Title: SumDigits

Q1. Write a recursive method, sumDigits(int number) that will compute the sum of the digits in an integer number. For example, if the number is 55, the return result is 10. If the number is -54, the return result is 9.

```
// public static int sumDigits(int number)
```

Title: CountOdd

Q2. Write a recursive method, countOdd(int number) that will compute the number of odd digits in an integer number. For example, 10134 the return value is 3. If the number is -54, the return result is 1.

```
// public static int countOdd(int number)
```

Title: CumulativeSum

Q3. Write a recursive method, cumulativeSum(int data[], int n) that will compute cumulative sums in an array. To find the cumulative sums, add to each value in the array the sum of the values that precede it in the array. For example, if the values in the array are [2, 3, 1, 5, 6, 2, 7], the result will be [2, (2) + 3, (2 + 3) + 1, (2 + 3 + 1) + 5, (2 + 3 + 1 + 5) + 6, (2 + 3 + 1 + 5 + 6) + 2, (2 + 3 + 1 + 5 + 6 + 2) + 7] or [2, 5, 6, 11, 17, 19, 26].

```
// public static void cumulativeSum(int data[], int n)
// data[] contains the initial values of the array, for example data={1,2,3}
// data[] is passed by reference and final results are stored in data[]
// int n=1 when called from main()
```

Title: DoubleEachLetter

Q4. Write a recursive method, doubleEachLetter(String s) that will duplicate each character in a string and return the result as a new string. For example, if "book" is the parameter, the result would be "bbooookk".

```
// public static String doubleEachLetter(String s){
```

Title: <u>Reverse</u>

Q5. Write a recursive method, reverse(String s) that will reverse the order of the characters in a given string and return the result as a new string. For example, if "book" is the parameter, the result would be "koob".

```
// public static String reverse(String s)
```

Title: <u>Handshake</u>

Q6. There are *n* people in a room. Each person shakes hands once with every other person if *n* is greater than 1. If *n* is 0 or 1, the total number of handshake is 0. What is the total number of handshakes in the room? For example, if *n* is 10, the total number of handshakes is 45. If *n* is 3, the total number of handshakes is 3.

Write a recursive method to solve this problem with the following header:

```
 //  public static int handshake(int n) where handshake(n) returns the total
number of handshakes for n people in the room.
```