2) (5 pts) ALG (Sorting)

The code below is a buggy implementation Selection Sort.

```
void buggySelectionSort(int array[], int n) {

    for (int i=n-1; i>=0; i--) {

        int best = array[0];
        for (int j=1; j<=i; j++) {
            if (array[j] > best)
                best = array[j];
        }

        array[i] = best;
    }
}
```

(a) Conceptually, the variable best is storing the wrong thing. What should it store instead?

Best is storing the largest number in the array upto index i, but best should really store **the index** where the largest value upto index i is being stored.

Grading: 2 pts, all or nothing.

(b) If we fix the code so that best stores what it ought to, conceptually, we will have to change both the if statement inside of the j for loop as well as the assignment statement inside of the if. (With these two changes, best will store what it is supposed to store.) Once we make those changes, we can finish fixing the sort completely by replacing the line

```
            array[i] = best;
```

with three lines of code (where one more variable is declared). Show the three line fix, assuming that best stored the conceptually correct value.

```
int tmp = array[i];
array[i] = array[best];
array[best] = tmp;
```

Grading: 1 pt per line, there's two standard ways to do this and some other ways, give any valid method to swap the two variables full credit.