

```
1 namespace ExercismII
2 {
3     public enum ProteinType
4     {
5         Methionine,
6         Phenylalanine,
7         Leucine,
8         Serine,
9         Tyrosine,
10        Cysteine,
11        Tryptophan,
12        Stop,
13        Default
14    }
15
16    public static class ProteinTranslation
17    {
18        // Funcion que devuelve el tipo de las proteinas que componen una cadena de nucleotidos.
19        public static string[] Proteins(string strand)
20        {
21            string[] arrayResult = new string[0];
22            bool stopCodons = false;
23
24            if(strand == null || strand.Length == 0)
25                return arrayResult;
26
27            string actualStrand = strand;
28            string strandProtein = "";
29            string leftStrand = "";
30
31            while (!stopCodons)
32            {
33                strandProtein = BrokeStrand(actualStrand);
34
35                ProteinType proteinResult = TranslateToProtein(strandProtein);
36
37                if (proteinResult == ProteinType.Stop)
38                    stopCodons = true;
39                else
40                    arrayResult = AddElementToArray(arrayResult, proteinResult);
41
42                leftStrand = RemoveBrokeStrand(actualStrand);
43
44                if (leftStrand.Length < 3)
45                    stopCodons = true;
46
47                actualStrand = leftStrand;
48            }
49
50            return arrayResult;
```

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51     }
52
53     // Funcion que devuelve una cadena de 3 nucleotidos.
54     public static string BrokeStrand(string strand)
55     {
56         string result = "";
57         for (int i = 0; i < 3; i++)
58         {
59             result += strand[i];
60         }
61         return result;
62     }
63
64     // Funcion que transforma la cadena de nucleotidos en un tipo  ➤
65     // de proteina.
66     public static ProteinType TranslateToProtein(string  ➤
67     brokeStrand)
68     {
69         if (brokeStrand == "AUG")
70             return ProteinType.Methionine;
71
72         if (brokeStrand == "UUU" || brokeStrand == "UUC")
73             return ProteinType.Phenylalanine;
74
75         if (brokeStrand == "UUA" || brokeStrand == "UUG")
76             return ProteinType.Leucine;
77
78         if (brokeStrand == "UCU" || brokeStrand == "UCC" ||
79             brokeStrand == "UCA" || brokeStrand == "UCG")
80             return ProteinType.Serine;
81
82         if (brokeStrand == "UAU" || brokeStrand == "UAC")
83             return ProteinType.Tyrosine;
84
85         if (brokeStrand == "UGU" || brokeStrand == "UGC")
86             return ProteinType.Cysteine;
87
88         if (brokeStrand == "UGG")
89             return ProteinType.Tryptophan;
90
91         if (brokeStrand == "UAA" || brokeStrand == "UAG" ||
92             brokeStrand == "UGA")
93             return ProteinType.Stop;
94
95         return ProteinType.Default;
96     }
97
98     // Funcion que añade una proteina al array resultante.
99     public static string[] AddElementToArray(string[] array,  ➤
100     ProteinType proteinResult)
```

```
101         for (int i = 0; i < count; i++)
102         {
103             arrayResult[i] = array[i];
104         }
105         arrayResult[count] = "" + proteinResult;
106
107         return arrayResult;
108     }
109
110     // Funcion que devuelve una nueva cadena sin las proteinas calculadas.
111     public static string RemoveBrokeStrand(string brokeStrand)
112     {
113         string result = "";
114         for (int i = 3; i < brokeStrand.Length; i++)
115         {
116             result += brokeStrand[i];
117         }
118         return result;
119     }
120 }
121 }
```