Computer Science Virtual Learning

HS Computer Science A

May 8th, 2020

Lesson: <mark>Free Response Friday</mark>

Objective/Learning Target:

Students will apply what they've learned this far in order to write code in response to an open ended free response question

Free Response Question

A positive integer is called a "self-divisor" if every decimal digit of the number is a divisor of the number, that is, the number is evenly divisible by each and every one of its digits. For example, the number 128 is a self- divisor because it is evenly divisible by 1, 2, and 8. However, 26 is not a self-divisor because it is not evenly divisible by the digit 6. Note that 0 is not considered to be a divisor of any number, so any number containing a 0 digit is NOT a self-divisor. There are infinitely many self-divisors.

Part A

Finish writing method isSelfDivisor on the next slide, which takes a positive integer as its parameter. This method returns true if the number is a self-divisor; otherwise, it returns false. The main method includes tests to check if this method is working correctly.

```java
public class SelfDivisor
{
    /** @param number the number to be tested
     *         Precondition: number > 0
     *  @return true if every decimal digit of
     *          number is a divisor of number;
     *          false otherwise
     */
    public static boolean isSelfDivisor(int number)
    {
        // part A
    }

    /***************/

    public static void main (String[] args)
    {
        System.out.println("128: " + isSelfDivisor(128));
        System.out.println("26: " + isSelfDivisor(26));
        System.out.println("120: " + isSelfDivisor(120));
        System.out.println("102: " + isSelfDivisor(102));
    }
}
```

For More Resources, Solution Code and to Check Answers

Go to: https://runestone.academy/runestone/books/published/apcsareview/LoopBasics/selfDivisorA.html