Chapter 3 - Strings

A string is a sequence of characters
A string is instantiated as follows:

```
String name;
name = new String ("Harry");
```

String is a class but can be used like a
data type :   [Strings are immutable
                                and cannot be changed]

```
String name = "Harry";
```
   Reference   └──→ Object

Different ways to print in Java
We can use the following ways to print in Java:

1. System.out.print()   → No newline at the end!
2. System.out.println()   → Prints a new line at the end
3. System.out.printf()
4. System.out.format()

System.out.printf("%c", ch)
                    └──→   %d for int
                          %f for float
                          %c for char
                          %s for string

String Methods
String methods operate on Java Strings. They
can be used to find length of the string,
convert to lowercase, etc.

Some of the commonly used String methods are :

$$String\ name = "Harry";$$
(indices: 0 1 2 3 4)

1> name.length() → Returns length of String name.
(5 in this case)

2> name.toLowerCase() → Returns a new String which has all the lowercase characters from the String name.

3> name.toUpperCase() → Returns a new String which has all the lowercase characters from the string name.

4> name.trim() → Returns a new String after removing all the leading and trailing spaces from the original String.

5> name.Substring(int start) → Returns a substring from start to the end. name.Substring(3) returns "ry"
[Note that index starts from 0]

6> name.substring(int start, int end) → Returns a substring from start index to the end index. Start index is included and end is excluded

Char   Char
 ↑   ↑
7> name.replace('r', 'p') → Returns a new string after replacing r with p. Happy is returned in this case.

8. name.startsWith("Ha") → returns true if name starts
   String   with string "Ha". true in
                               this case!

9. name.endsWith("ry") → returns true if name ends
   String   with string "ry". true in
                              this case.

10. name.charAt(2) → returns character at a given index
    int   position. r in this case!

11. name.indexOf(s) → returns the index of the given string.
    str   For ex: name.indexOf("ar") returns
                 1 which is the first occurrence
                 of ar in string "Harry", -1 otherwise

12. name.indexOf("s", 3) → returns the index of the given
                           String starting from the
                           index 3 (int). -1 is returned
                           in this case!

13. name.lastIndexOf("r") → returns the last index of the
                            given string. 3 in this case!

14. name.lastIndexOf("r", 2) → returns the last index
                               of the given string
                               before index 2.

15. name.equals("Harry") → returns true if the given
                           String is equal to "Harry"
                           false otherwise [Case Sensitive]

16 name.equalsIgnoreCase ("harry") → returns true if two Strings are equal ignoring the case of characters.

Escape Sequence Characters

Sequence of characters after backslash ' \ '
= Escape sequence characters

Escape sequence characters consist of more than one characters but represents one character when used within the Strings.

Examples :   \n , \t , \' , \\ , etc.
            newline Tab single quote backslash