Unit 2 → Objects

Understanding Objects

- Definitions
  - Class
    - A "blueprint"; always uppercase
  - Object
    - Instance of a class
  - Attributes
    - Objects properties
  - `private`
    - A method that can only be called in its class
  - Constructor
    - Allowes information to be passed through a class
    - Used to create objects
  - Behavior
    - A type of method
  - Null
    - No value; empty variable
    - If not used correctly a `NullPointerException` will be thrown causing an error
- Getterr and setter methods
  - Getter method
    - Gets, or returns, a value/variable
  - Setter method
    - Sets a value to a variable
    - Takes on parameters
- Behavior vs. attributes
  - Attribute
    - Variables and instance variable
  - Behavior
    - Methods in a class

Strings

- Understanding the syntax
  - String is capitalized because it is a class
- Strings are immutable
  - Immutable
    - Cannot be changed
  - Indicies
    - The occurrence of a character
- String methods
  - int length()
    - Returns an int representing the how many characters are in a string
  - String substring(int start, int end)
    - Returns a subset of the string from the index passed through as parameters
  - int indexOf(String str)
    - Returns indice of imputed text
  - int compareTo(String other)
    - Returns a negative value if current string is less than the other
  - boolean equals(String other)
    - Returns boolean value if two strings are equals
  - String toUpperCase()
    - Turns every character in a string to uppercase
  - String toLowerCase()
    - Turns every character in a string to lowercase

Math Class

- A class used to use math functions
- A static class therefore we call using class name, not an object
- Methods
  - Math.random()
    - Returns a random double value
    - Has a range from $0 \leq x < 1$
      - $0 \rightarrow 0.9\underline{999}$
    - Written as…
      - `(Math.random()*`max−min+1`) +` min;
  - Math.abs()
    - Returns the absolute value of a number
  - Other methods can be found on the Java documentation page
    - docs.oracle.com/javase/7/docs/api/

toString() Method

- Returns a string often containing variables related to the class