Q10. Password Complexity (15 marks):

Password complexity is often calculated by considering the various elements that make up a password and assessing their strength. Here's a basic way to estimate password complexity:

1. Password Length, L.
2. Character Variety: V, the value of which is calculated with the following principles:
    - If the password contains at least an uppercase, then $V_U = 26$ is added to V.
    - If the password contains at least a lowercase, then $V_L = 26$ is added to V.
    - If the password contains at least a number, then $V_N = 10$ is added to V.
    - If the password contains at least a special symbol, then $V_{SC} = 32$ is added to V.
3. Password Complexity is then defined as $C = V^L$

For example, If the password is "h@LL8",

Password	h	@	L	L	8
Character Variety	$V_L = 26$ Lowercase	$V_{SC} = 32$ Special Characters	$V_U = 26$ Uppercase		$V_N = 10$ Numbers
Total Character Variety, V	$V = (26 + 32 + 26 + 10) = 94$				

Since $L = 5$ (password length).

Password Complexity, $C = V^L = 94^5 = 7339040224$

Write a programme to

Input

A string of password to be checked. The input is limited to maximum 10 characters.

Output

The password complexity.

试题 10. 密码的复杂度（15 分）：

密码的复杂度通常是通过考虑构成该密码的各种要素来评估其强度的。以下是一种估计密码复杂度的基本方法：

1. 密码长度, L.
2. 字符多样性, V，其值依以下原则计算
    - 如果密码中至少包含一个大写字母，则将 $V_U = 26$ 添加到 V。
    - 如果密码中至少包含一个小写字母，则将 $V_L = 26$ 添加到 V。
    - 如果密码中至少包含一个数字，则将 $V_N = 10$ 添加到 V。
    - 如果密码中至少包含一个特殊符号，则将 $V_{SC} = 32$ 添加到 V。
3. 依照以上计算结果，密码复杂度可定义为, $C = V^L$.

例如，如果密码是“h@LL8”,

密码	h	@	L	L	8
个别字符多样性	$V_L = 26$ 小写字母	$V_{SC} = 32$ 特殊符号	$V_U = 26$ 大写字母		$V_N = 10$ 数字
总字符多样性, V	$V = (26 + 32 + 26 + 10) = 94$				

已知 $L = 5$ (密码长度).

密码复杂度, $C = V^L = 94^5 = 7339040224$。

试写一程式以

输入

一个要检查的密码字符串。输入的长度限制为最多 10 个字符。

输出

密码的复杂度。

Example (例子)

Input (输入)	Output (输出)
Hall@	4182119424
P@s$w9rd	6095689385410816
HAPPY	11881376
Aa!1	78074896