CECS 174 – Lecture 5 – Strings

Strings - A String is a programmer defined data type that stores a sequence of Unicode characters. (A list of Unicode characters can be found in Appendix B).

The concatenation operator (+) merges two strings together to form a new string.

Declaring a String:

```
String name;
String firstName = "Terry ";
String lastName = "Jones";
name = firstName + lastName;
```

0	1	2	3	4	5	6	7	8	9	10	11	12

Length = _____

Defining a String:

```
firstName = "Indiana ";
name = firstName;
name = firstName + "Jones";
name = firstName + lastName;
```

0	1	2	3	4	5	6	7	8	9	10	11	12

Length = _____

```
int agentNum = 99;
String agtName = "Secret Agent " + agentNum;
```

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14

Converting a String - If we have a number as a string, but we want the data to be usable as a number, we will need to convert the string into an integer or a double.

The two methods that can accomplish this are:

```
int num1 = Integer.parseInt(strValue1);
```

and

```
double num2 = Double.parseDouble(strValue2);
```

The new variables are now holding the numerical data and now they can be used as needed. However, we need to be careful, if the string has any non-numerical values in it, then a run time error will occur, and the program will crash.

String Methods:

Since a String is an object, there are many methods associated with it that can manipulate the data of the string. A list of all of these methods may be found at: http://docs.oracle.com/javase/6/docs/api/ when you scroll down and click on the String class.

Some useful String methods are:

length()	Returns the number of characters in the string.
equals(String)	Returns true if the two strings are the same, false otherwise.
substring(int, int)	Returns the string that lies between the two indices specified (include start, exclude end). If a second index is not given, it goes until the end.
compareTo(String)	Returns a negative value if the argument string is after the specified string, a 0 if they are equal, and a positive value otherwise.
charAt(int)	Returns the character at the specified index.
indexOf(char)	Returns the index of the first occurrence of the specified character.
toUpperCase()	Converts the string to all upper case letters.
toLowerCase()	Converts the string to all lower case letters.

String methods are Instance Methods, which means they are called on the object, some methods also take parameters as input.

```
String word = "Hello";

System.out.println(word.length());  // prints 5
```

Examples:

int strLength = firstName.length(); _____
boolean cmpValue = firstName.equals("Indiana"); _____
int before = firstName.compareTo("Jack"); _____
char letter = lastName.charAt(4); _____
int location = lastName.indexOf('n'); _____
String newStr = name.substring(2, 7); _____
String newStr1 = agtName.substring(7); _____
String bigStr = firstName.toUpperCase(); _____