Team 26 ER Diagram and Relational Schema

The database will have six different entities: Airlines, Airports, Flights, Cancellations, Delays, and Cites. The Airlines entity represents the various different airline companies that a flight can belong to, such as United or American. Each airline can have multiple flights, while each flight can only belong to a single airline. Flights represents the flights between airports, with each row being a single flight. Each flight recorded in this database may have a cancellation and/or a delay. Additionally, flights are from an Airport. An airport belongs to a city in a one to one relationship while many flights can be from the same airport.

Airlines: represents airlines that a flight can belong to. Stores IATA Code and airline name.
Flights: represents each flight. Has an ID number for the flight, Y/M/D of the flight, the flight number, the airline the plane belongs to, the tail number of the plane, and the origin and destination airports.
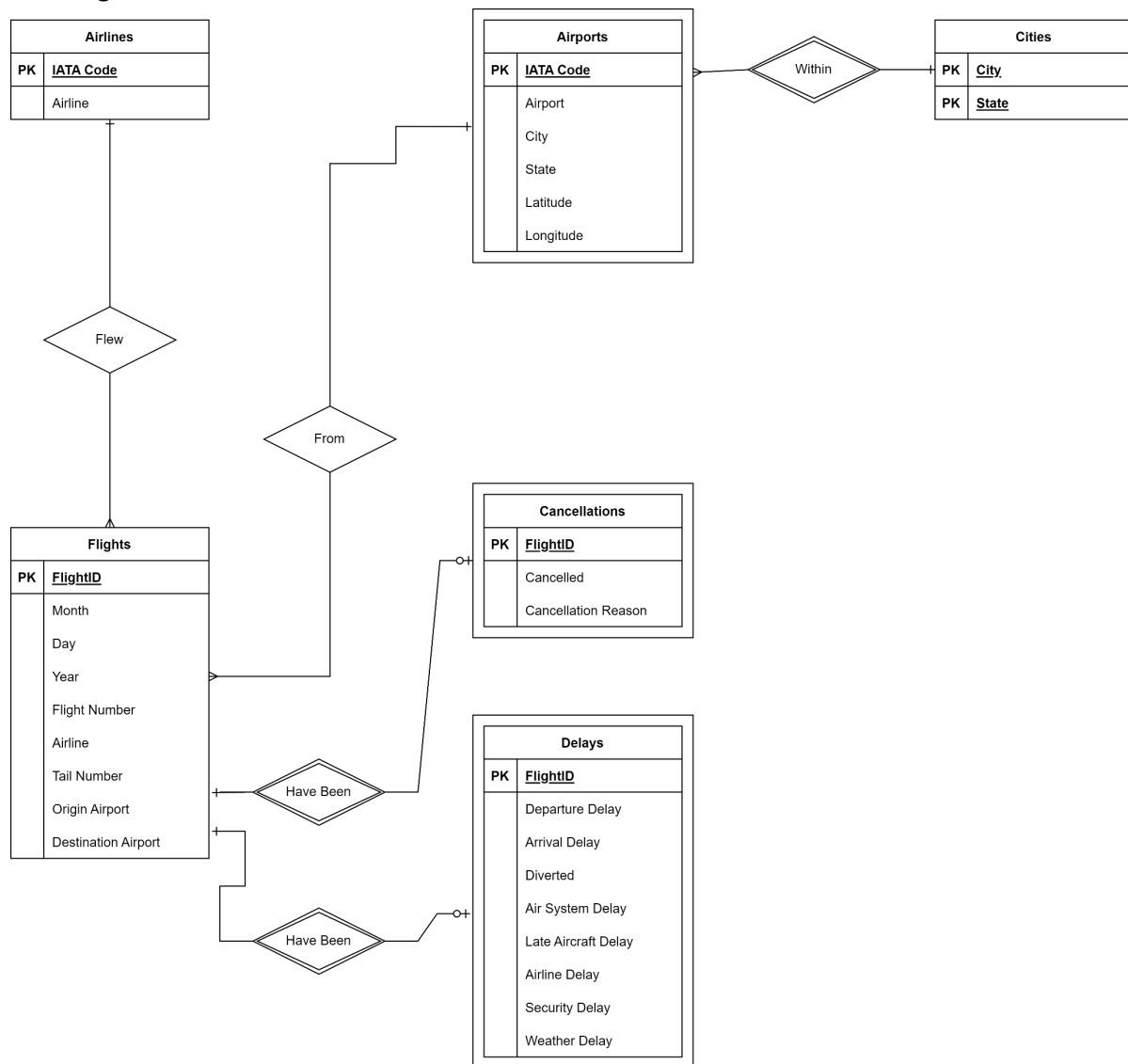Cancellations: represents information about a flight's possible cancellation, including which flight, whether it was canceled or not, and the reason for cancellation.
Delays: represents information about a flight's possible delays, including the magnitude of of the delay, diversion, and a split of the reasons for the delay.
Airports: represents airports. Stores IATA Code information, as well as the name, city, state, latitude, and longitude of the airport.
Cities: represents a city. Has the city name and state.

ER Diagram:

Relational Schema:
Airlines(IATA Code:VARCHAR(255) [PK], Airline:VARCHAR(255))

Airports(IATA Code:VARCHAR(255) [PK], City:VARCHAR(255) [FK to Cities.City], State:VARCHAR(255) [FK to Cities.State], Airport:VARCHAR(255), Latitude:INT, Longitude:INT)

Flights(FlightID:INT [PK], Airline:VARCHAR(255) [FK to Airlines.Airline], Tail Number:INT, Origin Airport:VARCHAR(255), Destination Airport:VARCHAR, Month:INT, Day:INT, Year:INT, Flight Number:INT)

Delays(FlightID:INT [PK], FlightID:INT [FK to Flights.FlightID], Departure Delay:INT, Arrival Delay:INT, Diverted:BOOLEAN, Air System Delay:INT, Late Aircraft Delay:INT, Airline Delay:INT, Security Delay:INT, Weather Delay:INT)

Cities(City:VARCHAR(255) [PK], State:VARCHAR(255) [PK])

Cancellations(FlightID:INT [PK] [FK to Flights.FlightID, Canceled:BOOLEAN, Cancellation Reason VARCHAR(255))