CS 101 - Algorithms & Programming I

Fall 2021 - Section 1 Quiz 2

November 9, 2021

1. Numbers divisible by 3

A number is said to be divisible by 3 if the sum of all digits of that number is divisible by 3. Write a static method named `isDivisibleBy3()` that takes a positive integer number as input and returns whether or not that number is divisible by 3. Use an additional static helper method that returns the sum of digits of a number.

Sample runs:

```
isDivisibleBy3(105) returns true
isDivisibleBy3(104) returns false
```

```java
public static int sumOfDigits(int x) {
    int sum = 0;
    while (x != 0) {
        sum = sum + (x % 10);
        x = x / 10;
    }
    return sum;
}




public static boolean isDivisibleBy3(int number) {
    int digitSum = sumOfDigits(number);
    return digitSum % 3 == 0;
}
```

2. Check numbers divisible by 3

Assuming the method(s) written in Question 1 are 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(s) and reports whether or not the input number is divisible by 3. You do not need to check for invalid input.

Sample runs:

```
Enter a positive integer: 105
105 is divisible by 3
Enter a positive integer: 104
104 is not divisible by 3
Enter a positive integer: -1
```

```java
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 + " is ");
            if (!isDivisibleBy3(number)) {
                System.out.print("not ");
            }
            System.out.println("divisible by 3");
        }
        else {
            done = true;
        }
    }
}
```

Name: _____ ID: _____ Signature: _____