

# Tested C Language Samples

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These were initially created as fast coding exercises, and then run through a series of test cases to ensure correctness. Edited for aesthetics and clarity.

## Sample A

A string of brackets is correctly matched if you can pair every opening bracket up with a later closing bracket, and vice versa. For example, `((()))` is correctly matched, and `()` and `)(` are not.

Implement a function which takes a string of brackets and returns the minimum number of brackets you'd have to add to the string to make it correctly matched.

For example, `()` could be correctly matched by adding a single closing bracket at the end, so you'd return 1. `)(` can be correctly matched by adding an opening bracket at the start and a closing bracket at the end, so you'd return 2. If your string is already correctly matched, you can just return 0.

```
int bracket_match(char *bracket_string) {
    int left=0;
    int right=0;
    int index=0;
    while (bracket_string[index] != '\0') {
        if (bracket_string[index] == '(')
            left++;
        else if (bracket_string[index] == ')') {
            left == 0 ? right++ : left--;
        }
        index++;
    }
    return left + right;
} //bracket_match
```

## Sample B

Write a function to return the palindrome score of a word. That is a count of how many letters prevent the word from being a palindrome. For example, the word "fox" when compared to "xof" would score 2, one each for the x and the f.

```
int pscore(char *str)
{
    int iend=0;
    int istart=0;
    int score=0;

    while (str[iend] != '\0') {
        iend++;
    }
    iend--;
```

```
while ( iend > istart ) {
    if ( str[iend] != str[istart] )
        score +=2;
    iend--;
    istart++;
}

return score;
} //pscore
```

## Sample C

Write a function to count the number of four letter words in a string, ignoring non-alpha characters.

```
int wcount (char* str)
{
    int i=0;
    int words4=0;
    int lettercnt=0;

    while ( str[i] != '\0' ) {
        if ( str[i] != ' ' )
            lettercnt++;
        else {
            if ( lettercnt == 4 )
                words4++;
            lettercnt=0;
        }
        i++;
    }

    return words4;
} //wcount
```