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1  //##### Exp.6: Recursive Decent Parser #####
2  //##### Input: string of input symbols #####
3  //##### Output: parsing result (Success, Failure) #####
4  using System;
5  namespace RecursiveDecentParser
6  {
7      class Program
8      {
9          // E --> TE'
10         // E' --> +TE'|eps
11         // T --> FT'
12         // T' --> *FT'|eps
13         // F --> i | (E)
14         static int index;
15         static string input;
16         static bool E()
17         {
18             if (T())
19                 if (EP()) return true;
20             return false;
21         }
22         static bool EP()
23         {
24             if (input[index] == '+')
25             {
26                 index++;
27                 if (T())
28                     if (EP())
29                         return true; }
30             else if (input[index] == ')') || input[index] == '$') return true;
31             return false;
32         }
33         static bool T()
34         {
35             if (F())
36                 if (TP())
37                     return true;
38             return false;
39         }
40         static bool TP()
41         {
42             if (input[index] == '*')
43             {
44                 index++;
45                 if (F())
46                     if (TP())
47                         return true; }
48             else if (input[index] == ')') || input[index] == '$' || input[index] == '+')
49                 return true;
50             return false;
51         }

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52
53     static bool F()
54     {
55         if (input[index] == 'i')
56         {
57             index++;
58             return true;
59         }
60         else
61             if (input[index] == '(')
62             {
63                 index++;
64                 if (E())
65                     if (input[index] == ')')
66                     {
67                         index++;
68                         return true;
69                     }
70             }
71         return false;
72     }
73
74     static void Main(string[] args)
75     {
76         while (true)
77         {
78             input = Console.ReadLine() + '$';
79             index = 0;
80             if (E())
81                 Console.WriteLine("Parsing Succeeded");
82             else
83                 Console.WriteLine("Parsing Failed");
84         }
85     }
86 }
87 }
```