1. Provide a command or string of commands piped together to find the union of the items. Show two ways of doing this.

Solution A：cat file1 file2 | awk '!found[$1]++'

Explanation: ‘cat’ utility here was used to concatenate file1 and file2. ‘awk’can be used to filter the duplicate elements1.

Solution B: sort -u file1 file2

Explanation: ’sort’ utility merge file1 and file2, and sort based on the alphabeted. ‘-u’ suppress all lines that have a key that is equal to existed one. So ‘-u’ here functioned as deleting the duplicates2.

1. Provide a command or string of commands piped together to find the intersect of the items.

Solution: comm -12 <(sort file1) <(sort file2)

Explanation: ‘comm’ utility reads file1 and files, and produces 3 columns: lines only in file1(column 1); lines only in file2(column 2); and lines in both files(column 3). ‘-1’ suppress printing of column;’-2’Suppress printing of column 2; **‘-3’** suppress printing of column 3. Here, we want to the elements both in file1 and file2, so we use ‘-12’. Meanwhile, for comm utility, each file need to sort. That is why (sort file1) and (sort file2) are needed1,3.

Reference: 1 <https://catonmat.net/set-operations-in-unix-shell>

2 BSD General Commands Manual -SORT

3 BSD General Commands Manual -COMM