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Computer Science 201 - Assignment 2: Searching Text & String Data

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About this Assignment

In this course, you have learned about text as a data structure, string searching algorithms, trie data structure, and methods for compressing texts. For this assignment, you will develop an application using the Java programming language.

Prompt

The application must address the following requirements:

- The application uses the names of 50 states in the United States as the input text.
- It uses the bad character rule of the Boyer-Moore algorithm to search the pattern a user inputs via an interface.
- When a user runs the application, it displays a menu and prompts the user to select an option.
- The menu options are:

1. Display the text
2. Search
3. Exit program

- When a user selects 1) Display the text, the application displays the content of the text (i.e. the names of 50 states in the United States).

- When a user selects 2) Search, the application prompts the user to input a part of the name of a state as a pattern for search. The application searches for the pattern in the text using the bad character rule of the Boyer-Moore algorithm. Then, the application displays the indices of the matches (i.e. occurrences of the pattern in the text).

- When a user selects 3) Exit program, the application ends.

Related Lessons

If you'd like to review Study.com course material for this assignment, please refer to the following lessons:

- Text as a Data Structure: Java Strings & Character Arrays
- String Searching Algorithms: Methods & Types
- Standard & Compressed Tries in Java
- Greedy vs. Huffman Methods for Compressing Texts

Grading Rubric

Your project will be graded on the following rubric:

Category	Unacceptable (0-2)	Needs Improvement (3-6)	Good (7-8)	Excellent (9-10)	Total

Program Specification (x3)	The program does not or partially meets the requirements and contains multiple major errors.	The program partially meets the requirements or contains at least one major error.	The program meets all the requirements but contains one or two minor errors.	The program meets all the requirements and works without any errors.	30
Code Efficiency (x1)	The code employs inefficient algorithms and includes unnecessary components.	The code employs inefficient algorithms or includes unnecessary components.	The code employs efficient algorithms but includes some unnecessary components.	The code employs efficient algorithms and doesn't include unnecessary components.	10
Code Readability (x.5)	The code is not easily understandable and contains improper naming and formatting.	Most parts of the code are not easily understandable or contain improper naming and formatting.	The code is mostly understandable and uses proper naming and formatting.	The code is easily understandable and well-organized and uses proper naming and formatting.	5
Documentation (x.5)	No or very few documentation exists.	The documentation is ambiguous or doesn't not explain what the code is accomplishing and how.	The documentation explains what the code is accomplishing and how but doesn't cover all the important parts of the code.	The documentation clearly explains what the code is accomplishing and how.	5
Total Points					50

Before You Submit

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How to Submit Your Assignment

When you are ready to submit your assignment, please fill out the submission form and copy your code into a Microsoft Word document or .txt file. You should receive your assignment grade within one week.

If you are not satisfied with the score you receive on your assignment, you may revise or rewrite it, and resubmit them for grading using the same submission form above. Keep in mind that the grade you receive on your assignment is only a portion of your overall grade for the course, and you are free to retake the proctored final exam as well if you choose. Please see the course syllabus for a more detailed breakdown of the grading policy.