

# Dynamic Programming — Palindromes

## Competitive Algorithmic Programming

“If you want to go fast, go alone; if you want to go far, go together.” – possibly an African proverb.

### Part 1

#### Code

```
1 int numPalindromes(string s) {
2     int i,j,gap,count;
3     vvb dp(s.length(),vb(s.length()),false);
4
5     count = 0;
6     for(i=0; i<s.length(); ++i)
7         dp[i] = true; // one character palindroms
8
9     // base case: two character palindromes
10    for(i=1; i<s.length(); ++i)
11        if (s[i-1] == s[i]) {
12            dp[i-1][i] = true;
13            ++count;
14        }
15
16    for(gap=2; gap<s.length()-1; ++gap)
17        for(j=gap, i=0; j<s.length(); ++i, ++j)
18            if (s[i] == s[j])
19                if (dp[i+1][j-1]) {
20                    ++count;
21                    dp[i][j] = true;
22                }
23    return count;
24 }
```

**Example**

- Consider the word **ababbab**. Find the palindromes!

	a	b	a	b	b	a	b
a							
b							
a							
b							
b							
a							
b							