

Programming Assignment Unit 1

Department of Computer Science, UoPeople

CS 1103-01 - AY2025-T2 Programming Assignment Unit 1

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Explanation of the Program:

1. **User Input:** The program asks the user to input a paragraph or text using `Scanner`.
2. **Character Count:** The method `getCharacterCount()` removes spaces using `replaceAll("\\s", "")` and returns the length of the resulting string.
3. **Word Count:** The method `getWordCount()` splits the text using regular expressions to detect spaces (`\\s+`), and counts the resulting words.
4. **Most Common Character:** The method `getMostCommonCharacter()` converts the text to lowercase, counts the occurrences of each character using a `Map`, and finds the character with the maximum frequency.
5. **Character Frequency:** The method `getCharacterFrequency()` searches for the occurrences of a specific character in the text (case-insensitive).
6. **Word Frequency:** The method `getWordFrequency()` checks how many times a word appears in the text by splitting the text into words and comparing each word (case-insensitive).
7. **Unique Words Count:** The method `getUniqueWordsCount()` converts the text to lowercase, splits it into words, and stores them in a `Set` to eliminate duplicates. The size of the set gives the count of unique words.

Test Output

```
<adam178 @ archlinux in ~/0/a/c/week1>
> java TextAnalysisTool
Enter a paragraph or text:
This course builds on the Introduction to Programming 1 course and teaches a more highly developed Java programming language with features beyond the basic concepts covered in the first programming course. A large part of the course will be devoted to more advanced building blocks such as recursion, linked data structures, and Java's Collection Framework. In addition to this, you will learn more about designing and coding complex, robust, and efficient programs. And you will be introduced to a professional programming tool: the Eclipse Integrated Development Environment.
Total number of characters (excluding spaces): 491
Total number of words: 87
Most common character: e
Enter a character to check its frequency: a
Frequency of character 'a': 35
Enter a word to check its frequency: will
Frequency of word 'will': 3
Number of unique words: 62
<adam178 @ archlinux in ~/0/a/c/week1>
```