

Armstrong State University
Engineering Studies
MATLAB Marina – Characters and Strings Exercises

1. Answer the following questions for MATLAB strings:
 - a) How can strings be created?
 - b) How can the ASCII equivalent of a character be determined?
 - c) How can the character corresponding to an ASCII value be determined?
 - d) How are individual characters or portions of a string extracted from a string?
 - e) How can strings be compared?
 - f) How does MATLAB determine what data type values read from the user using the `input` function should be?
 - g) What are some of the useful MATLAB functions for formatting program output?
2. Write a MATLAB program that will read in a string and determine if the first character in the string is a capital letter. Test your program for the following strings: 'Bob Smith', 'lizard', 'Ed', and 'hi Biff'.
3. Modify the program written for Problem 2 so that it will determine if any of the characters in the string are capital letters. Test your program for the following strings: 'Bob Smith', 'lizard', 'Ed', and 'hi Biff'.
4. Write a MATLAB function named `countChars` that will count the number of characters in a string excluding spaces. The function should take a string and return the number of characters in the string. The function should return 0 if an empty string is passed to the function.
5. Write a test program for the `countChars` function written for Problem 4 that tests the `countChars` function for the following strings: empty string, 'lizard', 'two lizards', and 'Two lizards and three toads.'. Verify the correct operation of the `countChars` function.
6. Write a MATLAB function named `occurOfChar` that will count the number of occurrences of a character in a string. The function should take a string and a character and return the number of occurrences of that character in the string.
7. Write a test program for the `occurOfChar` function written for Problem 6 that tests the `occurOfChar` function for the following cases: empty string and character a, 'Two lizards and three toads.' and character t, 'Two lizards and three toads.' and character . (period), and 'Two lizards and three toads.' and character z. Verify the correct operation of the `occurOfChar` function.
8. Write a MATLAB function named `countWords` that will count the number of words in a string. The function should take a string and return the number of words in the string. The function should return 0 if an empty string is passed to the function. For purposes of this function, assume that words are sequences of characters that start with a letter and words in the string are separated by one or more spaces. For example: 'Twolizards' and 'lizards2' are considered words but '2lizards' is not a word. Test your function for the following strings: 'Two lizards and 3 toads' and '20 lizards and 32 toads', and 'lizards2 and 32toads'.
9. Write a MATLAB function named `improvedCountWords` that will count the number of words in a string. The function should take a string and return the number of words in the

string. The function should return 0 if an empty string is passed to the function. For purposes of this function, assume that words are sequences of characters containing only letters and words in the string are separated by one or more spaces. Test your function for the following strings: 'Two lizards and 3 toads', 'lizards2 and 32toads', and 'two-lizards four toads and 5snakes'. By the definition here, two-lizards is not a word since it contains a character that is not a letter.

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