**Discuss the concept of a join operation. As part of your discussion, compare and contrast the inner join, left outer join, right outer join, and full outer join. Provide examples of how each can be used.**

A join combines two relations or tables together by matching them with a prespecified domain variable, etc[(Sharma et al. 2010)](https://paperpile.com/c/uf4RYO/kHtb). There are different conditions that can be set for the join that make it inner, outer, etc. These conditions are there to deal with scenarios where there is not a perfect match eg. one table has more values than the other, or a different value (s) for the joining variable. Then what?

**Inner Join**

An inner join is a join where the combined relation only contains tuples where attributes had a match between both input relations.

**Outer Join**

A join where all tuples from one or both the relations being joined are included, regardless of whether they have a match or not.

An outer join can be of three types:

1. Left outer join - the left table (or 1st - relative) is used as the model - the joined table includes all of the values for the joining variable - which might end up with some null values for other domains joining from the right table.
2. Right outer join - the opposite of the left - the other table is the model
3. Full outer join- includes all the values (tuples) from both tables in the joined table.

[Sharma, Neeraj, Liviu Perniu, Raul F. Chong, Abhishek Iyer, Chaitali Nandan, Adi-Cristina Mitea, Mallarswami Nonvinkere, and Mirela Danubianu. 2010. “Database Fundamentals.” *IBM Canada*, 96–101.](http://paperpile.com/b/uf4RYO/kHtb)