Define an inner join, outer join and union. Articulate what each has in common and what makes each unique.

**Union**

A union of two relations is a new relation that is a set of all tuples belonging to the two different relations, ie. all tuples that were from either one, or shared between them.

**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.

A union is very different from a join in that it combines tuples from two relations, under their respective attributes. Unless the relations are identical, you will be left with a greater number of rows, if you will. But not necessarily more columns.

A join is concatenating the two relations and matching them based on some attribute they presumably share. You will ultimately be left with more columns. Whether you have more rows or less rows than the original relations, depends on the specific type of join you implement.