

### **Q5. Alphabet with Prime Index (10 marks):**

Consider each alphabet is assigned a positive integer as index as shown in the table below:

a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26

Please note that some of the above indexes are prime numbers, and these indexes are referred to as the “prime indexes”.

Given a sentence, you are required to sum the indexes of all alphabets shown in the sentence with **prime indexes**.

### **Write a programme to**

**Input** sentence  $\mathcal{S}$ , with a constraint that the length of  $\mathcal{S}$  (including digits, symbols and spaces) must be smaller than or equal to 100. Please note that digits and symbols can be omitted later when calculating the sum.

**Output** the sum of the indexes of alphabets with prime index in  $\mathcal{S}$ . If the length of  $\mathcal{S}$  is greater than 100, then output “Invalid Length”.

### **试题 5. 质数索引的字母 (10 分):**

如下表所示，每个英文字母可对应至一个正整数索引：

a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26

值得注意的是，有的索引的值是质数（prime numbers），这类索引可以被统称为“质数索引”。

给定一个句子，请把句子中出现、对应到质数索引的字母的索引值相加。

### **试写一程式以**

**输入** 句子 $\mathcal{S}$ ，限制 $\mathcal{S}$ 的长度（包括数字、符号和空格）必须小于或等于 100。请注意，在之后的计算中，数字和符号可以省略。

**输出**  $\mathcal{S}$  中带质数索引字母的索引之和。如果  $\mathcal{S}$  的长度大于 100，则输出 “Invalid Length”。

**Example (例子)**

<b>Input (输入)</b>	<b>Output (输出)</b>
Hello World	28
Thanks for participating in NSS COMPETITION 2022!	99
“NTU is the most prestigious comprehensive university in Taiwan and one of the top-ranked universities in Asia.”	Invalid Length

All Test Cases (所有测试用的例子):

Input (输入)	Output (输出)
Hello World	28
Thanks for participating in NSS COMPETITION 2022!	99
“NTU is the most prestigious comprehensive university in Taiwan and one of the top-ranked universities in Asia.”	Invalid Length
National Zoo	0
@ABCDefgHIjklMNopQRstUVWXYZ@	100