Coding Exercise: Longest Common Substring (LCS) Server

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This doc contains requirements for a coding exercise that involves building an HTTP-based

service that solves the Longest Common Substring problem.

Overview

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You will be building a simple web service that allows a user to request

the longest Common Substring given a list of strings.

Your code should meet the functional requirements described below, should

contain instructions for deployment and running the application, and should be

clear and easy to understand.

Functional Requirements

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== Solve the Longest Common Substring problem via HTTP POST

A user should be able to request the LCS of a Set of Strings by sending a POST request

to the server at http://<host>/lcs. The body of the POST request

must be a JSON object representing a Set of strings in the following format:

{

"values" : [ { "value" : "comcast" },

{ "value" : "communicate" },

{ "value" : "commutation" } ]

}

The server should enforce the following rules upon receiving a request

to solve LCS.

\* If there is no POST body in the request or if the POST body is not in the correct

format the server should respond with an appropriate HTTP status code and a response

body explaining that the format of the request was not acceptable.

\* If "values" is empty or is entirely whitespace (e.g. "", " ") the service should

respond with an appropriate HTTP status code with a response body explaining that

"values" should not be empty.

\* if the "values" supplied is not a Set (i.e. all strings are not unique) the

server should respond with an appropriate HTTP status code and a response

body explaining that "values" must be a Set.

If the request is well-formed the service should invoke the algorithm to find the

longest common substring of the values in the POST body. For example if the POST

body was:

{

"values" : [ { "value" : " "comcast" },

{ "value" : " "comcastic" },

{ "value" : " "broadcaster" } ]

}

the longest common substring would be "cast".

If there is more than one LCS (of the same length) the service should include them all in

the response in alphabetic order.

Once the server has computed the Longest Common Substring it should respond with an

appropriate HTTP status code and a body in the following format:

{

"lcs" : [ { "value" : "cast" } ]

}

or, if we have more than one LCS (e.g. "cast" and "stac"):

{

"lcs" : [ { "value" : "cast" },

{ "value" : "stac" } ]

}

Non-Functional Requirements

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== Test suite

Create a suite that exercises the service by making HTTP requests and validating the

responses.

== Programming language

The implementation should be in Java.