BlackBox (TechWeek 2021)

Problems

The document contains the problems that you are supposed to solve. We do not expect you to solve all the problems, so don't worry if you are able to solve only a few problems. Just try your best to solve as many as you can.

Also, a reminder that you are supposed to write the code for every problem in a different file, which should be named `<problem number>.txt` (eg: The code for Problem 4 should be in a file named `4.txt`).

The examples are given only for your understanding of the problem, and to help you check if your code is correct or not. Do not put these examples anywhere in your submission files.

All the best!

Problem 1

Given a 3 digit number, print the product of its digits.

Example 1	
Input	123
Output	6

Example 2	
Input	897
Output	504

Example 3	
Input	999
Output	729

Example 4	
Input	034
Output	0

Example 5	
Input	111
Output	1

Problem 2

Given a non-negative integer, print its factorial.

Example 1	
Input	1
Output	1

Example 2	
Input	5
Output	120

Example 3	
Input	3
Output	6

Example 4	
Input	9
Output	362880

Example 5	
Input	0
Output	1

Problem 3

Given a non-negative integer, print its smallest digit.

Example 1	
Input	23185643
Output	1

Example 2	
Input	8
Output	8

Example 3	
Input	345678
Output	3

Example 4	
Input	8765432
Output	2

Example 5	
Input	7654567
Output	4

Example 6	
Input	1010101
Output	0

Problem 4

Given a string of length 3, reverse it and print it.

Example 1	
Input	asd
Output	dsa

Example 2	
Input	abr
Output	rba

Example 3	
Input	rvv
Output	vvr

Example 4	
Input	aAa
Output	aAa

Example 5	
Input	Lol
Output	loL

Problem 5

Given a non-negative integer, print “Even” if it is even and “Odd” if it is odd. (The output is case-sensitive)

Example 1	
Input	1
Output	Odd

Example 2	
Input	108
Output	Even

Example 3	
Input	0
Output	Even

Example 4	
Input	69
Output	Odd

Example 5	
Input	43423233
Output	Odd

Problem 6

Given a string of length 2 (containing distinct lowercase alphabets), print “Yes” if the letters in the string are in alphabetical order, and “No” otherwise. (The output is case-sensitive)

Example 1	
Input	ag
Output	Yes

Example 2	
Input	zs
Output	No

Example 3	
Input	vw
Output	Yes

Example 4	
Input	va
Output	No

Example 5	
Input	ps
Output	Yes

Problem 7

Given a string, convert it into lowercase and print it.

Example 1	
Input	AMOwk
Output	amowk

Example 2	
Input	LoL Sed Lyf
Output	lol sed lyf

Example 3	
Input	HI
Output	hi

Example 4	
Input	F@C3 mEeEe
Output	f@c3 meeee

Example 5	
Input	12383283
Output	12383283

Problem 8

Given a non-negative integer representing a year, print “Yes” if it is a leap year, and “No” otherwise. (The output is case-sensitive)
We say a year is a leap year if any one of the following two conditions is met:

- It is divisible by 4 but not by 100.
- It is divisible by 400.

Example 1	
Input	1976
Output	Yes

Example 2	
Input	2003
Output	No

Example 3	
Input	1900
Output	No

Example 4	
Input	2000
Output	Yes

Example 5	
Input	200
Output	No

Problem 9

Given a non-negative integer, sort its digits in ascending order and print them.

Example 1	
Input	83241
Output	12348

Example 2	
Input	00098250
Output	00002589

Example 3	
Input	9876543
Output	3456789

Example 4	
Input	12345
Output	12345

Example 5	
Input	01010101
Output	00001111

Example 6	
Input	5
Output	5