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Each question has its own scala file.

1. **Filename: MutualFriends.scala**

   Output for the following pairs:

   (0,1)   5,20
   (20, 28193)   1
   (1, 29826)
   (6222, 19272)   19623,19280,19281,19282
   (28041, 28056)   6245,28054,28061

2. **Filename: MutualFriendsUser.scala**
   Below is the output:

   0,1   5,20

3. **Filename: InMemoryJoin.scala**
   Below is the output:

   0,1   [Beth:8/27/1970,Juan:9/12/1991]

4. **Filename: ReduceSideJoin.scala**

   Below is the output:

   ```
   26070, 2093 Bagwell Avenue,Citra,Florida,86
   9311, 4448 Despard Street,Atlanta,Georgia,86
   2558, 2224 Collins Street,Altoona,Pennsylvania,86
   1472, 3 Milford Street,Newmarket,New Hampshire,86
   27380, 4190 Oliverio Drive,Hugoton,Kansas,86
   37450, 237 Heavner Court,New Hyde Park,New York,86
   39624, 4738 Philli Lane,Salina,Oklahoma,86
   18991, 302 Lincoln Drive,Harrisburg,Pennsylvania,86
   44151, 4652 Hummingbird Way,Lexington,Massachusetts,86
   40642, 275 Pooh Bear Lane,Liberty,South Carolina,86
   ```

5. **Filename: TopNBiGram.scala**

   Code takes in the value of N. Here by specified 2 and the content of document is also specified within the code. Lemmatization is done using Stanford's NLP package.

   Document content: Alice is testing spark application. Testing spark is fun
   N: 2
   Output:
   test spark, 2