Problem Set 3 Exercise #10: Find Tuple

Reference: Lecture 7 notes

Learning objectives: One-dimensional array; Algorithm design

Estimated completion time: 35 minutes

Problem statement:

Given an array of distinct integers sorted in ascending order and another integer **key**, check if there exist two different array elements **x** and **y** such that **x + y = key**.

For example, given an array { 1, 2, 3, 4, 5 } and **key** 7, 2 + 5 = 7 and 3 + 4 = 7.

Your program should contain a static method

```
boolean checkTuple(int[] arr, int key)
```

that takes a sorted array **arr** and a **key**, returns true if there exists at least 1 pair of integers whose sum equals **key**, or false otherwise.

Write a program **PS3_Ex10_Tuple.java** for the above task.

Note:

The challenge is to avoid using nested loop in **checkTuple()** method.

Sample run #1:

```
Enter the number of distinct elements in sorted array: 5
Enter 5 elements: 1 2 3 4 5
Enter key: 7
Exist
```

Sample run #2:

```
Enter the number of distinct elements in sorted array: 6
Enter 5 elements: 4 6 8 11 15 19
Enter key: 28
Not exist
```