Assignment Week 2

For this week you need to write a function that determines if a number is a Harshad number and then uses this function to write another function that determines the *i-th* Harshad number.

A Harshad number is an integer that is divisible by the sum of its digits. For example, 81 is a Harshad number, because 8+1 = 9 and 81/9 = 9. The first Harshad number is 1.

Assignment 2.1

Write a function isHarshad that takes as input an integer and that has as output True, if the integer is a Harshad number, and False if it is not.
For example, isHarshad(81) should have ouput True.

Hint: Use str to convert the input to a string, see Chapter 8 of the Think Python book.

In [ ]:

```
# Your code goes here
a = int(input("Please type a positive integer: "))

def isHarshad(a):
    sum=0
    for j in str(a):
        sum += int(j)
    if (a % sum == 0):
        return True
    else:
        return False

isHarshad(a)
```

Assignment 2.2

Write a function ithHarshad that takes as input an integer *i* and prints the *ith* Harshad number on screen. Make that function has no output, i.e., write a void function.
For example, ithHarshad(25) should print:

"The first 25 Harshad numbers are: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 18, 20, 21, 24, 27, 30, 36, 40, 42, 45, 48, 50, 54, 60]"

Hint: use the isHarshad function above.

In [ ]:

```
# Your code goes here
i = int(input("Please type an integer:"))

def isHarshad(a):
    sum=0
    for j in str(a):
        sum += int(j)
    if (a % sum == 0):
        return True
    else:
        return False
```

```
def ithHarshad(i):
    list1 = []
    count = 0
    x = 0
    while True:
        x += 1
        if isHarshad(x) == True:
            list1 = list1 + [x]
            count += 1
        if count == i:
            break
    print("The first", i, "Harshad numbers are:", list1)

ithHarshad(i)
```