**IDE Bracket Validator**

In many popular IDEs, many times whenever you open a pair of brackets, it tends to make the closing bracket for you automatically. If there is an unbalanced sequence of brackets, it throws an error, and you are unable to compile. Do you think you can write a program that when given a string of opening and closing brackets, it can determine whether it is valid?

**Input:** The first line of input contains **T**, the number of test cases. The next **T** lines each contain a string which contains only the following characters : {, [, (, ), ], }.

**Output:** You will first output “CASE #(case number): “ followed by if the following string is valid or not.

**Example Input:**

4

{[()]}

{[(])}

{{[[(())]]}}

{}{}{}()[]

**Example Output:**

CASE #1: Valid

CASE #2: Invalid

CASE #3: Valid

CASE #4: Valid

**Explanation:** In case 1, 3, and 4, you can see that the brackets are properly formatted. In case 2, the ‘)’ and the ‘]’ are swapped, which makes it invalid.