Write your name only on the last page where indicated!

CS 101 - Algorithms & Programming I

Fall 2021 - Section 2 Quiz 2

November 10, 2021

1. Triple numbers

A triple number is a three-digit number where all three digits are the same (e.g., 111 and 888). Write a static method named `containsTripleNumber()` that takes a positive integer number as input and returns whether or not that number contains a triple number in it. Notice here that three identical digits must be consecutive.

Sample runs:

```
containsTripleNumber(111) returns true
containsTripleNumber(1115) returns true
containsTripleNumber(11) returns false
containsTripleNumber(11014) returns false
```

```
public static boolean containsTripleNumber(int number) {
    int consecutiveCount = 1; //?
    int prevDigit;
    int digit = number % 10;
    number = number / 10;

    while (number != 0) {
        prevDigit = digit;
        digit = number % 10;
        number = number / 10;
        if (digit == prevDigit) {
            consecutiveCount++;
            if (consecutiveCount == 3) {
                return true;
            }
        }
        else {
            consecutiveCount = 1;
        }
    }
    return false;
}
```

2. Check for triple numbers

Assuming the method written in Question 1 is part of a class named `Quiz2`, write a main method for this class that reads a sequence of positive integers from the user (until the user enters a non-positive number), reuses the earlier method and reports whether or not the input number contains a triple number. You do not need to check for invalid input.

Sample runs:

```
Enter a positive integer: 1115
1115 contains a triple number
Enter a positive integer: 11014
11014 does not contain a triple number
Enter a positive integer: -1
```

```
public static void main(String[] args) {
    Scanner input = new Scanner( System.in );
    boolean done = false;

    while (!done) {
        System.out.print( "Enter a positive integer: " );
        int number = input.nextInt();

        if (number > 0) {
            System.out.print(number);
            if (!containsTripleNumber(number)) {
                System.out.println(" does not contain a triple number");
            }
            else {
                System.out.println(" contains a triple number");
            }
        }
        else {
            done = true;
        }
    }
}
```

Name: _____ ID: _____ Signature: _____