**Algorithm**

sort (***array***)

**Input** array ***array*** of ***n*** integers, integers belong to set{0,1,2}.

**Output** sorted array, output by parameter

***index*** <- ***0***

**for** ***i*** <- 0 **to** ***n*** - 1 **do**

**if** ***array[i]==0* then**

***swap(array[i], array[index++])***

***i*** <- index

index <- array.length-1

**for** ***i*** **to** ***index* do**

**if** ***array[i]==2* then**

***swap(array[i], array[index--])***

**Code:**

**void sort(int[] array){**

**int length = array.length;**

**int index = 0;**

**int i = 0;**

**for (; i < array.length; i++) {**

**if (array[i]==0) {**

**int tmp = array[i];**

**array[i] = array[index];**

**array[index++] = tmp;**

**}**

**}**

**i = index;**

**for (index=array.length-1; i<index&&i<array.length; i++) {**

**if (array[i]==2) {**

**int tmp = array[i];**

**array[i] = array[index];**

**array[index--] = tmp;**

**}**

**}**

**}**

**running time**

From the algorithm below, T(n) = c1 + O(n) + O(n) = O(n);