**RECURSION-KEYPAD CODES**

Take as input str, a string. str represents keys pressed on a nokia phone keypad. We are concerned with all possible words that can be written with the pressed keys.

Assume the following alphabets on the keys: 1 -> abc , 2 -> def , 3 -> ghi , 4 -> jkl , 5 -> mno , 6 -> pqrs , 7 -> tuv , 8 -> wx , 9 -> yz

E.g. “12” can produce following words “ad”, “ae”, “af”, “bd”, “be”, “bf”, “cd”, “ce”, “cf”

a. Write a recursive function which returns the count of words for a given keypad string. Print the value returned.

b.Write a recursive function which prints all possible words for a given keypad string (void is the return type for function).

**Input Format:**

Enter a number

**Constraints:**

None

**Output Format**

Display the total no. of words and display all the words in a space separated manner

**Sample Input**

12

**Sample Output**

ad ae af bd be bf cd ce cf

9

Program-

#include <iostream>

#include<string>

using namespace std;

int count=0;

char keypad[][10]={"","abc","def","ghi","jkl","mno","pqrs","tuv","wxyz"};

void printKeypadstring(char \*inp,char \*out,int i,int j)

{

if(inp[i]=='\0')

{

count++;

out[j]='\0';

cout<<out<<" ";

return;

}

int digit=inp[i]-'0';

for(int k=0;keypad[digit][k];k++)

{

out[j]=keypad[digit][k];

printKeypadstring(inp,out,i+1,j+1);

}

}

int main()

{

char inp[100000],out[100000];

cin>>inp;

printKeypadstring(inp,out,0,0);

cout<<endl<<count;

}