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Methods in Objective-C

Subroutines in Computer Programming

Mobile apps for iPhone & iPad

Telerik Software Academy

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Methods Overview

What are Methods?

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Methods Overview

- A method is a named piece of code
  - And can be executed only by using the method name (identifier)
  - A method has executing context
    - Either object or class
- Methods are pretty much the same as functions
  - But methods belong to a class or an object
  - Functions are declared separated from classes

Using Methods

- Methods are invoked by sending a message to an object or class
  - Send message "introduce" to object "person"

```
[person introduce];
```

  - Send a message "addObject" to object "numbersArray" with parameter "12.3"

```
[numbersArray addObject: number];
```

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Using Methods

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Declaring Methods

Declaring Methods

- Methods must be declared inside the class body
  - Methods declared inside the .h file are public
  - Methods declared inside the .m file are private
- Public methods are accessible from everywhere
- Private are accessible only from the class they belong to

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Declaring Methods: Class or Instance

- Method declaration has the structure

```
-/+ (return_type) methodName: parameters
{
  //method body
}
```

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Declaring Methods: Class or Instance

- Method declaration has the structure

```
-/+ (return_type) methodName: parameters
{
  //method body
}
```

  - + means the method is a class method
    - The message is send to the object itself
  - – means the method is an instance method
    - The message is sent to an instantiated object

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Declaring Methods: Return Type

- Method declaration has the structure

```
-/+ (return_type) methodName: parameters
{
  //method body
}
```

  - The return type can be of any Objective-C type
    - int, double, NSString, char
    - NSArray, NSDictionary
    - Even function (Function pointer)

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Declaring Methods: Identifier

- Method declaration has the structure

```
-/+ (return_type) methodName: parameters
{
  //method body
}
```

  - The identifier must be any valid Obj-C name
    - Any Latin letter
    - Digits, cannot start with a digit
    - Underscore _

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Declaring Methods: Parameters

- Method declaration has the structure

```
-/+ (return_type) methodName: parameters
{
  //method body
}
```

  - The parameters of a method can be 0 or more
    - Each parameter has a type
  - The parameters are part of the method name
  - Each parameter has two names
    - One that is part of the method identifier
    - One to be used inside the method

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Declaring Methods

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Method Parameters

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Method Parameters

- Any method can have 0 or more parameters
  - Any parameter has two names
    - One is part of the method identifier and signature
    - The other is the variable identifier, used inside the method body
- Given the method:

```
-(id) initWithFirstname: (NSString *) fname
              andLastname: (NSString *) lname
{ … }
```

  - Its signature is –(id) initWithFirstname:andLastname

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Method Parameters

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Instance and Class Methods

What is the difference?

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Instance and Class Methods

- Instance methods are executed in the context of an object
  - They can read the state of the object
  - They can change the state of the object
- Class methods are shared methods for all instances of a class
  - They are executed in the context of the class
  - They cannot use the state of instances

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Defining Class and Instance Methods

- Both types of methods have the same form

```
+/- (return_type) methodName: parameters
{
  //method body
}
```

  - The way to specify if the methods is class or instance is:
    - – (minus) means instance method
    - + (plus) means class method

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Instance and Class Methods

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Questions?

Homework

1. Create a class Calculator for performing mathematical operations with floating-point numbers:
   - Save the current result
   - Add a value to the result
   - Divide the result by a given divider
   - Subtract a value from the result
   - Multiply the result by a given value

Homework

2. Create a simple class for keeping a database with TODOs
   - The user should be able to add TODO with a end date
   - The user should be able to list all TODOs
3. *Use the above class to create an iOS application with UI