1. Read in 500 ints from the keyboard, and store them in an array. Find the *position* (or *index*) of the maximum and minimum values in the array, and *swap* them (move the biggest element to the position of the smallest, and move the smallest element to the position of the biggest).

```
//  The program starts from the declaration of Scanner object.
//  Assume the import sentence has been included.
Scanner kb = new Scanner (System.in);
int size = 500;                          // this variable is optional
int [] arr = new int[size];              // or int [500]

for (int i = 0; i<size; i++)
   arr [i] = kb.nextInt();               // This must be a
                                         // separated loop, as required

int v_max=arr[0], v_min=arr[0];
// cannot be -1 or MAX_INT!
int p_max=0, p_min=0;                    // main point in test
// must be 0 to match the above assignment.

for(int i = 1; i<size; i++){
   if(arr[i]>v_max){                     // max and min can be separated
      v_max = arr[i];                    // into different loops, but
      p_max = i;                         // using one loop can be more
   }                                     // efficient.
   if(arr[i]<v_min){
      v_min = arr[i];
      p_min = i;
   }
}

arr[p_min] = v_max;
arr[p_max] = v_min;
```

2. Read in 500 ints from the keyboard, and store them in an array. Find <u>the second</u> minimum value in the array, and display it on the screen.

```java
Scanner kb = new Scanner (System.in);
int size = 500;
int [] arr = new int[size];

for (int i = 0; i<size; i++)
   arr [i] = kb.nextInt();

int biggest, biggest2nd;

if (arr[0]<arr[1]){
   biggest = arr[1];
   biggest2nd = arr[0];
}
else{
   biggest = arr[0];
   biggest2nd = arr[1];
}                              // initialization of 1st and 2nd minimum

for (int i =2; i<size; i++){
   if(arr[i]>biggest){
      biggest2nd = biggest;
      biggest = arr[i];
   }
   else if (arr[i]>biggest2nd) {
      biggest2nd = arr[i];
   }
}
```