

Palindromes assignment

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Palindrome checker functions

Firstly, I will write a number of pure functions assuming that their input has been 'cleaned'.

Checking from either

The first approach to this is to simply check if each character 'lines up' with its complementary character at the other end of the string.

```
1 program Palindromes;
2
3 function _is_palindrome(s: string; lower, upper: integer): boolean;
4 begin
5     if lower >= upper then
6         _is_palindrome := True
7     else if s[lower] = s[upper] then
8         _is_palindrome := _is_palindrome(s, lower + 1, upper - 1)
9     else
10        _is_palindrome := False;
11 end;
12
13 function is_palindrome(s: string): boolean;
14 begin
15     is_palindrome := _is_palindrome(s, 1, length(s));
16 end;
17
18 function _clean(s: string; i: integer): string;
19 begin
20     if i > length(s) then
21         _clean := '';
22     else if s[i] in ['A'..'Z', 'a'..'z'] then
23         _clean := s[i] + _clean(s, i + 1)
24     else
25         _clean := _clean(s, i + 1);
26 end;
27
28 function clean(s: string): string;
29 begin
30     clean := _clean(s, 1);
31 end;
32
33 function nrclean(s: string): string;
34 var
35     i: char;
36 begin
37     nrclean := '';
38     for i in s do
39         if i in ['A'..'Z', 'a'..'z'] then
40             nrclean := nrclean + LowerCase(i);
41 end;
42
43 function nr_ispal(s: string): boolean;
44 var
45     lower, upper: integer;
46 begin
```

```

47     lower := 1;
48     upper := length(s);
49     while upper > lower do
50         if s[lower] <> s[upper] then
51             exit(False)
52         else begin
53             lower := lower + 1;
54             upper := upper - 1;
55         end;
56     nr_ispal := True
57 end;
58
59 procedure menu;
60 var
61     s: string;
62 begin
63     write('Enter the word > '); readln(s);
64     writeln('Palindrome?: ', is_palindrome(clean(s)),
65           ' ', nr_ispal(nrclean(s)));
66 end;
67
68 begin
69     while true do menu;
70 end.
71

```

Listing 1: Full source