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Class 1 Homework

5/4/2020

1. Sign up in GitHub.

Done. User: Kailey-R

1. Write a few lines about analytics

According to the Oxford dictionary, analytics is “the systematic computational analysis of data or statistics” or “information resulting from the systematic analysis of data or statistics.” One example from my work is looking at how many times consumers click on an item on the website, its price, and whether or not it was in stock. We analyze this data to making price and stocking decisions. Another example is visual machine/deep learning in order to enable autonomous vehicles.

1. Write up my understanding of what object oriented programming language is.

Object orientation programming (OOP) consists of:

1. Encapsulation – Encapsulation gets us away from procedural code where we define a group of functions and variables (properties and methods) in on object. Instead of having functions with many parameters, we have few or no parameters in the function. Instead, what would have been parameters are created as properties of the object. Since the properties and function(s) are highly related, they can be created as one unit (object). This can lead to data hiding, or abstraction.
2. Abstraction – Hide the intricacies of an object’s various properties and methods from the world. This results in a simpler interface. It can also reduce the impact in change. Because no code relates to the hidden properties and methods, changing those hidden properties and methods will not leak to the outside. An abstract example of this may be Python itself. I do not need to know how Python works behind the scenes to efficiently convert my code to binary.

Professor says abstraction is to write function/algorithm as simply as possible.

1. Inheritance – Define properties and methods/functions in one object, which related objects can inherit. An abstract example is that we can define an object as “human being” with the properties “two legs” and “two eyes” and the methods/functions walk() and breathe(). We can then create additional objects called male and female, which can inherit the human being object’s properties and methods, and they can have their own additional properties and methods. This helps reduce redundant code.
2. Polymorphism – allows you to implement multiple methods within the same class that use the same name but a different set of parameters. That is called [method overloading](https://docs.oracle.com/javase/tutorial/java/javaOO/methods.html) and represents a static form of polymorphism. (I had a hard time grasping this concept.)
3. Find 5 examples of interpreted languages & 5 examples of compiled languages.

The entire compiled language is converted directly into machine code. Compiled languages are faster, more efficient, and allow for more control over memory and CPU usage. Examples of compiled languages are C++, Erlang, Haskell, Rust, and Go.

Interpreters run through a program line by line and execute each command. The coder can change one line, and the translator then displays that change as it happens. Examples of interpreted languages are PHP, Ruby, Perl, Python, and JavaScript.

<https://www.freecodecamp.org/news/compiled-versus-interpreted-languages/>

1. Read about classification algorithms, write a paragraph, and think about a problem that can be solved using a classification algorithm

In classification algorithms, you can make predictions through a training set, like machine learning. Types of classification algorithms (most of which I do not comprehend) include logistic regression, Naïve Bayes classifier, decision tree, k-nearest neighbor, random forests, and neural networks. A problem that can be solved using a classification algorithm is email spam classification. Using a training set, Gmail can automatically send items to a spam folder. This algorithm undoubtedly improves over time as the training set grows and people identify things as not-spam.

Great resource: <https://www.edureka.co/blog/classification-algorithms/>