AIM: Find the FIRST() For the given Grammar.

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.IO;

namespace first1

{

class Program

{

static void Main(string[] args)

{

FileStream f = new FileStream("C:/Documents and Settings/student/My Documents/Visual Studio 2008/Projects/first1/first1/input.txt", FileMode.Open);

StreamReader r = new StreamReader(f);

int l = 0;

while (r.ReadLine() != null)

{

l++;

}

r.Dispose();

string[] input = new string[l];

string[] lh = new string[l];

string[] rh = new string[l];

string first, check;

int i = 0;

f = new FileStream("C:/Documents and Settings/student/My Documents/Visual Studio 2008/Projects/first1/first1/input.txt", FileMode.Open);

r = new StreamReader(f);

//r = new StreamReader(f);

for (i = 0; i < l; i++)

{

input[i] = r.ReadLine();

lh[i] = input[i].Substring(0, 1);

rh[i] = input[i].Substring(2, input[i].Length - 2);

Console.WriteLine(lh[i] + " : " + rh[i]);

}

for (i = 0; i < l; i++)

{

if (rh[i].Length == 1 && (rh[i].Substring(0, 1).ToLower() == rh[i].Substring(0, 1)))

{

first = rh[i];

Console.WriteLine("First(" + lh[i] + ")=" + first);

}

else

{

first = FIRST(rh[i], rh, lh);

Console.WriteLine("First(" + lh[i] + ")=" + first);

}

}

Console.Read();

}

public static string FIRST(string curr, string[] rh, string[] lh)

{

int i;

string ans = "", temp, check, chkrs;

if (curr.Substring(0, 1).ToLower() == curr.Substring(0, 1))

{

if (ans == "")

{

ans = ans + curr.Substring(0, 1);

}

else

ans = ans + "," + curr.Substring(0, 1);

}

else

{

temp = curr.Substring(0, 1);

for (i = 0; i < rh.Length; i++)

{

if (lh[i] == temp)

{

if (rh[i] == "^")

{

check = lh[i];

chkrs = FIRST1(check, lh, rh);

if (chkrs.ToLower() == chkrs)

{

ans = ans + "," + chkrs;

}

else

{

ans = ans + FIRST(chkrs, rh, lh); }

}

else if (lh[i] != rh[i].Substring(0, 1))

{

if (ans == "")

ans = ans + FIRST(rh[i], rh, lh);

else ans = ans + "," + FIRST(rh[i], rh, lh);

}

}

}

}

return ans;

}

public static string FIRST1(string check, string[] lh, string[] rh)

{

int i, j, pos;

string a = "";

for (i = 0; i < lh.Length; i++)

{

if (rh[i].Contains(check) && rh[i].Length != 1)

{

pos = rh[i].IndexOf(check);

if (pos == rh[i].Length - 1)

{ return "^"; }

a = rh[i].Substring(pos + 1, 1);

}

}

return a;

}

}

}

Out Put:-

