

STRINGS

zyBook 2.18, zyBook 2.19, zyBook 3.16, zyBook 3.17, zyBook 3.19, Java String API, Java Object API: equals method, Oracle - Java Tutorial: Strings

STRING CLASS

- The String class represents character strings.
- String objects are immutable and cannot change.
- String objects are created and assigned like primitive values:
 - String <name > = "<text >";
 - String <name > = <expression >;
- For example:

```
String department = "CSC";
int courseNum = 116;
String course = department + courseNum;
```

STRING INDEXING

- String objects consist of a list of characters (char)
- Characters are numbered internally with an index
- Index starts at 0
- For example,String lastName = "Bai";

0	1	2
В	a	i

HOW MANY CHARACTERS ARE IN THE STRING?

public int length()

- Returns: the length of the sequence of characters represented by this object.
- For example,

```
String lastName = "Bai";
```

int numLetters = lastName.length(); // 3 characters

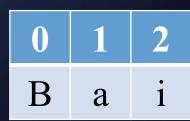
0	1	2
В	a	i

WHAT IS THE N-TH CHARACTER OF THE STRING?

public char charAt(int index)

- Parameters: index the index of the char value.
- Returns: the char value at the specified index of this string. The first char value is at index 0.
- Throws: IndexOutOfBoundsException if the index argument is negative or not less than the length of this string.
- For example,

```
String lastName = "Bai";
lastName.charAt(0); // 'B'
lastName.charAt(lastName.length()); // IndexOutOfBoundsException
lastName.charAt(lastName.length() - 1); // 'i'
```



WHERE IS SUBSTRING IN THE STRING?

public int indexOf(String str)

- Parameters: str the substring to search for.
- Returns: the index of the first occurrence of the specified substring, or -1 if there is no such occurrence.
- For example,

```
String lastName = "Bai";
lastName.indexOf("i"); // 2

lastName.indexOf("ai"); // 1

lastName.indexOf("hi"); // -1
```

SUBSTRINGS

public String substring(int beginIndex)

- Parameters: beginIndex the beginning index, inclusive.
- Returns: the specified substring.
- Throws: IndexOutOfBoundsException if beginIndex is negative or larger than the length of this String object.
- For example,

```
String lastName = "Bai";
lastName.substring(1); // "ai"
```

0	1	2
В	a	i

SUBSTRINGS

public String substring(int beginIndex, int endIndex)

- Parameters:
 beginIndex the beginning index, inclusive. endIndex the ending index, exclusive.
- Returns: the specified substring.
- Throws: IndexOutOfBoundsException if the beginlindex is negative, or endlindex is larger than the length of this String object, or beginlindex is larger than endlindex.
- For example,

```
String lastName = "Bai";
lastName.substring(0, 2); // "Ba"
```

0	1	2
В	a	i

UPPERCASE AND LOWERCASE

public String toLowerCase()

• Returns: the String, converted to lowercase.

public String toUpperCase()

• Returns: the String, converted to uppercase.

For example,

```
String lastName = "Bai";

String lower = lastName.toLowerCase(); // "bai"

String upper = lastName.toUpperCase(); // "BAI"
```

HOW TO DETERMINE IF TWO STRING OBJECTS ARE EQUAL?

public boolean equals(Object anObject)

- Overrides: equals in class Object
- Parameters: anObject The object to compare this String against
- Returns: true if the given object represents a String equivalent to this string,
 false otherwise
- For example,

```
String lastName = "Bai";
lastName.equals("Bai"); // true
lastName.equals("Gina"); // false
```

OHOW TO COMPARE TWO STRING OBJECTS?

public int compareTo(String anotherString)

- Parameters: anotherString the String to be compared.
- Returns: the value 0 if the argument string is equal to this string; a value less than 0 if this string is lexicographically less than the string argument; and a value greater than 0 if this string is lexicographically greater than the string argument.

For example,

```
String lastName = "Bai";
lastName.compareTo("Bai"); // 0
lastName.compareTo("BAI"); // -32
lastName.compareTo("bai"); // 32
```

ESCAPE SEQUENCES

Escape sequences have special meaning to the compiler and begin with

Escape Sequence	Description
\t	Insert a tab in the text at this point.
\n	Insert a newline in the text at this point.
\',	Insert a single quote character in the text at this point.
\"	Insert a double quote character in the text at this point.
	Insert a backslash character in the text at this point.