using System;

using System.Text;

public class OldPhonePad

{

private static readonly string[] KeyMappings = {

"", // 0

"", // 1

"ABC", // 2

"DEF", // 3

"GHI", // 4

"JKL", // 5

"MNO", // 6

"PQRS", // 7

"TUV", // 8

"WXYZ" // 9

};

public static string ConvertToText(string input)

{

if (string.IsNullOrEmpty(input) || !input.EndsWith("#"))

{

throw new ArgumentException("Invalid input. The input must end with '#'.");

}

StringBuilder output = new StringBuilder();

int i = 0;

while (i < input.Length - 1) // Skip the last '#' character

{

char currentChar = input[i];

if (currentChar == ' ')

{

i++;

continue;

}

if (currentChar == '\*') // Handle backspace

{

if (output.Length > 0)

{

output.Length--;

}

i++;

continue;

}

if (currentChar < '0' || currentChar > '9')

{

throw new ArgumentException("Invalid character in input. Only digits, spaces, and '\*' are allowed.");

}

int key = currentChar - '0';

int count = 1;

while (i + 1 < input.Length - 1 && input[i + 1] == currentChar)

{

count++;

i++;

}

if (key > 1 && key <= 9)

{

string letters = KeyMappings[key];

int index = (count - 1) % letters.Length;

output.Append(letters[index]);

}

i++;

}

return output.ToString();

}

public static void Main(string[] args)

{

string input = "222 2 22#"; // Example input

string output = ConvertToText(input);

Console.WriteLine(output); // Output: "CAB"

}

}