



oop\_introduction

## Basic Object Oriented Programming

Michael Lu [mlu@student.42.fr](mailto:mlu@student.42.fr)

*Summary: This project will help you learn the very basics of objective oriented programming.*

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# Chapter I

## Foreword

Did you know I love cooking and cooking is a great way to learn stuff?

Cooking teaches you a lot of skills that is beneficial to you. Regardless if you prefer your mom's home cooking or maybe your dad's barbecue, but have you ever tried following a recipe and learning it yourself?

If you ever start learning how to cook you will soon realize you need a couple of things first. You need measuring tools, some kind of hot plate, a way to cut or prep ingredients. Each of these objects are their own entity but they work together to provide you a delicious meal.

Object oriented programming is very similar to this concept. Hah! Bet you thought I wouldn't bring up programming eh? Just like cooking, you will be creating objects in objected oriented programming (I wonder why it's called that), and learning how to utilize them to help you create some cool stuff.



# Chapter II

## Introduction

The goal of this project is to complete a sequence of exercises which will teach you the basics of object oriented programming.



If you are using python or another language approved by HackHighSchool make sure to research into python equivalent concepts on your own. This project can be completed in any approve project language, however the tutorial and video guides will be in Ruby.

So what are you waiting for? Get going.

# Chapter III

## Goals

The goal of oop\_introduction is to introduce you into basic object oriented programming. By the end of this project you should know how to:

- Create classes
- Create methods
- Create inheritances
- Be awesome

You will be exploring a fundamental topic of object oriented programming so take advantage of all the resources including the videos that are present in ft\_arena and ft\_boardgame (the other object oriented projects in this series), your neighbor and google. There are many tutorials on classes and inheritance.


# Chapter IV

## General instructions

- This project will only be corrected by actual human beings. You are therefore free to organize and name your files as you wish, although you must respect some requirements listed below.
- You must follow the exercise details and instruction clearly
- You must turn in all the requested files
- Ask your peers, mentor, slack or anywhere else if you need any help, and make sure to have fun!

# Chapter V

## Exercise 00

	ex00: Your first class
Files to turn in : <code>main.(rb/py)</code> , <code>first_class.(rb/py)</code>	
Notes : n/a	

Make your first class (a class named `FirstClass` in a file named `first_class`) with a constructor that says "Hello World". You must instantiate your first class only in a main.

```
?> ruby main.rb
Hello World
?>
```



Google classes or check `ft_arena` or `ft_boardgame` tutorial videos



```
from first_class import First
```



```
require_relative first_class
```

# Chapter VI

## Exercise 01



ex01 : Your second class and first inheritance

Files to turn in : `main.(rb/py)`, `first_class.(rb/py)`, `second_class.(rb/py)`

Notes :

Make your second class (a class named `SecondClass` in a file named `second_class`) that will inherit from the first class. Its constructor should directly call the first class constructor that says "Hello World". You must instantiate the second class only in your main.

```
?> ruby main.rb
Hello World
?>
```



Google class inheritance or check `ft_arena` or `ft_boardgame` tutorial videos



# Chapter VII

## Exercise 02



ex02 : Your first parameter and passing parameter

Files to turn in : `main.(rb/py)`, `first_class.(rb/py)`, `second_class.(rb/py)`

Notes :

You now need your second class to take a parameter "name" (which will be your login name) and pass it into the first class which will display "Hello ". You can hard-code your login name into the program without calling `input()` or `gets()` to fetch it. You must instantiate the second class only in your main.


```
?> ruby main.rb
Hello mlu
?>
```



Google how to send parameter into classes or check `ft_arena` or `ft_boardgame` tutorial videos

# Chapter VIII

## Exercise 03

	ex03 : Your first method
Files to turn in : <code>main.(rb/py)</code> , <code>first_class.(rb/py)</code> , <code>second_class.(rb/py)</code>	
Notes :	

You now need to create a method inside your first class called `say_hello` which will take the name from the constructor and print out "Hello ". When the method is called print out a sentence stating that it has been called. You must instantiate the second class only in your main.


```
?> ruby main.rb
Method say_hello in FirstClass is called
Hello mlu
?>
```



Google class methods or check `ft_arena` or `ft_boardgame` tutorial videos

# Chapter IX

## Exercise 04

	ex04 : Your second method
Files to turn in : <code>main.(rb/py)</code> , <code>first_class.(rb/py)</code> , <code>second_class.(rb/py)</code>	
Notes :	

You now need to create a method inside your second class called `roll_dice` which will randomly generate a number from 1 to 6. `Roll_dice` will then call the `Hello` method in its parent class and pass it the random number. You should see an output of "Hello <username>, your number is ". Remember, every method you write should print something to announce it has been called. You must instantiate the second class only in your main.

```
?> ruby main.rb
Method roll_dice in SecondClass called
Method hello in FirstClass is called
Hello mlu, your number is 2
?>
```



Google class methods/methods interaction or check `ft_arena` or `ft_boardgame` tutorial videos

# Chapter X

## Exercise 05



ex05 : Your first class variables, and more methods!

Files to turn in : `main.(rb/py)`, `first_class.(rb/py)`, `second_class.(rb/py)`

Notes :

Your second class will now take in a second parameter, a string called "hobby", when it is instantiated. Store the hobby in an instance variable. You will write a method called `get_hobby` in your second class that returns this variable. In your main you need to print out "Your hobby is " where must be returned from the `get_hobby` method. You must instantiate the second class only in your main.

```
?> ruby main.rb
Method roll_dice in SecondClass called
Method hello in FirstClass is called
Hello mlu, your number is 5
Your hobby is being lazy
?>
```



Read about the difference between class variables and instance variables. What is an instance of a class?