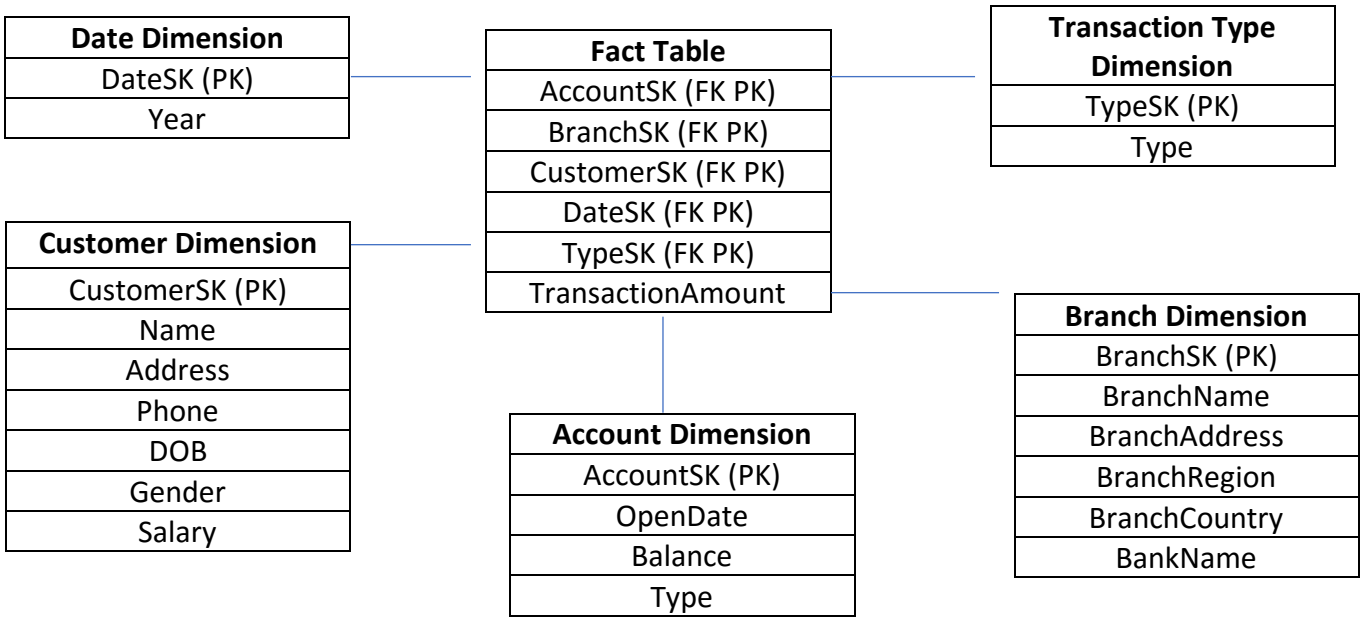
Exercise 1:



I chose to use the transaction data as my fact table as it provides the best focal point for the data warehouse, one of the bank's main concerns would be around the day to day transactions of the business, who was performing them, where and when they were doing it and what was specific about them. Also, as they only want to find out data on a yearly basis, the date granularity only requires us to store the year of each transaction.

Query:

```
SELECT SUM(TransactionAmount) AS Total, Branch.BranchName FROM Fact
JOIN Account ON Fact.AccountSK = Account.AccountSK
JOIN Branch ON Fact.BranchSK = Branch.BranchSK
JOIN Date on Fact.DateSK = Date.DateSK
WHERE Date.Year = 2009 and Account.Type LIKE 'Student'
GROUP BY Branch.BranchName;
```

Exercise 2:

I have chosen to use Irish Rail of my business of choice. I aim to base their data warehouse / dimensional model around tickets / bookings with that being the focal point of the fact table. They may be curious to know information about their passengers, the trains, the journeys, tickets and dates they occurred. These will all form the basis for my dimensions.

Query 1: Total cost of all student tickets from Dublin to Belfast in May 2017 for each type of train (Enterprise vs Commuter).

```
SELECT SUM(TicketAmount) AS Total, Train.Type FROM FACT
```

JOIN Passenger ON Fact.PassengerSK = Passenger.PassengerSK
JOIN Train ON Fact.TrainSK = Train.TrainSK
JOIN Journey ON Fact.JourneySK = Journey.JourneySK
JOIN Date on Fact.DateSK = Date.DateSK
WHERE Passenger.Type LIKE 'Student' AND Journey.DepartureLocation LIKE 'Dublin' AND Journey.ArrivalLocation LIKE 'Belfast' AND Date.Year = 2017 AND Date.Month = 5
GROUP BY Train.Type;

Query 2: Total cost of an adult ticket for male and female passengers from Bray to Dublin in 2016

SELECT SUM(TicketAmount) AS Total, Passenger.Gender FROM Fact
JOIN Passenger ON Fact.PassengerSK = Passenger.PassengerSK
JOIN Journey ON Fact.JourneySK = Journey.JourneySK
JOIN Date ON Date.DateSK = Date.DateSK
WHERE Journey.DepartureLocation LIKE 'Bray AND Journey.ArrivalLocation LIKE 'Dublin'
GROUP BY Passenger.Gender;