Java Tutorials: Language Fundamentals

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1 Methods, Arrays and Strings

1.1 Finding the Maximum Element in an Array

Write a program that finds the largest number in an array using a method.
  Instructions:

1. Introduce an array of integers.

2. Create a method `findMax(int[] array)` that accepts an integer array as a parameter.

3. Iterate through the array inside the method to find and return the maximum value.

4. Call the method from main and display the result.

1.2 Reversing an Array

Write a program to reverse the elements of an array using a method.
  Instructions:

1. Declare and initialize an integer array of any size.

2. Create a method `reverseArray(int[] array)` that reverses the array in place.

3. Call the method from main() and print the reversed array.

1.3 Word Frequency Counter

Write a program that counts the frequency of a specific word in a given sentence using a method.
  Instructions:

1. Create a method `countWord(String sentence, String word)` that takes a sentence and a word as input.

2. Use string manipulation to find and count occurrences of the word in the sentence.

3. Call the method from the main method and display the result.

1.4 Split Sentence into Words and Find Longest Word

Write a program that splits a sentence into an array of words, finds the longest word, and calculates the average word length.
  Instructions:

1. Create a method `splitIntoWords(String sentence)` that splits the sentence into words.

2. Create a method `findLongestWord(String[] words)` that finds and returns the longest word.

3. Create a method `calculateAverageLength(String[] words)` that calculates and returns the average word length.

4. Combine all methods in the main method for execution.

1.5 Check Anagrams in an Array of Strings

Write a program that checks if a given word is an anagram of any word in an array of strings.
  Instructions:

1. Create a method `isAnagram(String word1, String word2)` that checks if two words are anagrams.

2. Create a method `findAnagrams(String word, String[] wordArray)` that returns all anagrams of the given word from the array.

3. Combine these methods in the main method.