CIS 36A – 16th In Class / Lab Assignment – **10 Points**
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Pg. 168 - 183 Java Programming *A comprehensive Introduction*

More Arrays + Strings

Section 1: Define / Answer

arrayname.length: the length of the array

What are Strings used for most commonly in Java?

Initializes a newly created String object so that it represents the same sequence of characters as the argument; in other words, the newly created string is a copy of the argument string. Unless an explicit copy of original is needed, use of this constructor is unnecessary since Strings are immutable.

ASCII - the most common format for text files in computers and on the Internet. In an ASCII file, each alphabetic, numeric, or special character is represented with a 7-bit binary number (a string of seven 0s or 1s). 128 possible characters are defined.

Char (Character) – data type with the size of exactly one byte, which in turn is defined to be large enough to contain any member of the basic execution character set and UTF-8 code units. This implies a minimum size of 8 bits.

OPERATING ON STINGS or String Operators-

Boolean equals(str): This method compares this string to the specified object. The result is true if and only if the argument is not null and is a String object that represents the same sequence of characters as this object.

int (length : This method returns the length of this string. The length is equal to the number of 16-bit Unicode characters in the string.

char charAt(index) : This method returns the character located at the String's specified index. The string indexes start from zero.

int compareTo(str) : There are two variants of this method. First method compares this String to another Object and second method compares two strings lexicographically.

int indexOf(str) : The java.lang.String.indexOf(String str, int fromIndex) method returns the index within this string of the first occurrence of the specified substring, starting at the specified index. The integer returned is the smallest value k for which:

k > = Math.min(fromIndex, this.length()) && this.startsWith(str, k)

If no such value of k exists, then -1 is returned. .

```
int spacepos = str.indexOf(" ");
```

Ex: 'Blue Whale'.indexOf('Whale', 0); // returns 5

Characters in a string are indexed from left to right. The index of the first character is 0, and the index of the last character of a string called stringName is stringName.length - 1.

Thus, int spacepos = something.indexof(“ “);

Where, something = ‘lol’

int lastIndexOf(str):

his method has the following variants:

int lastIndexOf(int ch): Returns the index within this string of the last occurrence of the specified character or -1 if the character does not occur.

public int lastIndexOf(int ch, int fromIndex): Returns the index of the last occurrence of the character in the character sequence represented by this object that is less than or equal to fromIndex, or -1 if the character does not occur before that point.

public int lastIndexOf(String str): If the string argument occurs one or more times as a substring within this object, then it returns the index of the first character of the last such substring is returned. If it does not occur as a substring, -1 is returned.

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public int lastIndexOf(String str, int fromIndex): Returns the index within this string of the last occurrence of the specified substring, searching backward starting at the specified index.

Programming Assignment:

Task 1- Write a program that allows the user to enter a String and then uses a **for** loop to check whether the **String** is a palindrome, which means that if you reverse the order of the characters in the **String**, you get the same **String** back.

The program should output, **String** is a palindrome or not.

Attach Snipping photos of source code and output.

For example,

noon **is a** palindrome

abcdcba **is a** palindrome

cat **is not a** palindrome

dog **is not a** palindrome

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```
1
2   package javaapplication3;
3
4   import java.util.Scanner;
5
6   public class JavaApplication3 {
7
8       public static void main(String[] args) {
9           System.out.println("Enter a string: ");
10          Scanner input = new Scanner (System.in);
11          String command = input.nextLine();
12          char[] array = new char[command.length()];
13
14          for(int i = 0; i < command.length(); i++) {
15              array[i] = command.charAt(i);
16          }
17
18          for(int i = 0; i < command.length(); i++) {
19              System.out.println("element #" + i + " is " + array[i]);
20          }System.out.println();
21
22          int check = 0;
23          int j = command.length() - 1;
24          for(int i = 0; i < j; i++) {
25              if(array[i] == array[j]){
26                  check = 1;
27              } else {
28                  check = 0;
29              }j--;
30          }
31          if(command.length() == 1) {
32              check = 1;
33          }
34          if(check > 0){
35              System.out.println(command + " is a palindrome");
36          } else {
                System.out.println(command + " is not a palindrome");
38          }
39      }
40  }
41
```

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```
run:
Enter a string:
noticedeciton
element #0 is n
element #1 is o
element #2 is t
element #3 is i
element #4 is c
element #5 is e
element #6 is d
element #7 is e
element #8 is c
element #9 is i
element #10 is t
element #11 is o
element #12 is n

noticedeciton is a palindrome
BUILD SUCCESSFUL (total time: 15 seconds)
```

```
run:
Enter a string:
nok
element #0 is n
element #1 is o
element #2 is k

nok is not a palindrome
BUILD SUCCESSFUL (total time: 1 second)
```