Homework

In class we followed through an example following a list of Apples. Now you will filter a list of Cars or a list of Students.

- Team Python: Cars (Download FunctionalProgCar.zip)

- Team Prolog: Students (Download FunctionalProgStudent.zip)

- Team Java: Apples

The respective .zip files already have what we covered in class. Only need to write lambdas.

In a **PDF** upload the answer as well as the lambdas you used to find what the questions are asking for.

Example: Team Java:

Apples		
Property	Type	Range
weight	double	60.0 – 120.0
color	String	"Red", "Green", "Yellow"
numberSeeds	int	3 – 7 (inclusive)
isPoisonous	boolean	True, False

Using lambdas and the filter() method, find the following information. Please include the lambda expression you used.

1. The number of Apples that are Red.
    a. Hint: write a lambda that would filter out Red Apples.
2. Find the Apple that is Poisonous. What are its properties?
3. The number of Apples that are Yellow and weigh more than 100.00.
4. Convert the printList() method in your program to use lambdas.
    a. Hint: Use the forEach() method

Sample Answer (as an example):

1. Answer: 492
   Lambda: (apple) -> apple.getColor().equals("Red")
2. Answer: 1, Apple{color='Yellow', weight=84.03, seeds=4, isPoisonous=true}
   Lambda: (apple) -> apple.getIsPoisonous()
3. Answer: 89
   Lambda: (apple) -> apple.getColor().equals("Yellow") && apple.getWeight() > 100
4. See code:

```
private void printList(List<Apple> appleList) {

    System.out.println("List of Apples: ");

    appleList.forEach( apple -> System.out.println(" - " + apple));

    System.out.println("Filtered list length: " + appleList.size());

}
```

Team Python (Download "FunctionalProgCar..zip"):

Car		
Property	Type	Range
weight	double	2600.0 – 4400.0
brand	String	"Audi", "Volvo", "Nissan", "Toyota", "BMW"
rating	int	5 – 10 (inclusive)
isElectric	boolean	True, False

Using lambdas and the filter() method, find the following information. Please include the lambda expression you used.

1. The number of Cars that are Volvo.
    a. Hint: write a lambda that would filter out Cars that are Volvo.
2. The number of Cars that are electric. Pick of the any and give its properties.
3. The number of Cars that are Audi and weigh more than 3500.0.
4. Convert the printList() method in your program to use lambdas.

Team Prolog (Download "FunctionalProgStudent.zip"):

Student		
Property	Type	Range
gpa	double	1.0 – 4.0
major	String	"Computer Science", "Education", "Math", "English"
numClasses	int	3 – 6 (inclusive)
isMasters	boolean	True, False

Using lambdas and the filter() method, find the following information. Please include the lambda expression you used.

1. The number of Students that are Education majors.
    a. Hint: write a lambda that would filter out Students that are Education majors.
2. The number of Students that are doing their Masters. Pick of the any and give its properties.
3. The number of Students that are Math and have a GPA more than 3.50.
4. Convert the printList() method in your program to use lambdas.