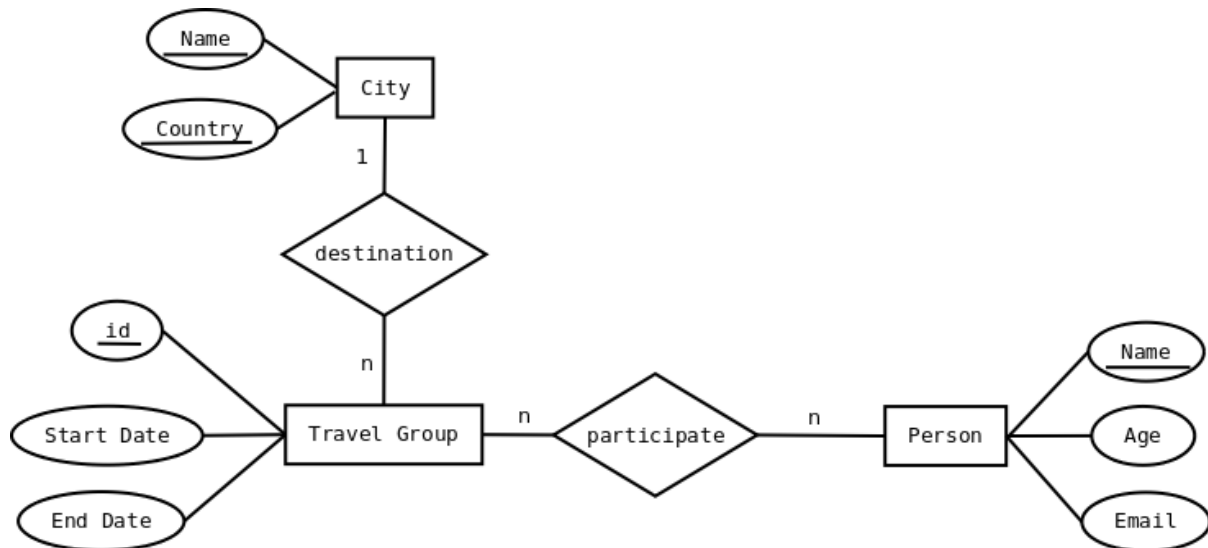
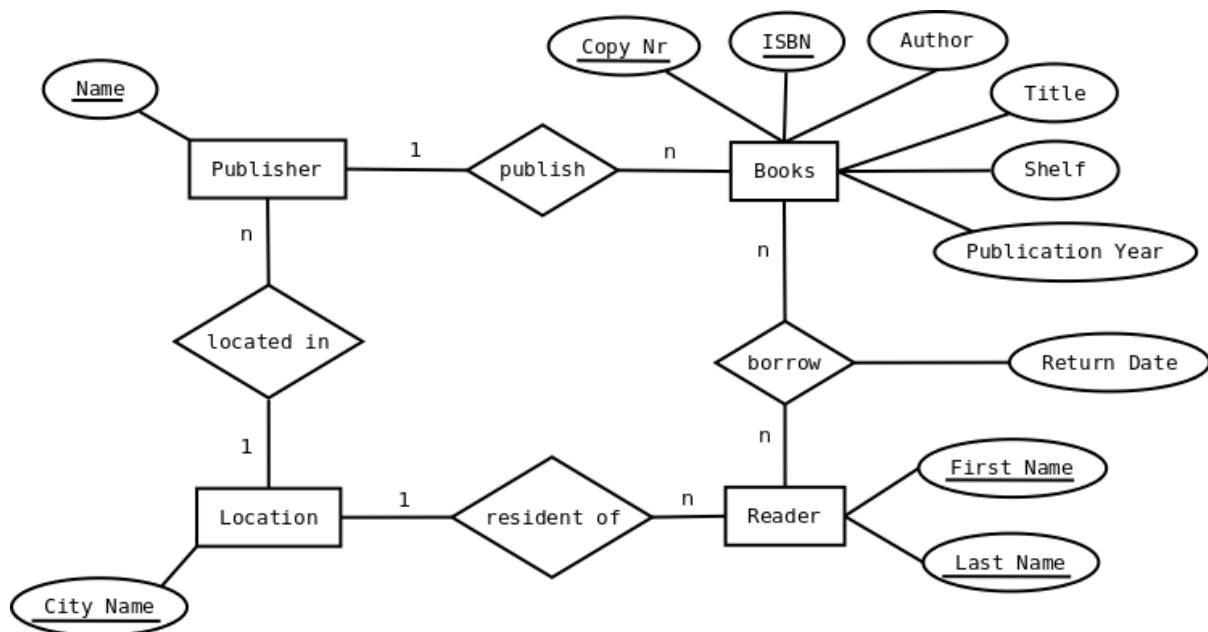


1 ER Modeling

1.1 People and Traveling



1.2 Library



2 Relational Model

2.1 ER to Relational Model

CITY (CityName, CountryName)

TRAVELGROUP (GroupId, CityName, CountryName, StartDate, EndDate)

PERSON (PersonName, Age, Email)

PARTICIPATE (GroupId, PersonName)

LOCATION (CityName)

PUBLISHER (PublisherName, CityName)

READER (FirstName, LastName, CityName)

BOOKS (ISBN, CopyNr, ShelfLocation, PublicationYear, PublisherName, Title, AuthorName)

BORROW (ISBN, CopyNr, FirstName, LastName, ReturnDate)

2.2 Relational Algebra

$$\Pi_{LastName}(\sigma_{City='Zurich'}(READERS))$$
$$\Pi_{Title, Author}(\sigma_{BOOK.PublisherName=PUBLISHER.PublisherName} \\ (BOOK \times (\sigma_{City='Zurich'}(PUBLISHER))))$$
$$\Pi_{Title, Author}(\sigma_{COPY.Isbn=BOOK.Isbn} \\ (BOOK \times (\sigma_{COPY.Isbn=BORROW.Isbn \wedge COPY.CopyNr=BORROW.CopyNr} \\ (COPY \times (\sigma_{BORROW.ReaderNr=READER.ReaderNr} \\ (BORROW \times (\sigma_{FirstName='John' \wedge LastName='Doe'}(READER))))))))$$