Java Software Development Final Exam (June 29, 2018)

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Problem 1 (40%)

Input a number p from keyboard, and then input another number q. Next, input p numbers $n_1, n_2, \ldots, n_p$. You should calculate $n_1^q + n_2^q + \cdots + n_p^q$ and print the sum of them.

	Test case 1	Test case 2	Test case 3
Keyboard Input 1 (p)	3	2	5
Keyboard Input 2 (q)	2	5	3
Keyboard Input 3 ~ p+2 $(n_1, n_2, \ldots, n_p)$	1 2 3	2 3	2 4 6 8 10
Print Output	14	275	1800

Problem 2 (40%)

Given two numbers n_1 and n_2, where the lengths of their digits are equal.
You should calculate
(A) how many digits in n_2 match n_1 exactly in both digit and position (called p), and
(B) how many digits in n_2 match n_1 but locate in the wrong position (called q).
Print your answer in the format pAqB.

	Test case 1	Test case 2
args[0] (n_1)	12345	1123
args[1] (n_2)	54321	0111
Print Output	1A4B	1A1B

Problem 3 (20%)

Find the permutations of a string. You should fix the first character and permute the other characters, and then fix the second character and so forth. Each permutation is separated by a newline character ('\n'). You can assume that there is no duplicate character in the string. The input is given from the first program argument (args[0]).

	Test case 1	Test case 2
args[0]	ABC	9527
Print Output	ABC ACB BAC BCA CAB CBA	9527 9572 9257 9275 9752 9725 5927 5972 5297 5279 5792 5729 2957 2975 2597 2579 2795 2759 7952 7925 7592 7529 7295 7259