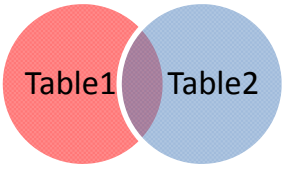
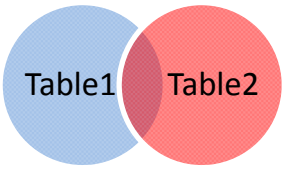
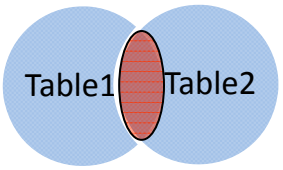
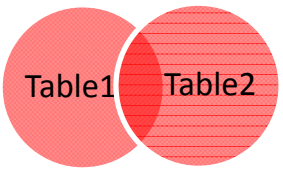
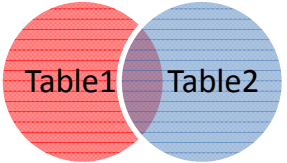
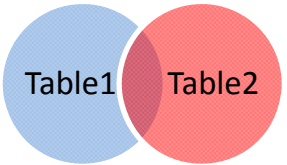
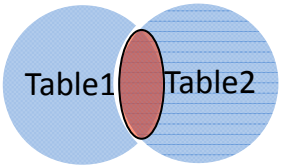
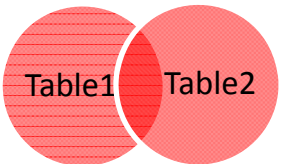


**BASIC DATA STEP MERGES**  
for one-to-one matches between tables (Red area gives the join result/newtable)

|                        |   |  |  |
|------------------------|---|--|--|
| Left Join              |    | Maintain all records in first table whether there is a match in the second table or not                  | Data newtable;<br>Merge Table1 (in=InTable1) Table2;<br>By CommonElements;<br>If InTable1;   |
| Right Join             |    | Maintain all records in second table whether there is a match in the first table or not                  | Data newtable;<br>Merge Table1 Table2 (in=InTable2);<br>By CommonElements;<br>If InTable2;   |
| Intersection Join      |    | Pull only those records where there is a match in both tables  | Data newtable;<br>Merge Table1 (in=InTable1) Table2 (in=InTable2);<br>By CommonElements;<br>If InTable1 and InTable2;  |
| Union Join             |  | Maintain all records in first table and all records in second table whether or not there are any matches | Data newtable;<br>Merge Table1 (in=InTable1) Table2 (in=InTable2);<br>By CommonElements;<br>If InTable1 or InTable2;   |
| Multiple Output Tables |   | Sort merged records depending on which table contributed the information                                 | Data Table1Only Table2Only InBothTables;<br>Merge Table1 (in=InTable1) Table2 (in=InTable2);<br>By CommonElements;<br>If InTable1 and not InTable2 then output Table1Only;<br>Else if InTable2 and not InTable1 then output Table2Only;<br>Else if InTable1 and InTable2 then output InBothTables; |

## BASIC DATA STEP MERGES EXAMPLES

|                        |   |   |   |
|------------------------|---|---|---|
| Left Join              |    | <p>Maintain all records in first table whether there is a match in the second table or not</p>                  | <p>Table1 = all students registered for Fall 2007<br/>Table2 = students' majors (assume each student has just one major)</p> <p>The majority of students have a major but some don't. You want to maintain the records of all students registered (in newtable), even those without majors. If student did not have a major, the data elements that come from Table2 would be blank or missing.</p>   |
| Right Join             |    | <p>Maintain all records in second table whether there is a match in the first table or not</p>                  | <p>Table1 = all students registered for Fall 2007 or Spring 2008 (they would appear only once in Table1)<br/>Table2 = students who received a degree during the 2007-2008 school year (assume each student received only 1 degree)</p> <p>You want to see whether the students who graduated during the 2007-2008 school year were actually registered during that academic year. But you do want to still end up (newtable) with everyone who graduated. If they did not attend, the data elements from Table1 will be blank or missing.</p> |
| Intersection Join      |    | <p>Pull only those records where there is a match in both tables</p>  | <p>Table1 = all students registered for Fall 2007<br/>Table2 = students' majors (assume each student has just one major)</p> <p>You want to pull all students registered for Fall 2007 that have a valid major. Newtable would contain only those students who were in both tables.</p>   |
| Union Join             |  | <p>Maintain all records in first table and all records in second table whether or not there are any matches</p> | <p>Table1 = students who have taken the ACT admission test<br/>Table2 = students who have taken the SAT admission test</p> <p>Newtable would contain students who have taken the ACT test or the SAT test. For those students who took both tests (are in both tables), both sets of test scores would now be in one record. For those who took only one of the tests, the variables from the other table would be blank or missing.</p>  |
| Multiple Output Tables |   | <p>Sort merged records depending on which table contributed the information</p>                                 | <p>Table1 = students registered for Fall 2007<br/>Table2 = students who have had their immunization shots</p> <p>You want to know how many registered students did not have their immunization shots yet (Table1Only) AND how many who provided immunization shot information did not actually register (Table2Only) AND how many students who registered did have their immunization shots (InBothTables).</p>   |