## Lab 11

**Question 1**

Given the outline for the class called **MyArray** below. Do the following:

1. In the constructor:
   1. Write the statement that will assign the array argument to the array variable **original**.
   2. Use the variable **length** and write the statement that will find the size of the array.
2. Use the **reverse()** method, write appropriate code that prints the array values in reverse order
3. Use the method **sum** and write appropriate code to sum the values in the array.
4. Use the method **average** to find the average of the values in the array.
5. Using the method search and, given a value in a variable called **key**, write the method definition that searches the array for the given value in the array.
6. Write a test class that will show that the above parts (a) – (e) work.

**public class TestMyArray {**

**public static void main(String []args){**

int[] arr = {1, 2, 3, 4, 6};

MyArray MyArr = new MyArray(arr);

System.out.println(arr);

MyArr.reverse();

System.out.println("Sum is = "+MyArr.sum());

System.out.println("Average is = "+MyArr.average());

System.out.println(MyArr.search(3));

System.out.println("Smallest number is = "+MyArr.findSmallest());

**}**

**}**

**class MyArray{**

int original[], length;

**MyArray(int[] a){**

this.original = a;

this.length = a.length;

**}**

**void reverse(){**

int[] b = new int[length];

int j = length;

for (int i = 0; i < length; i++) {

b[j - 1] = original[i];

j = j - 1;

}

/\*printing the reversed array\*/

System.out.println("Reversed array is: \n");

for (int k = 0; k < length; k++) {

System.out.println(b[k]);

}

**}**

**int sum(){**

int sum = 0; // initialize sum

int i;

// Iterate through all elements and add them to sum

for (i = 0; i < length; i++)

sum += original[i];

return sum;

**}**

**int average(){**

// Find sum of array element

int sum = 0;

for (int i=0; i<length; i++)

sum += original[i];

return sum/length;

**}**

**boolean search(int key){**

// if array is Null

if (original == null) {

return false;

}

int i = 0;

// traverse in the array

while (i < length){

// if the i-th element is t

// then return the index

if (original[i] == key) {

return true;

}

else {

i = i + 1;

}

}

return false;

**}**

**int findSmallest(){ // The will find the smallest value in an array**

/\* There should be atleast two elements \*/

if (length < 1){

System.out.println(" Invalid Input ");

return -1;

}

int smallest = Integer.MAX\_VALUE;

for (int i = 0; i < length ; i ++){

if (original[i] < smallest)

smallest = original[i];

}

if (smallest == Integer.MAX\_VALUE)

return -1;

else

return smallest;

**}**

**}**

**Question 2**

* 1. Create an integer array called **list** with the following values: **15 45 20 25 30 70 80 50**

**int [] list = {15, 45, 20, 25, 30, 70, 80, 50};**

* 1. Using the selection sort method to sort the array **list** (part a) in **ascending order**, show the contents of the array after three passes through the list.

Pass 1 **15 45 20 25 30 70 80 50** .

Pass 2 **15 20 45 25 30 70 80 50** .

Pass 3 **15 20 25 45 30 70 80 50** .