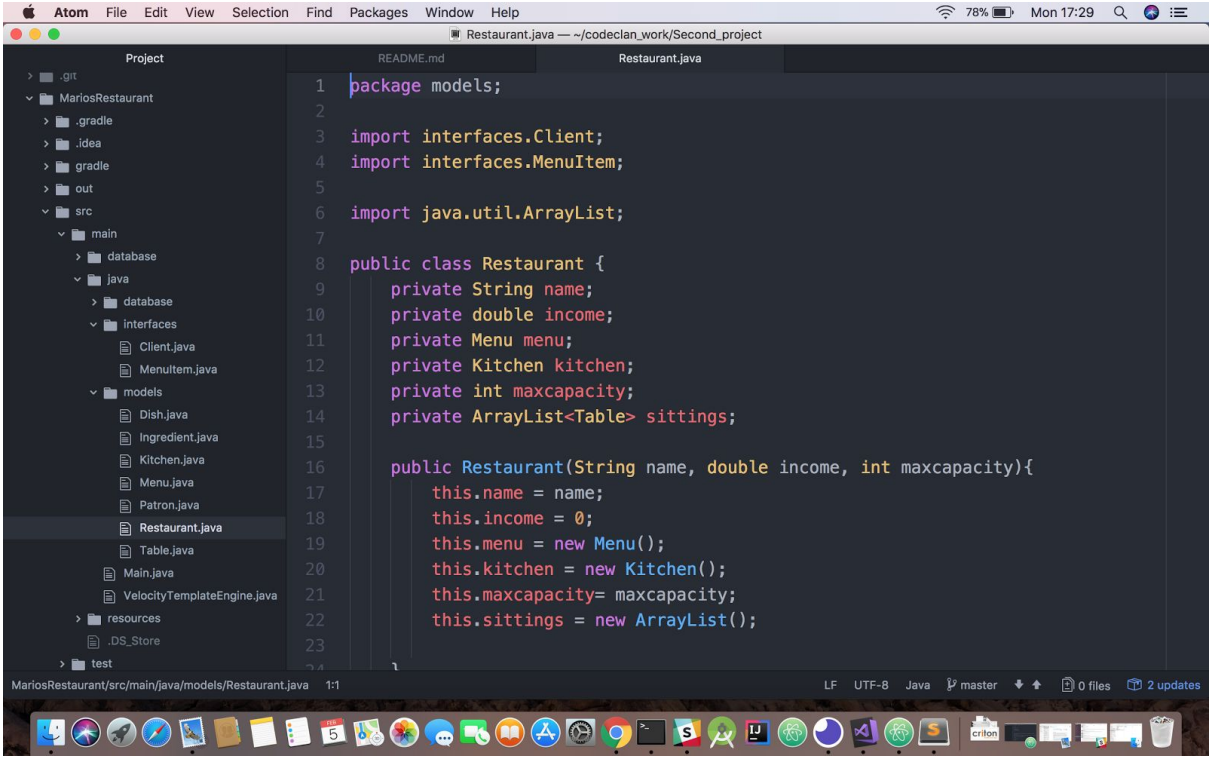
Evidence for Implementation and Testing Unit.

Your name here: Joao Nequinha
Your Cohort: E16

Date here: 05.02.2018

I.T 1- Example of encapsulation in a program:



I.T 2 - Example the use of inheritance in a program.

A class:

```java
package models;

import interfaces.MenuItem;

import java.util.ArrayList;

public class Dish implements MenuItem {
    private String name;
    private double price;
    private ArrayList<Ingredient> ingredients;

    public Dish(String name, double price){
        this.name= name;
        this.price = price;
        this.ingredients = new ArrayList();
    }

    public String getName() {
        return this.name;
```

A Class that inherits from the previous class:

```java
public class Salad extends Dish{
    private String name;
    private double price;
    private ArrayList<Ingredient> ingredients;

    public Salad(String name, double price){
        this.name= name;
        this.price = price;
        this.ingredients = new ArrayList();
    }
```

An Object in the inherited class:

```java
public class Dish implements MenuItem {
    private String name;
    private double price;
    private ArrayList<Ingredient> ingredients;

    public Dish(String name, double price){
        this.name= name;
        this.price = price;
        this.ingredients = new ArrayList();
    }

    public String getName() {
```

A method that that uses information inherited from another class:

```
public void reduceAmountOfIngredients() {
    for(Ingredient ingredient: ingredients){
        int amount = ingredient.getAmount();
        ingredient.setAmount(amount -= 1);
        }
    }
```

I.T 3 - Demonstrate searching data in a program:

Function that searches data:

```
def self.find(id)
  sql = " SELECT * FROM merchants WHERE id=$1"
  values = [id]
  merchant_found = SqlRunner.run(sql,values)
  return Merchant.new(merchant_found.first)
end
```

Result of function running:

```
From: /Users/user/codeclan_work/first_project/db/seeds.rb @ line 50 :

    45:
    46:
    47: binding.pry
    48:
    49:
 => 50: nil

[1] pry(main)> Merchants.all()
NameError: uninitialized constant Merchants
Did you mean?  Merchant
from (pry):1:in `<main>'
[2] pry(main)> Merchant.all()
=> [#<Merchant:0x007f9293b97378 @id=10, @name="Zara">,
 #<Merchant:0x007f9293b96b80 @id=11, @name="Tesco">,
 #<Merchant:0x007f9293b965b8 @id=12, @name="Morrison">,
 #<Merchant:0x007f9293b960b8 @id=13, @name="Fusion">]
[3] pry(main)> Merchant.find(12)
=> #<Merchant:0x007f9293ab5ef0 @id=12, @name="Morrison">
[4] pry(main)>
```

I.T 4 - Demonstrate sorting data in a program:

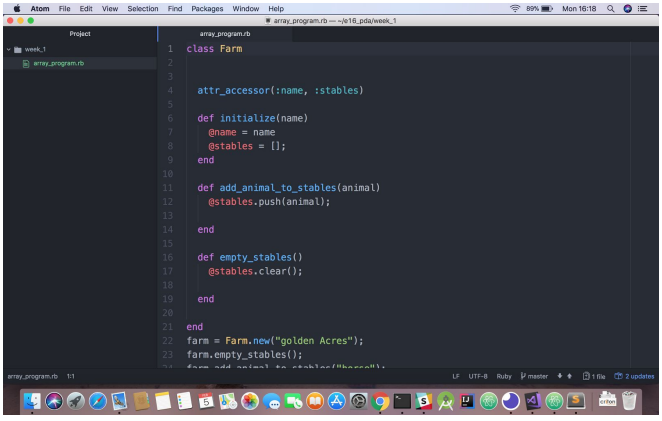
Function that sorts data:

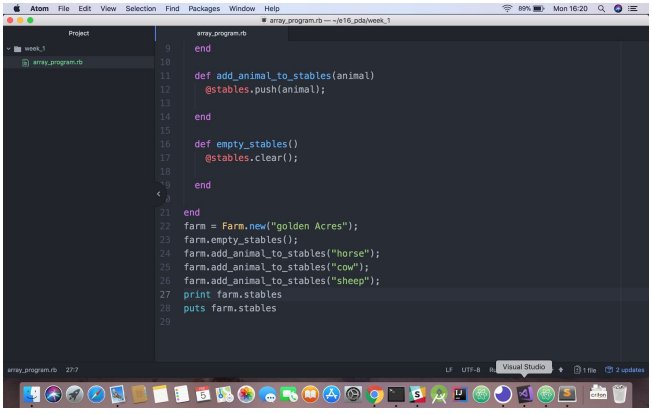
```ruby
class ThingsToDo
  attr_accessor(:act1, :act2, :act3, :act4);

  def initialize(act1, act2, act3, act4)

    @things = [act1, act2, act3, act4]

  end

  def sort_alpha()
    list = @things
    list.sort! {|a,b| a<=>b}

  end
end


my_things = ThingsToDo.new("Pda", "Interviews", "Dinner", "Stressout");

print my_things.sort_alpha();
```

Result:

```
Last login: Thu Feb  8 16:31:26 on ttys007
➜  e16_pda git:(master) ✗ ruby Sort_ruby.rb
["Dinner", "Interviews", "Pda", "Stressout"]%
➜  e16_pda git:(master) ✗
```

I.T 5 - Example of an array, a function that uses an array and the result





```
node ◂ ng TMPDIR=/var/folders/    ..16_pda/week_1    ..16_pda/week_1    ..first_project
Last login: Mon Feb  5 16:16:56 on ttys003
➜  week_1 git:(master) ✗ ruby array_program.rb
["horse", "cow", "sheep"]horse
cow
sheep
➜  week_1 git:(master) ✗
```

I.T 6 - Example of a hash, a function that uses a hash and the result

```ruby
class Groceries
  attr_accessor(:name, :list)
  def initialize(week_day)
    @day = week_day;
    @list = {
      milk: 0,
      eggs: 0,
      bread: 0,
      butter: 0
    }
  end

  def add_milk_to_list(amount)

    @list[:milk]= amount

  end

  def add_eggs_to_list(amount)

    @list[:eggs]= amount

  end
```

groceries.rb — ~/e16_pda/week_1

array_program.rb | groceries.rb

```ruby
    @list[:bread]= amount

  end
  def add_butter_to_list(amount)

    @list[:butter]= amount;

  end

end


saturday = Groceries.new("saturday");

saturday.add_milk_to_list(1);
saturday.add_eggs_to_list(6);
saturday.add_bread_to_list(1);

print saturday.list;
puts saturday.list;
```

```
Last login: Mon Feb  5 17:10:18 on ttys004
➜  week_1 git:(master) ✗ ruby groceries.rb
{:milk=>1, :eggs=>6, :bread=>1, :butter=>0}{:milk=>1, :eggs=>6, :bread=>1, :butter=>0}
➜  week_1 git:(master) ✗
```

I.T 7 - Demonstrate the use of polymorphism in a program

```java
package models;

import ...

public class Menu {
    private ArrayList<MenuItem> menu;

    public Menu(){
        this.menu= new ArrayList();

    }


    public int dishCount() { return this.menu.size(); }

    public void addDish(MenuItem dish) { this.menu.add(dish); }

    public boolean menuHas(MenuItem dish) { return this.menu.contains(dish); }

    public void removeItem(MenuItem dish) { this.menu.remove(dish); }
}
```

```java
import ...

public class Patron implements Client {
    private double bill;
    private ArrayList<MenuItem> order;

    public Patron(){
        this.bill = 0;
        this.order = new ArrayList();

    }


    public double getBill() { return this.bill; }
```

```java
import models.Ingredient;

public interface MenuItem {

    double getPrice();
    void removeIngredient(Ingredient ingredient);
    void reduceAmountOfIngredients();
    boolean checkIfPossibleToMakeItem();

}
```

```
    //creating a new observation List for Payload3 to prevent conflicts with tes
    var observationsList = new List<IDevicePatientTestObservation>();
    var oruObservationsList = oru.OBXs;
    var fieldIndex = 0;

    foreach (HL7NotedSegment obs in oruObservationsList)
    {
        var ob = new Observation();
        ob.Analyte = oru.OBXs[fieldIndex][3];
        ob.Value = oru.OBXs[fieldIndex][5];
        ob.Units = oru.OBXs[fieldIndex][6];
        ob.Abnormal = oru.OBXs[fieldIndex][8] == "A";

        observationsList.Add(ob);

        fieldIndex++;

    }

    Observations = observationsList;
}
```