

The University of Alabama in Huntsville
Electrical and Computer Engineering
Project 5 (20 points)

Submit Your Solution Using ANGEL by Noon on Friday February 8, 2013
(A late submission drop box will be available on 02/8/13 from Noon to 2pm)

<Project 5 Help>

- Information read in is to be stored in string variables
- The two delimiters for each line are read using the extraction operator
- The line to analyze is read in using the getline function
- The ignore function must be used between the extraction of the end delimiter and the reading of the line to analyze
- Run the sample solution to examine the order of the input information and the output information

Processing the line entered

After reading the delimiters and lines, a substring must be pulled from the line to be analyzed. This requires the use of the substr function in the string class:

subStringPulledOut = someStringVariable.substr(num1,num2);

where num1 and num2 are an integer value (of DataType string::size_type). num1 is the starting character position of the substring and num2 is the number of characters to extract. someStringVariable is the string variable containing the line to analyze and subStringPulledOut is a string variable that will hold the desired substring.

➔ The key to this project is determining values for num1 and num2. ⬅

Values for num1 and num2 are found using the starting character positions of the start and end delimiters. These positions are found using the find function. For example:

```
startPosition = someStringVariable.find(startDelimiter);  
endPosition = someStringVariable.find(endDelimiter);
```

where startPosition is of DataType string::size_type, someStringVariable is the string variable containing the string to analyze, startDelimiter is a string variable containing the starting delimiter and endDelimiter is a string variable containing the end delimiter.

Once the starting character positions for the start and end delimiter have been determined, simple math and reasoning can be used to find values for num1 and num2.

See the next page for an example

Example:

startDelimiter: **start**

endDelimiter: **end**

line to analyze: The**start**of this line**ends** here

We want to pull out the substring: **of this line**

To help with the numbers, I have placed the line to analyze below a ruler:

Character position number: 0123456789012345678901234567890

Line to analyze: The**startof this line****ends here**

Analysis:

- the starting character position for **start** is 3 ← determined in the program
- the starting character position for **end** is 20 ← determined in the program
- The length of startDelimiter is 5 ← determined in the program
- In this example, the starting character position for the substring **of this line** is 8
- In this example, the length of the substring **of this line** is 12
- the desired substring is pulled out using: **someStringVariable.substr(num1,num2);** with num1 = 8 and num2 = 12.
- The values for num1 and num2 can be determined by applying a little logic and using simple math with the three numbers determined in this analysis section.

Your program should use a formula of some sort such that the starting character position and the number of characters pulled out are calculated from the string values entered.

Hint1: From the example above, the desired starting position is 8. How can you calculate this value by using any combination of the three values found above?

Hint 2: From the example above, the substring consists of 12 characters. How can you calculate this value by using any combination of the three values found above?

Hint3: You will need to use the find, substr and length (or size) functions for string variables to obtain the numeric and string values shown in the example analysis. You will want to use variables to hold the numeric values, and use these variables in an equation to determine values for num1 and num2.

Your program shall calculate values for num1 and num2 – in other words, do not use literal values for num1 and num2