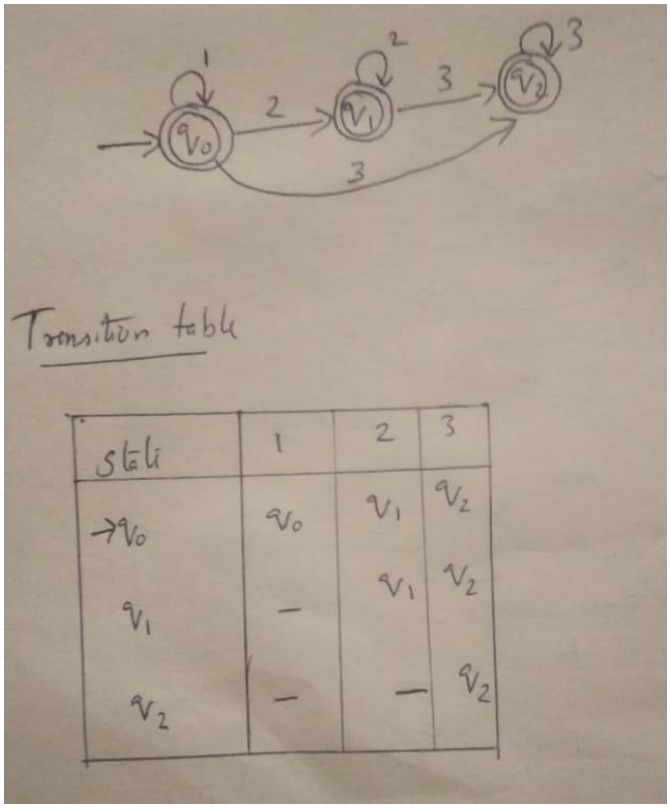
Write a C program to implement a DFA for the regular expression 1*2*3* using transition table.

Algorithm:

Input: A string with characters 1,2 and 3.
Output: Whether the given string is valid or not.
Data structures: Array

Step 1: Initialize a character array and input the string.
Step 2: Declare two integer variables, state and i.
Step 3: Initialize a transition array, transition[3][3]={0,1,2,-1,1,2,-1,-1,2}
Step 4: while input[i]!='\0', do
    4.1: if input are neither of a and b then set state=-1,break.
    4.2: state=transition[state][(input[i]-'1')].
    4.3: increment i.
Step 4: if state is equal to final state print valid string else print invalid string.



Output:

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PS D:\Coding\c\Albert Augustine> cd "d:\Coding\c\Albert Augustine\" ; if ($?) { gcc 03.c -o 03 } ; if ($?) { .\03 }
Enter the string :
1123
VALID STRING
PS D:\Coding\c\Albert Augustine> cd "d:\Coding\c\Albert Augustine\" ; if ($?) { gcc 03.c -o 03 } ; if ($?) { .\03 }
Enter the string :
1243
INVALID STRING!
```