Design Algorithm Essentials

1. Combine functional edges with the same tail object set(s) into a scheme. (The tail object set(s) and any others in a 1-1 correspondence are keys.)

   ![Diagram](image1)

2. Each nonfunctional edge is a scheme. (All object sets constitute the key.)

   ![Diagram](image2)

3. Each stand-alone object set is a scheme. (The lone object set is a key.)

   ![Diagram](image3)

B&B Example – Canonical

![Diagram](image4)
B&B Example –
Generated Database Scheme

Room(RoomNr, RoomName, NrBeds, Cost)
Guest(GuestNr, GuestName, StreetNr, City)
Reservation(GuestNr, RoomNr, ArrivalDate, NrDays)

Room[RoomNr] ⊇ Reservation[RoomNr]
Guest[GuestNr] = Reservation[GuestNr]

B&B Example – ORM Diagram

Room[RoomNr] ⊇ Reservation[RoomNr]
Guest[GuestNr] = Reservation[GuestNr]

a + b > 0
B&B Example – Canonical

B&B Example – Generated Database Scheme

Room(RoomNr, RoomName, NrBeds, Cost)
Guest(GuestNr, GuestName, StreetNr, City)
Reservation(GuestNr, RoomNr, ArrivalDate, NrDays)

Room[RoomNr] [GuestNr] = Reservation[RoomNr]
Guest[GuestNr] = Reservation[GuestNr]