Problem Set 3 Exercise #20: Set Union

Reference: Lecture 8 notes

Learning objectives: Sorting; Algorithm design

Estimated completion time: 60 minutes

Problem statement:

[Modified from CS1010 AY2011/12 Semester 1 PE2 Exercise 2 Part 2]

Write a program **set_union.c** to read two arrays **setA** and **setB** of <u>distinct</u> **int** values (at most 10 each), find the union of **setA** and **setB**.

Your program should contain a function

```
int read_array(int set[], char *index) {
```

to read elements into array **set**, and another function

```
int get_union(int setA[], int sizeA, int setB[], int sizeB)
```

to update **setA** to be the union of **setA** and **setB**. It returns the updated size of **setA**.

For example, suppose **setA** is {1, 3, 5} and **setB** is {2, 5, 3}. After function invocation, **setA** will be updated to {1, 3, 5, 2} (order of values is not important) and its updated size is 4.

Finally, your program will print out values in **setA** in ascending order.

Sample run #1:

```
Size of 1st set? 3
Enter 3 values: 5 7 9
Size of 2nd set? 2
Enter 2 values: 7 28
Union of two sets is (in ascending order): 5 7 9 28
```

Sample run #2:

```
Size of 1st set? 1
Enter 1 values: 5
Size of 2nd set? 1
Enter 1 values: 5
Union of two sets is (in ascending order): 5
```