listSetUnion

Your task is to write a function, listSetUnion, that takes two lists representing two sets and returns a **new** list that represents the union of those sets. For example, if the two lists are [4, 3, 1, 7, 6] and [3, 2, 5, 1, 6], you should return a list containing the elements 1, 2, 3, 4, 5, 6, and 7. The result list does not have to be ordered in any particular way. Since the input lists represent sets, you can assume they do not contain any duplicate elements. Your function must **not** modify the input lists.

Download

Click here to download a zip of the files.

The Files

list.c	Contains the implementation of basic list functions
list.h	Contains the definition of the list data structure and function prototypes
testListSetUnion.c	Contains the main function, which reads in two lists from standard input, calls listSetUnion, sorts the returned list, and prints out the result.
listSetUnion.c	Contains listSetUnion, the function you must implement
Makefile	A makefile to compile your code
tests/	A directory containing the inputs and expected outputs for some basic tests
autotest	A script that uses the tests in the tests directory to autotest your solution. You should only run this after you have tested your solution manually.

Examples

Your program should behave like these examples:

```
$ ./testListSetUnion
Enter list 1: 4 3 1 7 6
Enter list 2: 3 2 1 5 6

Set 1: {4, 3, 1, 7, 6}
Set 2: {3, 2, 1, 5, 6}
Union set: {1, 2, 3, 4, 5, 6, 7}

Explanation: the returned list is sorted so that your program's output
            can be compared against the expected output.
```

```
$ ./testListSetUnion
Enter list 1: 1 3 5 7 9
Enter list 2: 8 6 4 2 0

Set 1: {1, 3, 5, 7, 9}
Set 2: {8, 6, 4, 2, 0}
Union set: {0, 1, 2, 3, 4, 5, 6, 7, 8, 9}
```

```
$ ./testListSetUnion
Enter list 1:
Enter list 2: 1 8 3 9

Set 1: {}
Set 2: {1, 8, 3, 9}
Union set: {1, 3, 8, 9}
```

```
$ ./testListSetUnion
Enter list 1:
Enter list 2:

Set 1: {}
Set 2: {}
Union set: {}
```

Testing

You can test your program manually by compiling your code using `make`, and then running `./testListSetUnion`, as shown above. After you are satisfied with your solution, you can autotest it by running `./autotest`. This will run some basic tests on your program.