The String Class

- Strings (a sequence of characters, such as "Hello") are **not** a primitive data type
- The String class is included in the java.lang package

String class methods include:

Method:	Description
`length()`	Returns an integer corresponding to the numbers of characters in the string
`substring(int start, int end)`	Returns a substring of the string, which starts at `start` position and ends once character before the `end` position
`substring(int start)`	Returns a substring of the string, which starts at `start` position and extends to the end of the string
`toLowerCase()`	Returns a copy of the string with all lowercase letters
`toUpperCase()`	Returns a copy of the string with all uppercase letters
`trim()`	Returns a copy of the string with all leading and trailing spaces removed
`replaceFirst(String str, String str2)`	Returns a copy of the string with the first occurrence of `str` replaced by `str2`
`replaceAll(String str, String str2)`	Returns a string with all occurrences of `str` replaced by `str2`

Index: the position of a character in a string is called its *index*

Ex) Consider the string "McDougall"

M	c	D	o	u	g	a	l	l
0	1	2	3	4	5	6	7	8

index

Null String: until a String object is assigned a value, it refers to `null`. Calling a method from a null String object generates the exception `NullPointerException`.

Ex) Two ways to declare a string – essentially the same

```
String alpha = new String("abc");
```

OR

```
String alpha = "abc";
```

Comparing Strings

- Strings **cannot** be compared using relational operators such as == and >
- Use one of these methods:

Method:	Description
`equals(String str)`	Returns true when the `string` is the same as `str`, false otherwise
`equalsIgnoreCase(String str)`	Same as equals() except that uppercase and lowercase differences between the `strings` are ignored
`compareTo(String str)`	Returns 0 when `str` is the same as the string, a negative integer is returned when `str` comes alphabetically after the string, and a positive integer is returned when `str` comes before. Note that uppercase and lowercase letters are considered different
`compareToIgnoreCase(String str)`	Same as compareTo() expect that uppercase and lowercase differences between the strings are ignored
`indexOf(String str)`	Returns the integer corresponding to the location of the first occurrence of `str` in the string. Otherwise, -1 is returned
`lastIndexOf(String str)`	Returns the integer corresponding to the last occurrence of `str` in the string. Otherwise, -1 is returned
`startsWith(String str)`	Returns true when the string begins with `str`, false otherwise
`endsWith(String str)`	Returns true when the string ends with `str`, false otherwise

Programming Exercise:

Create a HeyYou application that prompts the user for his or her name, including title. The application should display "Hello, sir." if the string starts with Mr. , "Hello, ma'am." if the string starts with Ms., Mrs., or Miss, and "Hello, *name*." Otherwise where *name* is the user's name.

Add your code to the Google Doc: "ICS4U – Activity Submission Form". Find the appropriate activity in the table provided, add the current date, and then copy and paste the full source code (everything in the .java file). Make sure that your program runs properly before submitting!