CSC 229

Object Oriented Programming

Assignment 3

Search String Array

Due date: Tuesday 02/27 before midnight

Introduction

In this homework assignment, you will practice

- Working with nested for loops
- Working with 2D arrays
- Working with some String methods

Submission

Submit your assignment on GitHub. Use the following GitHib Classroom assignment link to accept the assignment and create a GitHub repository.

https://classroom.github.com/a/KJZNyZyR

Resources:

- Review Section 3.5 for how to read input strings
- Refer to Section 4.14 for some useful String methods
- Review Section 6.5 on 2D arrays
- Refer to Java Documentation for additional String methods
  https://docs.oracle.com/javase/7/docs/api/java/lang/String.html
- You might find the following String methods useful:
  - toLowerCase( ) and toUpperCase( )
  - indexOf( ) – also discussed in section 4.14
  - substring() discussed in Section 4.14

Prompt

You are given code (in hw3ArrayOnly.java) that create a two-dimensional array of strings and store it in the variable **`book`**.

The array in **`book`** is a 6x2 array. Each of the six rows represents a book chapter and it contains two strings: chapter number/label and chapter content.

For example: this is the first row

```
{"Chapter 1", "In an electronically controlled switch, a
positive voltage at the control input allows electricity to
flow, while a zero voltage prevents the flow. Such switches were
useful, for example, in routing telephone calls."}
```

After you create the main class, copy the code given to you in hw2ArrayOnly.java into function main.

Your task is to create a program that does the following:

- Ask the user for a word as input from the console.
- Search the text content of each chapter in **`book`** to find an instance of the word that was input.
- If the input word in was found in at least one of the chapters, print to the console all the chapters numbers/labels where the input word was found.
- If the input word was not found in any chapter, print a message to the console stating that the word was not found in any chapter.

- **Extra credit:**
    - If the word is found in a chapter, print out 20 characters before the word, and 20 characters after the word, from where the word was found.
    - If less than 20 characters exist before/after the word, print out as many characters as there exist before/after the word.

Notes:

- Your program should be **case insensitive** (ignore case). If the user inputs the word "boolean", and the text contains "Boolean", then it should return a match!
- Your program should have console outputs labeled appropriately.Your program shouldn't just print out "Chapter 2" (What does it represent? Print informative output). See sample outputs for further information.
- Close the scanner!

Sample Output

```
Enter a string to search for: control
The word "control" was found in the following chapters:
Chapter 1
```

```
Enter a string to search for: type
The word "type" was found in the following chapters:
Chapter 3
Chapter 4
```

```
Enter a string to search for: for
The word "for" was found in the following chapters:
Chapter 1
Chapter 3
Chapter 5
Chapter 6
```

```
Enter a string to search for: object
The word "object" was not found in any of the chapters
```

Extra Credit

```
Enter a string to search for: boolean
The word "boolean" was found in the following chapters:
Chapter 4: e equality or inequality operators evaluates to a Boolean value. A Boolean is a type that has just t
```

```
Enter a string to search for: for
The word "for" was found in the following chapters:
Chapter 1: age prevents the flow. Such switches were useful, for example, in routing telephone calls
Chapter 3: an int to a double. The compiler automatically performs several common conversions between int and d
Chapter 5: A for loop is a loop with three parts at the top: a
Chapter 6: Iterating through an array for various purposes is an important programming s
```

See Grading Criteria on next page

Grading Criteria

Creating a Java application with main function	5
Reading user input	10
Iterating through the array	15
Identifying whether search word was found or not	10
Case insensitive search	10
Display output when a there is a match	15
Display output when a there is no match	10
Display match in multiple chapters	10
Code readability, meaningful variable names, indentation, and use of comments.	10
Reference and collaborations file	5
Total	100
Extra Credit	10