CS 152
Computer Programming Fundamentals
Strings

Brooke Chenoweth

University of New Mexico

Fall 2026

String and char

- String is a *class*: java.lang.String

```
String s1 = "Hello"; //ok
String s2 = "H";     //ok
String s3 = "";      //empty string is ok
```

- char is a *primitive type*:

```
char c = 'H';      //ok
char c = 'Hello'; //Syntax ERROR
char c = '';       //Syntax ERROR
```

String Concatentation

```
void main() {
  String a = "Hello";
  String b = "World";

  String c = a + b;

  IO.println(a);
  IO.println(c);
  IO.println(a + " " + b);
}
```

Output:

```
Hello
HelloWorld
Hello World
```

Overloaded Operator: +

concatenation operator and addition operator

```
void main() {
  int a = 5;
  int b = 7;
  IO.println(a + b);
  IO.println("Sum is " + a + b);
  IO.println("Sum is " + (a + b));
  IO.println(a + b + "boo");
}
```

```
12
Sum is 57
Sum is 12
12boo
```

Comparing Strings for equality

```
String s1 = "CS152";
String s2 = "CS";
s2 += 152;

if(s1 == s2) IO.println("Same");
if(s1.equals(s2)) IO.println("Equal");
```

- Use == operator when comparing primitive types
- Use `equals` method when comparing objects
- Using == on objects will compare if same object in memory, not what you want usually

String methods – length

```
String str1 = "Brooke";
String str2 = "Chenoweth";
IO.println(
    str1.length() + ", " + str2.length());
```

Output: `6, 9`

- Every `String` object has data and methods.
- In the example, `str1` is a `String` object.
- The data in `str1` is `"Brooke"`
- `str1` has the method `length()` which returns an `int` equal to the number of characters in its data.

Using a String object's length()

```
void main() {
  String a = "Hello";
  String b = "Everyone";
  IO.println(a.length());
  IO.println(b +
    " has a length of " + b.length() +
    " characters");
}
```

5

```
Everyone has a length of 8 characters
```

Without space characters, output will run together.

charAt

Every String object has the method:

```
char charAt(int index)
```

```
String name = "Ralph";
int index = 1;
char letter;
letter = name.charAt(index);
IO.println(letter);
```

Output: a

Using a String object's charAt(int i)

```
void main() {
  String a = "Lisa";
  IO.println(a.length());
  IO.println(a.charAt(1));
  IO.println(a.charAt(3));
  IO.println(a.charAt(4));
}
```

```
4
i
a
java.lang.StringIndexOutOfBoundsException:
String index out of range:  4
```

toUpperCase

```
void main() {
  String str = "Angela";
  IO.println(str); //Angela

  str.toUpperCase();
  IO.println(str); //Angela

  str = str.toUpperCase();
  IO.println(str); //ANGELA
}
```

substring

```
String name1 = "Brooke";
String name2 = "Chenoweth";
String name3 = name1.substring(2);
String name4 = name2.substring(2);
String name5 = name2.substring(4);

IO.println(name1);
IO.println(name2);
IO.println(name3);
IO.println(name4);
IO.println(name5);
```

Output:

```
Brooke
Chenoweth
ooke
enoweth
oweth
```

substring: An Overloaded Method

Two versions of substring:

- `String substring(int beginIndex)`
- `String substring(int beginIndex, int endIndex)`

```
void main() {
  String name = "Chenoweth";

  IO.println(name.substring(4));
  IO.println(name.substring(4,6));
}
```

Output:

```
oweth
ow
```