Problem 09:

Given a string s containing just the characters '(', ')', '{', '}', '[' and ']', determine if the input string is valid.

An input string is valid if:

1. Open brackets must be closed by the same type of brackets.
2. Open brackets must be closed in the correct order.

**Example 1:**

**Input:** s = "()"

**Output:** true

**Example 2:**

**Input:** s = "()[]{}"

**Output:** true

**Example 3:**

**Input:** s = "(]"

**Output:** false

**Constraints:**

* 1 <= s.length <= 104
* s consists of parentheses only '()[]{}'.

Code:

class Solution {

private HashMap<Character, Character> mappings;

public Solution() {

this.mappings = new HashMap<Character, Character>();

this.mappings.put(')', '(');

this.mappings.put('}', '{');

this.mappings.put(']', '[');

}

public boolean isValid(String s) {

Stack<Character> stack = new Stack<Character>();

for (int i = 0; i < s.length(); i++) {

char c = s.charAt(i);

if (this.mappings.containsKey(c)) {

char topElement = stack.empty() ? '#' : stack.pop();

if (topElement != this.mappings.get(c)) {

return false;

}

} else {

stack.push(c);

}

}

return stack.isEmpty();

}

}