

CPP Problem Design Example

Subject: Levenshtein Distance

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Main testing concept: Array and String

Basics

- ☒ C++ BASICS
- ☒ FLOW OF CONTROL
- ☒ FUNCTION BASICS
- ☐ PARAMETERS AND OVERLOADING
- ☒ ARRAYS
- ☐ STRUCTURES AND CLASSES
- ☐ CONSTRUCTORS AND OTHER TOOLS
- ☐ OPERATOR OVERLOADING, FRIENDS, AND REFERENCES
- ☒ STRINGS
- ☒ POINTERS AND DYNAMIC ARRAYS

Functions

- ☐ SEPARATE COMPILATION AND NAMESPACES
- ☐ STREAMS AND FILE I/O
- ☐ RECURSION
- ☐ INHERITANCE
- ☐ POLYMORPHISM AND VIRTUAL FUNCTIONS
- ☐ TEMPLATES
- ☐ LINKED DATA STRUCTURES
- ☐ EXCEPTION HANDLING
- ☐ STANDARD TEMPLATE LIBRARY
- ☐ PATTERNS AND UML

Description:

Levenshtein distance is a measurement method of similar strings which measuring the difference between two sequences. The Levenshtein distance between two words is the minimum number of single-character edits.(insertions, deletions or substitutions)

For example, the Levenshtein distance between "kiitten" and "sitting" is 4. There is no way to do it fewer than four edit.

- (1) kiitten -> siitten (substitution of "s" for "k")
- (2) siitten -> sitten (deletions of "i" at the third place of siitten)
- (3) sitten -> sittin (substitution of "i" for "e")
- (4) sittin -> sitting (insertion of "g" at the end)

Note: Upper letter and lower letter are considered different letter.

Input:

Enter two paragraphs of text and separate by Enter. This program allows multiple case. User can enter until read EOF.

Note: Input must be in the range of ASCII.

Output:

Find the minimum distance between two text and print that number(int).

Sample Input / Output :

Sample Input	Sample Output
Google	8
Facebook	14
Winter is coming	37
Here comes Winter	
I am the bone of my sword. Steel	
is my body and fire is my blood. I	
have created over a thousand	
blades. Unknown to death. Nor	
known to life.	
I am the bone of my code. Steel is	
my structure, and fire is my	

algorithm. I have fixed over a thousand bugs. Unknown to dawn. Nor known to night.	
<input checked="" type="checkbox"/> Easy, Only basic programming syntax and structure are required. <input type="checkbox"/> Medium, Multiple programming grammars and structures are required. <input type="checkbox"/> Hard, Need to use multiple program structures or complex data types.	
Expected solving time: 30 minutes	
Other notes:	