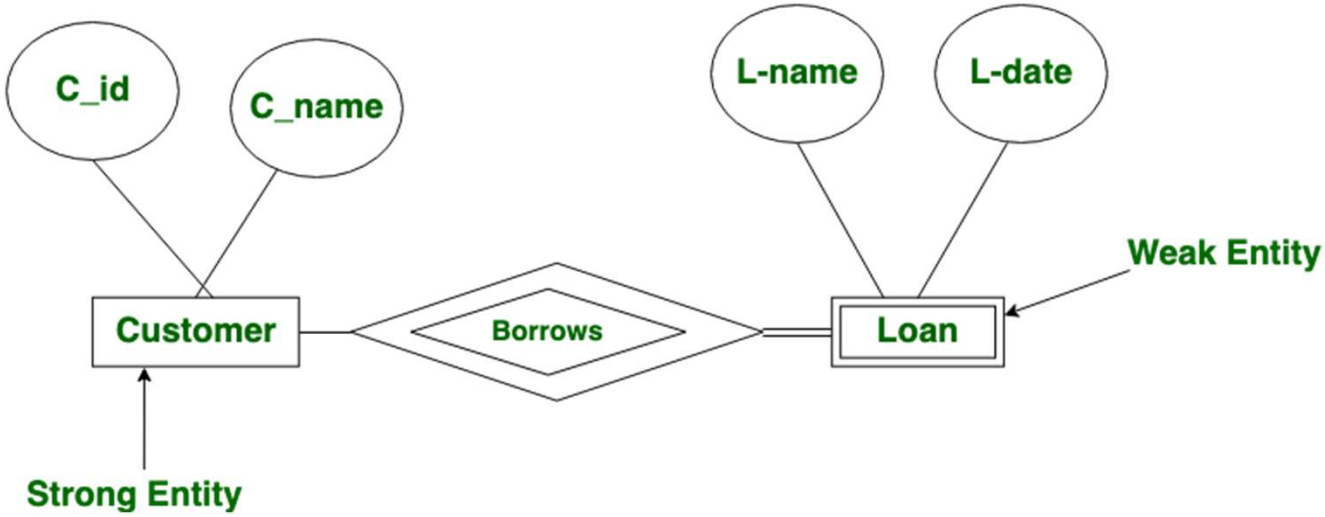
Super Key

- To identify the tuples of the specified table in the database.
- It is the superset where the candidate key is a part of the super key only.
- So, all those attributes in a table that is capable of identifying the other attributes of the table in a unique manner are all super keys

Weak and Strong Entity Sets

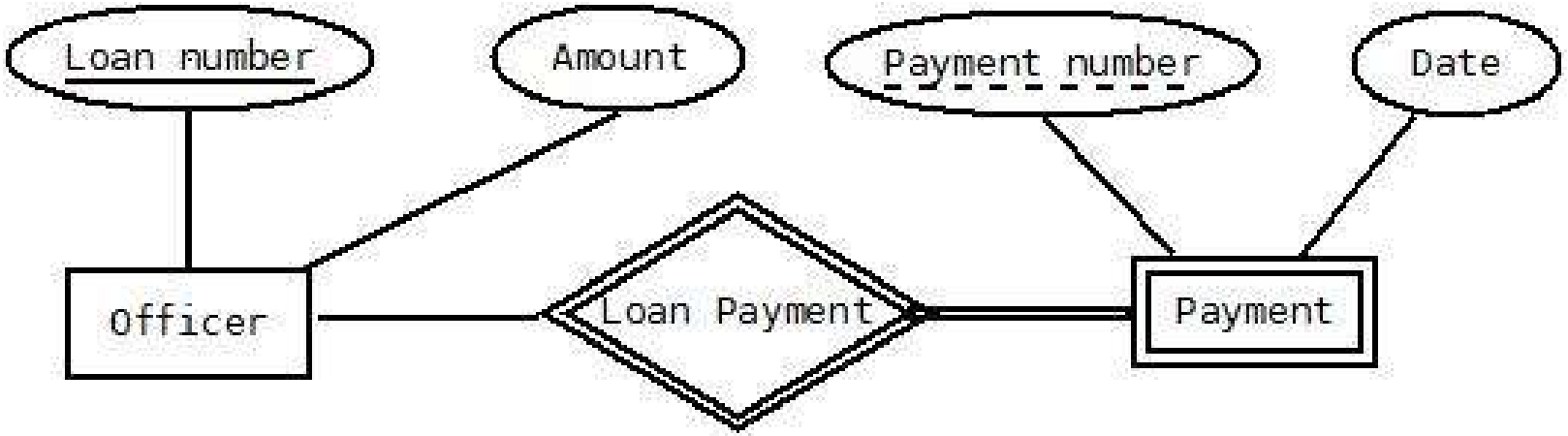
- The entity sets which do not have sufficient attributes to form a primary key are known as **weak entity sets**
- The entity sets which have a primary key are known as **strong entity sets.**
- Weak entity is depend on strong entity to ensure the existence of weak entity.

Weak and Strong Entity Sets

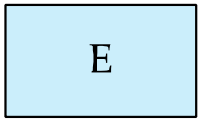


Weak and Strong Entity Sets

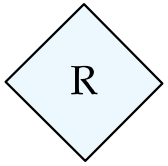
'Payment' is the weak entity. 'Loan Payment' is the identifying relationship and 'Payment Number' is the partial key. Primary Key of the Loan along with the partial key would be used to identify the records.



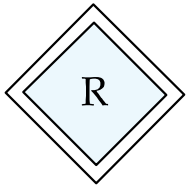
Summary of Symbols used In E-R Notation



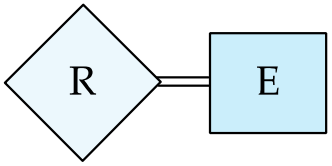
entity set



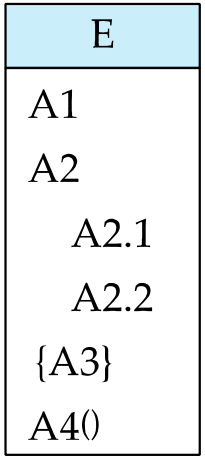
relationship set



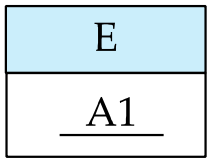
identifying relationship set for weak entity set



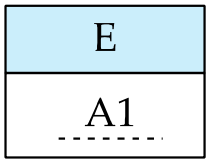
total participation of entity set in relationship



attributes:
simple (A1),
composite (A2) and
multivalued (A3)
derived (A4)

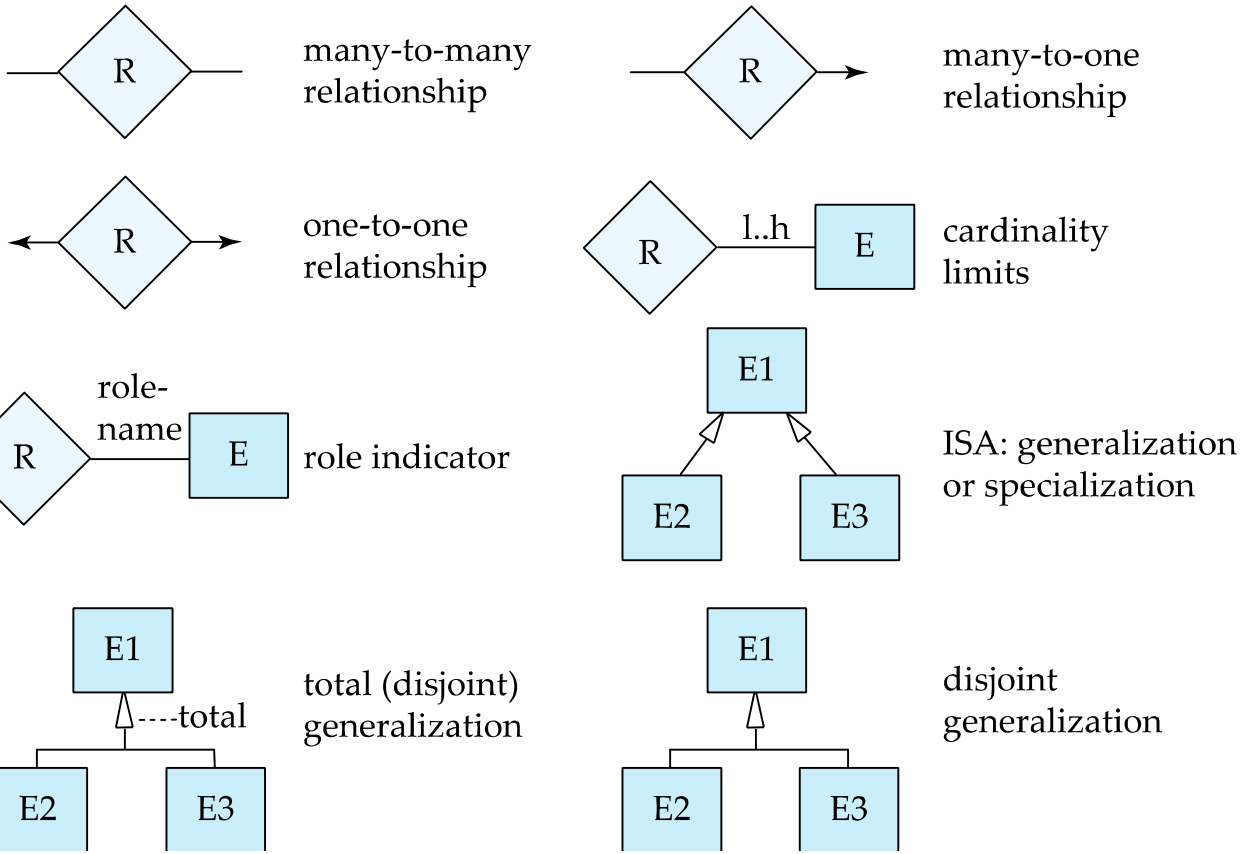


primary key

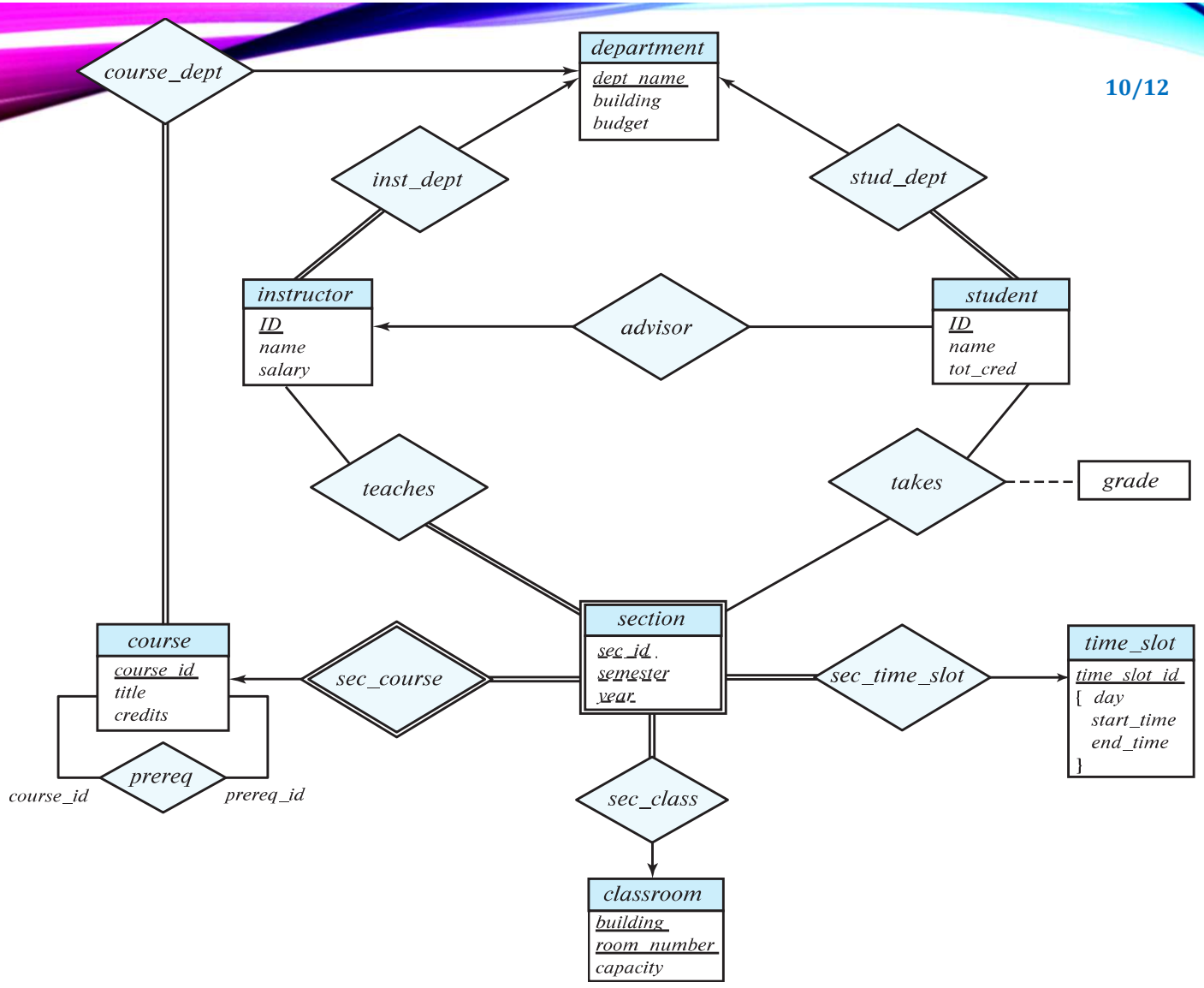


discriminating attribute of weak entity set

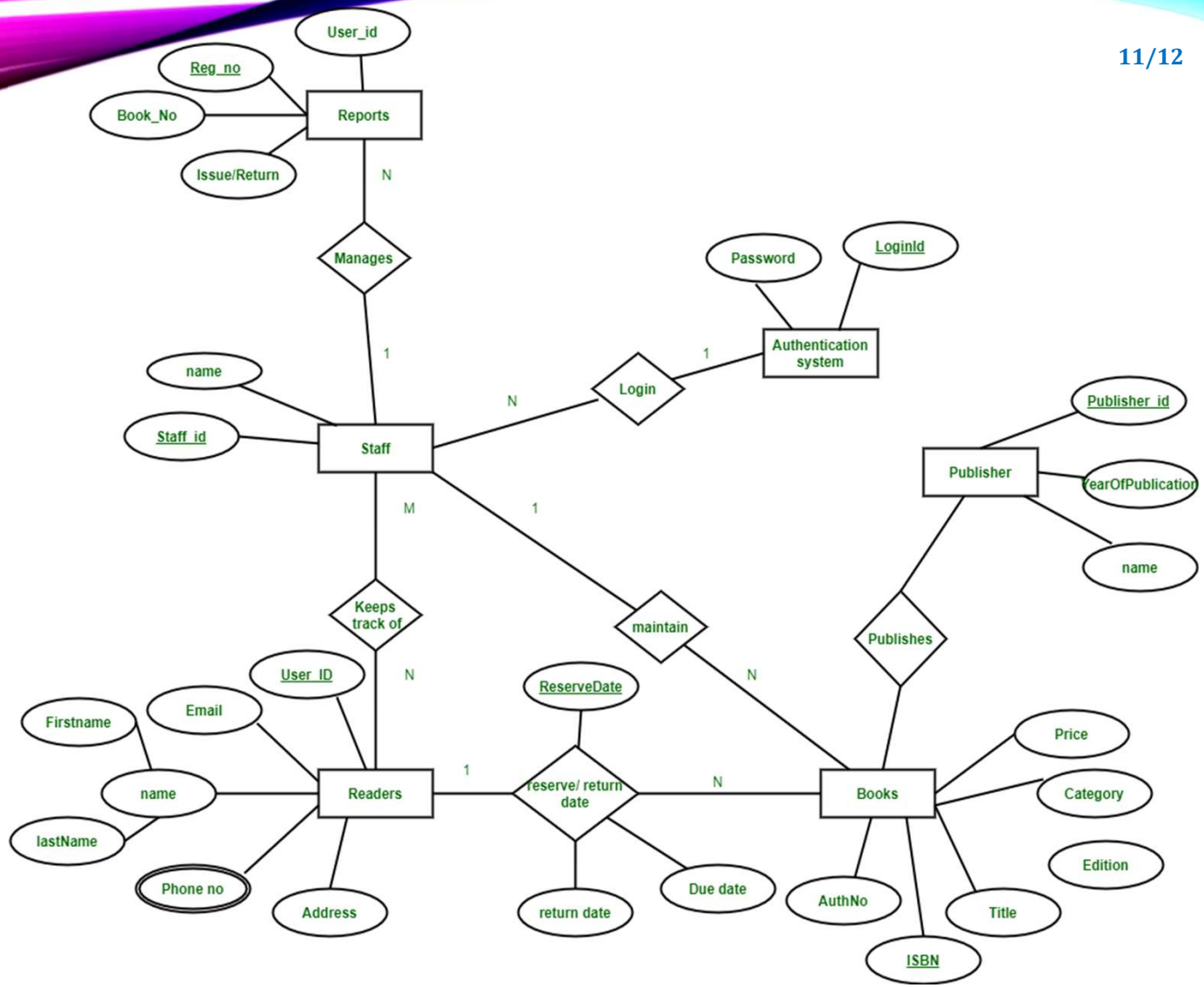
Symbols Used in E-R Notation (Cont.)



E R Diagram for University Enterprise



E R Diagram for Library Management System




Thank You!