

APCS

Unit 6 Programming Assignments

1. Text Analysis: Have the user enter a short paragraph. You may assume that they will not overflow the String and that they will use proper punctuation (one space after a period, or a comma). You may also assume they will use no other special characters. Once they enter the data, your program should report the following things:

- The total number of non-whitespace characters in the paragraph.
- The total number of words in the paragraph.
- The average number of words per sentence.
- The average word length.

The program should finish by printing each sentence in the paragraph separately. You may NOT use the split() method for this program.

2. Write a program that modifies the Selection Sort and the Binary Search to work on an ArrayList of integers. Your program should have methods for each of those tasks as well as a main method that tests these methods.

3. Write a program that asks the user to input two polynomials as coefficient and exponent pairs. The user should be able to enter the terms in any order. Once the data has been input, the program should print out the two original polynomials in descending order and print out their sum and product(also in descending order). Here is a sample.

Enter the first polynomial. Enter 0 0 to quit.

3 2
2 1
6 2
8 0
0 0

Enter second polynomial. Enter 0 0 to quit.

7 1
5 0
0 0

Here are your two polynomials.

$$9x^2 + 2x^1 + 8$$

$$7x^1 + 5$$

Here is their sum.

$$9x^2 + 9x^1 + 13$$

Here is their product

$$63x^3 + 59x^2 + 66x + 40$$