Problem F
Footnotes

Your colleague Cynthia likes writing asides in messages (but then again, don't we all (and there's nothing strictly wrong with that anyway)). As some people find the text hard to read this way, we are going to try to extract some parts of the sentences out into equally-sized footnotes instead of brackets.

For example, `this(complicated(nested(passage)))` could become:

```
this[1]
[1] complicated[2]
[2] nested(passage)
```

Given one such message, an unbroken string of up to 10^6 characters (letters and brackets, without any spaces), isolate exactly two-thirds of the Latin letters into footnotes, each footnote containing exactly the same number of Latin letters.

Input

- One line containing a string s ($1 \leq |s| \leq 10^6$), each character in s being a lowercase letter or an opening/closing round bracket.

It is guaranteed that the brackets in s are properly matched and that the content of a pair of brackets is always non-empty.

Output

Output three lines in the form shown above, using exactly two footnotes in square brackets to indicate where passages were relocated. If there is no way of doing this, output `impossible` instead.

Your answer will be tested by substituting the footnotes back (inside brackets) and comparing character-by-character with the original text.

Sample Input 1	Sample Output 1

`(a(b(c(d(e(f(g(h(i)))))))))`	`(a(b(c[1])))`
	`[1] d(e(f[2]))`
	`[2] g(h(i))`

Sample Input 2	Sample Output 2
`a(b)(b)(b)((cc))`	`impossible`

Sample Input 3	Sample Output 3

`a((b)(b))(b)((cc))`	`a[1](b)[2]`
	`[1] (b)(b)`
	`[2] (cc)`

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