

(2) Decode n[s] string: Given $3[ab\ 2[cd]ef]$, return abababcdcdcd. Assume brackets are well balanced and strings within brackets don't have digits.

```
public String decode(String input) {
    if (input == null || input.length() == 0) return null;
    Stack<Character> chars = new Stack<>();
    Stack<Integer> countStack = new Stack<>();
    char[] inputChars = input.toCharArray();

    int i = 0;
    while (i < inputChars.length) {
        if (isDigit(inputChars[i])) {
            countStack.push(Integer.parseInt(inputChars[i]));
        } else if (inputChars[i] == ']') {
            String data = "";
            while (!chars.peek().equals("["))
                data = chars.pop() + data;
            Integer count = countStack.pop();
            strings.push(multiply(data, count));
        } else {
            strings.push(inputChars[i]);
        }
        i++;
    }
}
```