

Task: For your ER model from hw3, each student should:

- take a different subset of the attributes by choosing 2 (or more) connected entities and taking all attributes from those entities. There * will probably be some overlap. That's fine.
- define all functional dependencies that exist in this group of attributes.
- show the result of applying 3rd Normal Form normalization for these attributes.
- This part is plain text. A regular text file will be fine -- if you really want to use a word processor for the arrows or something, please export to a PDF so I can read the result.

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For my ER model I am choosing these entities: "Flights", "Airports", and "Airlines". Here are the attributes for each entity that we will include in this subset:

Entity	Attributes
Flights	Flight No, Plane Type, Departed, Arrived, Early, Late, Remarks, Baggage Claim, Scheduled Departure, Estimated Departure, Departure Terminal, Departure Gate, Scheduled Arrival, Estimated Arrival, Arrival Gate, Arrival Terminal
Airports	Airport Code, Airport Name, City, State, Country
Airlines	Airline, Flight No, Departing From, Departure Time, Arrival At, Arrival Time

Functional Dependencies	Dependent Attributes
Flight No	Plane Type, Departed, Arrived, Early, Late, Remarks, Baggage Claim, Scheduled Departure, Estimated Departure, Departure Terminal, Departure Gate, Scheduled Arrival, Estimated Arrival, Arrival Gate, Arrival Terminal
Departing From	Airport Code, Airport Name, City, State, Country
Arrival At	Airport Code, Airport Name, City, State, Country
Airline, Flight No	Departing From, Departure Time, Arrival At, Arrival Time

3rd Normal Form (3NF) normalization:

We can see that there are transitive dependencies between the Airports entity and the Flights entity, as both Scheduled Departure and Scheduled Arrival depend on Airport Code, Airport Name, City, State, and Country. We can remove this transitive dependency by creating a new entity, which we can call "Airport Schedule", with the attributes:

Entity	Attributes
Airport Schedule	Airport Code, Airport Name, City, State, Country, Scheduled Departure, Scheduled Arrival
Flights	Flight No, Plane Type, Departed, Arrived, Early, Late, Remarks, Baggage Claim, Estimated Departure, Departure Terminal, Departure Gate, Estimated Arrival, Arrival Gate, Arrival Terminal, Departing From (FK), Arrival At (FK)

Here, 'Flights' entity is updated since it only needs attributes that are directly related to the flight themselves. Moreover, the 'Airlines' entity would remain unchanged. This 3NF normalization would remove any transitive dependencies and ensure that the data is stored efficiently and accurately.