CS 129

HW 1 – Java Intro, Basics Refresher

Include the provided code ***exactly*** in your main method for testing!

1) Write a method “getSecondToLastItem” that outputs the second-to-last item in an array of integers.

```
int[] numbers = { 4, 5, 6, 7 };
int[] shortNumbers = { 1, 2 };
int item = getSecondToLastItem(numbers); //returns 6
System.out.println("Second to last in numbers: " + item);
item = getSecondToLastItem(shortNumbers); //returns 1
System.out.println("Second to last in short: " + item);
```

2) Write a method “getAverage” that outputs the average of an array of ints, using float precision.

```
float avg = getAverage(numbers); //returns about 5.5
System.out.println("avg: " + avg);
```

3) Write a method “reverse” that takes an array of integers and outputs the elements reversed.

```
int[] reverse = reverseArray(numbers); //returns {7, 6, 5, 4}
System.out.println(reverse[0] + " " + reverse[1]); //prints "7 6"
```

4) (Hard) Write a method “flipDouble” that flips the part before and after the decimal point. Hint: You can use math, but it’s easier to convert to a String and use the indexOf and substring methods.

```
double flippedA = flipDouble(73.21); //returns 21.73
double flippedB = flipDouble(123.45); //returns 45.123
System.out.println("Flipped A: " + flippedA);
System.out.println("Flipped B: " + flippedB);
```

5) Write method “isMostlyOdd”, that returns true if an array contains mostly odd integers, false otherwise (a tie should return false).

```
boolean odd = isMostlyOdd(numbers); //returns false
System.out.println("Is mostly odd: " + odd);
odd = isMostlyOdd(new int[] {3, 4, 7, 7, 9}); //returns true
System.out.println("Is mostly odd: " + odd);
```

6) Write method “firstHalf”, which outputs the first half of a given String. If it has an odd length, return the middle item too. For example “Cupcake” would output “cupc” and “team” would output “te”.

```
String half = firstHalf("Helloworld"); //returns Hello
System.out.println("first half " + half);
half = firstHalf("Salad"); //returns Sal
System.out.println("first half " + half);
```

7) Write method “secondHalf”, which outputs the second half of a given String. If it has an odd length, don’t return the middle item.

```
half = secondHalf("Helloworld"); //returns world
System.out.println("second half " + half);
half = secondHalf("Salad"); //returns ad
System.out.println("second half " + half);
```

Extra credit (5%) if you handle bad arguments (for example, arrays with too few arguments). You can return a placeholder value like -1 in the event of this kind of bad input.

```java
public static void main(String[] args) {
	int[] numbers = { 4, 5, 6, 7 };
	int[] shortNumbers = { 1, 2 };
	int item = getSecondToLastItem(numbers); //returns 6
	System.out.println("Second to last in numbers: " + item);
	item = getSecondToLastItem(shortNumbers); //returns 1
	System.out.println("Second to last in short: " + item);

	float avg = getAverage(numbers); //returns about 5.5
	System.out.println("avg: " + avg);

	int[] reverse = reverseArray(numbers); //returns {7, 6, 5, 4}
	System.out.println(reverse[0] + " " + reverse[1]); //prints "7 6"

	double flippedA = flipDouble(73.21); //returns 21.73
	double flippedB = flipDouble(123.45); //returns 45.123
	System.out.println("Flipped A: " + flippedA);
	System.out.println("Flipped B: " + flippedB);

	boolean odd = isMostlyOdd(numbers); //returns false
	System.out.println("Is mostly odd: " + odd);
	odd = isMostlyOdd(new int[] {3, 4, 7, 7, 9}); //returns true
	System.out.println("Is mostly odd: " + odd);

	String half = firstHalf("Helloworld"); //returns Hello
	System.out.println("first half " + half);
	half = firstHalf("Salad"); //returns Sal
	System.out.println("first half " + half);

	half = secondHalf("Helloworld"); //returns world
	System.out.println("second half " + half);
	half = secondHalf("Salad"); //returns ad
	System.out.println("second half " + half);
}
```