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Test Name:	**ACSL 2022-23, Contest 1, Intermediate Division Programming Problem**
Taken On:	20 Dec 2022 16:37:05 PST
Time Taken:	28 min 30 sec/ 4320 min
Invited by:	ACSL Contests
Invited on:	20 Dec 2022 15:30:03 PST
Skills Score:	
Tags Score:	

100%

5/5

scored in **ACSL 2022-23, Contest 1, Intermediate Division Programming Problem** in 28 min 30 sec on 20 Dec 2022 16:37:05 PST

Recruiter/Team Comments:

No Comments.

	Question Description	Time Taken	Score	Status
Q1	Next Base > Coding	28 min 22 sec	5/ 5	✓

QUESTION 1

Correct Answer

Score 5

Next Base > Coding

QUESTION DESCRIPTION

PROBLEM STATEMENT:

Given 3 positive integers, *n*, *b*, and *s*, generate the next *n* numbers in base *b* starting with *s* in the given base. We guarantee that the base will be between 2 and 9 inclusive. We guarantee that *s* is a valid number in base *b*. Find the base 10 value for the number of times the largest possible digit in the given base is found among all of the digits in the numbers generated.

EXAMPLE:

If *n*=15, *b*=8, and *s*=2, the numbers generated are 2, 3, 4, 5, 6, 7, 10, 11, 12, 13, 14, 15, 16, 17, 20. The largest possible digit in base 8 is 7 which occurs 2 times.

TASK:

Complete the function **countLargestDigit**:

- The function has 3 parameters: an integer, *num*, representing the number of values to be found, an integer, *base*, representing the base to be used between 2 and 9 inclusive, and an integer, *start*, representing the starting value in the base given
- The function returns a base 10 number representing the number of times the largest possible digit in the given base is found among all of the digits in the numbers generated

You may create additional functions that are called from **countLargestDigit** if needed in solving the problem.

CONSTRAINTS:

All inputs will be integer values. The base will be between 2 and 9 inclusive. We guarantee that *start* is a valid number in the given base. The starting number will be no more than 16 digits long.

DATA PROVIDED:

There are 5 sets of Sample Data for debugging and 5 sets of Test Data for scoring. You may create additional data sets for debugging your program.

CANDIDATE ANSWER

Language used: **Python 3**

```
#
# Complete the 'countLargestDigit' function below.
#
# The function is expected to return an INTEGER.
# The function accepts following parameters:
#  1. INTEGER num
#  2. INTEGER base
#  3. INTEGER start
#
def todecimal(num, base):
    ans = 0
    num = str(num)[::-1]
    for i in range(len(str(num))):
        ans += int(num[i]) * (base**i)
    return ans


def tobase(num, base):
    ans = ""
    while num >= base:
        ans += str(num%base)
        num = num // base
    ans += str(num)
    return int(ans[::-1])


def countLargestDigit(num, base, start):
    start = todecimal(start, base)
    ans = 0
    for i in range(num):
        ans += str(tobase(start+i, base)).count(str(base-1))
    return ans


```

TESTCASE	DIFFICULTY	TYPE	STATUS	SCORE	TIME TAKEN	MEMORY USED
Testcase 0	Easy	Sample case	Success	0	0.1299 sec	9.46 KB
Testcase 1	Easy	Sample case	Success	0	0.0657 sec	9.42 KB
Testcase 2	Medium	Sample case	Success	0	0.0634 sec	9.35 KB
Testcase 3	Medium	Sample case	Success	0	0.0525 sec	9.2 KB
Testcase 4	Hard	Sample case	Success	0	0.104 sec	9.26 KB
Testcase 5	Easy	Hidden case	Success	1	0.0494 sec	9.19 KB
Testcase 6	Medium	Hidden case	Success	1	0.0605 sec	9.2 KB
Testcase 7	Medium	Hidden case	Success	1	0.1011 sec	9.34 KB

Testcase 8	Hard	Hidden case	Success	1	0.0559 sec	9.25 KB
Testcase 9	Hard	Hidden case	Success	1	0.0777 sec	9.39 KB

No Comments

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