

Examples

CSC140 Foundations of Computer Science

08 February 2016

1 SequentialSearch.java

```
package aufgaben;

import java.util.Random;

public class SequentialSearch {

    private final static Random rng = new Random();

    private static int[] makeArray(int size, int range) {
        int[] result = new int[size];
        for (int i = 0; i < result.length; i++) {
            result[i] = rng.nextInt(range);
        } // for
        return result;
    } // makeArray( int )

    private static void printArray(int[] data) {
        for (int n : data) {
            System.out.print(n + " ");
        } // for
        System.out.println();
    } // printArray( int [] )

    private static boolean isContainedInArray( int n, int [] data ) {
        boolean result = false;
        for( int i = 0; i < data.length; i++ ) {
            if( n == data[i] ) {
                result = true;
            } // if
        } // for
        return result;
    } // isContainedInArray( int, int [] )
}
```

```
public static void main(String [] args) {
    int [] list = makeArray(12, 24);
    printArray(list);
    System.out.print( "Is 17 in in the array?" );
    System.out.println( isContainedInArray( 17, list ) );
} // main( String [] )

} // SequentialSearch
```

2 FindMinimum.java

```
package aufgaben;

import java.util.Random;

public class FindMinimum {

    private final static Random rng = new Random();

    private static int[] makeArray(int size, int range) {
        int[] result = new int[size];
        for (int i = 0; i < result.length; i++) {
            result[i] = rng.nextInt(range);
        } // for
        return result;
    } // makeArray( int )

    private static void printArray(int[] data) {
        for (int n : data) {
            System.out.print(n + " ");
        } // for
        System.out.println();
    } // printArray( int [] )

    private static int smallestValue(int[] data) {
        int bestGuessSoFar = data[0];
        for (int i = 1; i < data.length; i++) {
            if (data[i] < bestGuessSoFar) {
                bestGuessSoFar = data[i];
            } // if
        } // for
        return bestGuessSoFar;
    } // smallestValue( int [] )

    public static void main(String[] args) {
        int[] list = makeArray(12, 24);
        printArray(list);
        System.out.println( "Smallest value in array = " +
            smallestValue( list ) );
    } // main( String [] )
} // FindMinimum
```

3 FindPositionOfMinimum.java

```
package aufgaben;

import java.util.Random;

public class FindPositionOfMinimum {
    private final static Random rng = new Random();

    private static int[] makeArray(int size, int range) {
        int[] result = new int[size];
        for (int i = 0; i < result.length; i++) {
            result[i] = rng.nextInt(range);
        } // for
        return result;
    } // makeArray( int )

    private static void printArray(int[] data) {
        for (int n : data) {
            System.out.print(n + " ");
        } // for
        System.out.println();
    } // printArray( int [] )

    private static int positionOfSmallestValue(int[] data) {
        int bestGuessSoFar = 0;
        for (int i = 1; i < data.length; i++) {
            if (data[i] < data[bestGuessSoFar]) {
                bestGuessSoFar = i;
            } // if
        } // for
        return bestGuessSoFar;
    } // positionOfSmallestValue( int [] )

    public static void main(String[] args) {
        int[] list = makeArray(12, 24);
        printArray(list);
        System.out.println( " Position of smallest value in array = " +
            positionOfSmallestValue( list ) );
    } // main( String [] )
}
```

4 FindPosOfMinStartingAtIndex.java

```
package aufgaben;

import java.util.Random;

public class FindPosOfMinStartingAtIndex {

    private final static Random rng = new Random();

    private static int[] makeArray(int size, int range) {
        int[] result = new int[size];
        for (int i = 0; i < result.length; i++) {
            result[i] = rng.nextInt(range);
        } // for
        return result;
    } // makeArray( int )

    private static void printArray(int[] data) {
        for (int n : data) {
            System.out.print(n + "_");
        } // for
        System.out.println();
    } // printArray( int [] )

    private static int positionOfSmallestValue(int[] data, int start) {
        int bestGuessSoFar = start;
        for (int i = start + 1; i < data.length; i++) {
            if (data[i] < data[bestGuessSoFar]) {
                bestGuessSoFar = i;
            } // if
        } // for
        return bestGuessSoFar;
    } // positionOfSmallestValue( int [] )

    public static void main(String[] args) {
        int[] list = makeArray(12, 24);
        printArray(list);
        System.out.println("Position_of_smallest_value_in_array =_"
            + positionOfSmallestValue(list, 6));
    } // main( String [] )
} // FindPosOfMinStartingAtIndex
```